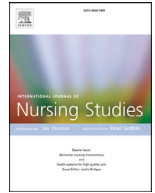




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Caring for the caregiver during COVID-19 outbreak: Does inclusive leadership improve psychological safety and curb psychological distress? A cross-sectional study

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ABSTRACT

Background: Public health emergencies and epidemics shatter the assumptions of the world as a safe place. Healthcare workers are at the forefront of such pressures resulting from a persistent threat to their safety and well being. It is therefore important to study such mechanisms that can influence and predict the psychological distress of nurses

Objectives: While there is an increasing number of studies on positive outcomes of leadership styles, their influence on curbing unwanted adverse outcomes is scarce. This study aims to observe the influence of an inclusive leadership style on psychological distress while assessing the mediating role of psychological safety. It uses the theoretical lens of job demands-resources theory and the theory of shattered assumptions to develop and test hypotheses.

Design: Cross-Sectional Study with Temporal Separation

Settings and Participants: The researchers recruited 451 on-duty registered nurses from 5 hospitals providing patient care during the highly infectious phase of COVID-19 in January 2020 in Wuhan city, the epicentre of the outbreak in China

Methods: After obtaining permission from hospital administration, data were collected through an online questionnaire survey in three stages with temporal separation to avoid common method bias. Partial least square structural equation modelling was used to analyze data. The study controlled for effects of age, gender, experience, working hours and education.

Results: Hypothesized relationships proved significant. Inclusive leadership has an inverse relationship with psychological distress with a strong path-coefficient. Psychological safety mediates the relationship between inclusive leadership and psychological distress while explaining 28.6% variance. Multi-group analysis results indicate no significant differences between respondents based on these control variables

Conclusions: Recurring or prolonged experiences of stress and anxiety at the workplace, without a mechanism to counter such effects, can culminate into psychological distress. Inclusive leadership style can serve as such a mechanism to curb psychological distress for healthcare workers by creating a psychologically safe environment.

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What is already known about the topic?

- Past research has examined the influence of organizational support and various positive leadership styles such as humble, transformational and transactional leadership styles in healthcare.

- Most research focuses on positive outcomes such as nurse's job satisfaction, quality of patient care, reduction in adverse events at hospitals and extra-role behaviours of nurses such as innovative work behaviour, work engagement, creative performance.
- Existing research on mental health and stress during COVID-19 includes some studies based on the sample drawn from the general public and healthcare workers. However, these studies merely measure the existence or non-existence of depression among respondents and do not examine the predictive roles of any managerial or organizational construct such as leadership style. Nurses' mental health and well-being have been studied under normal circumstances but not during traumatic events.

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What this paper adds

- It plugs the gap in existing literature while responding to calls by previous research to study the impact of leadership and psychological distress in the context of traumatic events.
- It adds new insights on the influence of inclusive leadership style in reducing the psychological distress of nurses and adds to existing knowledge about antecedents of psychological distress among healthcare workers
- It contributes to the literature by studying psychological safety as a mediating mechanism to reduce the psychological distress of nurses through inclusive leadership

1. Background

The novel Coronavirus disease (COVID-19) outbreak was first reported in December 2019 in Wuhan city, P.R. China. At the time of writing this paper, there were five new cases on the mainland during the second week of May 2020, one month after the lockdown restrictions were lifted (Xinhua, 2020); bringing the overall confirmed cases to 88,423 (68,134 in Hubei) including 81,785 patients discharged after recovery and 4,634 deaths (China Daily, 2020). COVID-19 has spread beyond China as a global pandemic across continents. As of July 16, 2020, there are over 13.3 million confirmed cases, including 579,319 deaths. The USA reported over 3,405,494 cases, Russia 746,369, Spain 256,619, the United Kingdom 291,377, Italy 243,344, Germany 199,726 and France 162,390, to name a few countries. The USA and the UK had the highest death toll with 135,807 and 44,968 deaths, respectively (WHO, 2020).

Epidemiological work links the onset of depression to exposure to different stressors (Stuke & Bermphohl, 2016). Healthcare workers are involved in physical as well as emotional work with social encounters during routine job tasks (Eriksen et al., 2006). The threat to safety at the workplace brings psychological distress for the healthcare workers as they face both psychosocial and mechanical stress at work (Wall et al., 1997). Among the various psychiatric disorders, depressive disorder is one of the most prevalent. It is associated with a significant decline in quality of life as well as an economic loss at the workplace (Kessler, 2012).

Nurses are exposed to life-threatening occupational risks during COVID-19 pandemic; face loneliness as they stay isolated and contained due to the highly contagious nature of the virus (Mo et al., 2020). Some even refrain from food intake to avoid taking toilet breaks as this would require changing protective gear; and some shaved their heads to reduce irritation from sweating (Smith et al., 2020). Their sound mental health is essential to their ability to care for patients of infectious disease. It is vital to identify factors that can cause depressive disorders at the workplace to prevent such disorders. Leadership roles should be studied because leaders can significantly influence employees' psychological distress levels. Fair leadership has been found to affect anxiety and stressors stemming from job tasks (Nielsen et al., 2018). Transformational leadership has proven to help nursing staff in avoiding adverse events at hospitals, to ensure quality care and better patient outcomes (Asif et al., 2019).

Hannah et al. (2014) argue for the need to go beyond the traditional concepts of leadership such as managerial ability or support to the informal leadership roles such as head nurses. Hutchinson and Jackson (2013) opine that researchers should explore a new line of thinking with respect to nursing leadership. It is important to explore the influencing mechanisms and multi-lateral explanations of the impact of leadership for the novel notions of the inclusive, responsible, servant or shared leadership styles. This can help address various drivers in multiple contexts of healthcare in modern times. Wong (2015) lays more emphasis

on research that helps develop and test theories encompassing the leadership of such personnel who are not in formal leadership roles. This study adds to the literature by focusing on the importance of clinical leadership's inclusive behaviour at the centre of healthcare services.

Nurses face higher psychological job demands due to occupational hazards during infection control, isolation and containment. Inclusive leadership support and psychological safety can serve as external and internal resources to handle these job demands, respectively (Janoff-Bulman, 1992). Inclusive leaders are accessible and open to having conversations with subordinates about the things that are important to them. It helps create a positive environment with a sense of psychological safety and lower levels of distress. Mutual trust and respect are the core tools of inclusive leadership that improve psychological safety beliefs (Hassan & Jiang, 2019).

Research on the outcomes of inclusive leadership is comparatively in early stages and empirical evidence on the influences of this leadership style in healthcare is scarce. While studies have been carried out on the influence of positive leadership styles on employee behaviour in the health sector (Brooks et al., 2018; Kessel et al., 2012), there is a scarcity of studies on the influence of inclusive leadership style. Specifically, its impact on employees' mental health, safety and well being during a public health emergency (Wang et al., 2019), disaster or traumatic event (Birkeland et al., 2016) requires further research. Most prior research on COVID-19 focuses on measuring psychological distress levels and comparison across groups such as age and gender (Huang & Zhao, 2020; Lee & You, 2020; Mazza et al., 2020; Smith et al., 2020). These do not address the mechanisms that influence psychological distress.

This study makes a contribution to the literature in three ways. First, it fills the existing gap in research on the impact of inclusive leadership on psychological distress instead of merely measuring the existence of psychological distress levels. Second, it focuses on the mediating mechanism of psychological safety due to its impact in helping reduce psychological distress in work settings. Third, it responds to call for research by Birkeland et al. (2016) to examine psychological distress and leadership behaviour during a traumatic event i.e. the epidemic in Wuhan in this study, as compared to most studies that focus on behaviours at the workplace after such an event. Fourth, it addresses the gap in literature with respect to the impact of various styles of leadership on the level of health-related problems amongst nurses working in critical care. This study is of significance because it will also enable authors to study whether the impact of these factors will vary in the long run after the epidemic is over, by means of extending this research into a longitudinal study through data collection at another point in time in future.

2. Literature review and hypotheses development

2.1. Inclusive leadership

Nembhard and Edmondson (2006) define inclusive leadership as "words and deeds by a leader or leaders that indicate an invitation and appreciation for others' contributions". It refers to "leaders who exhibit visibility, accessibility, and availability in their interactions with followers (Carmeli et al., 2010). Inclusive leaders try to minimize these differences between themselves and subordinates and ensure the employees are acknowledged for their contributions irrespective of their hierarchical level at the workplace (Hassan & Jiang, 2019). To that end, inclusive leaders focus on practices that value employee diversity in decision-making processes. Inclusive leaders make employees feel comfortable and encourage

them to share opinions without being afraid of power distance or status differences.

Inclusive leadership is somewhat comparable to participative leadership style; yet it is different because it conceptually lays a broader focus on work contexts with inherent power distance and status differences (Javed et al., 2017). Max Weber's theory of charismatic leadership posits that natural leaders who come to save the day in moments of distress – be it psychological, physical, ethical, religious, economic or even political – were such persons who neither held office nor were formally appointed professionals, but rather were gifted people with extraordinary talents (Weber, 1947). Inclusive leadership is similar to one of the key dimensions that make up charismatic leadership i.e. the relational dimension. Inclusive leadership's core skills are based on the relationship and support between the leaders and subordinates (Nembhard & Edmondson, 2006). Charisma is the "affectual relationship between leader and followers developing as the historical product of the interaction between person and situation" (Epley & Christi, 2015). It has been argued that subordinates play a key role during different stages of a charismatic relationship process (Howell & Shamir, 2005); indicating that followers should have a voice. This aspect also translates into inclusive leadership style which encourages subordinates to be open. However, more recently, literature has called to forego the labels such as charismatic leadership style claiming them empirically less distinct and have favored the study of other clearly defined aspects of leadership (Van Knippenberg & Sitkin, 2013). Inclusive leadership is one such clear and distinct style that evolved partly from charismatic style.

2.2. Inclusive leadership and psychological distress

Psychological distress refers to "general symptoms of depression and anxiety and reflects both a stable trait component and a state component susceptible to changes after external events" (Ormel & Schaufeli, 1991). Work-related stress activates "dysfunctional intermediate psychological and physiological processes" which can lead to an adverse impact on employee health (Nielsen et al., 2012). Ultimately, recurring exposure to stressful situations can prolong the psychological activation of such dysfunctional processes. This causes increased worrying, sulking, and rumination which eventually culminates in the form of psychological distress (Horwitz, 2007).

During the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003, the predecessor to COVID-19, Chan and Huak (2004) reported that approximately 25% of nurses in particular, and 20% of healthcare workers in general, suffered from post-traumatic stress disorder. The frontline healthcare workers during the SARS outbreak displayed chronic stress as well as higher levels of depression and anxiety (McAlonan et al., 2007). Although the term inclusive leadership was coined much later in 2006, the coping strategies evidently used by healthcare workers during the SARS outbreak were very similar to the characteristics of inclusive behaviour. Most important strategies that proved significant in reducing psychological distress among nurses included clarity in communicating directives for precautionary measures, feedback by subordinates in order to obtain support from their managers and support from co-workers (Chan & Huak, 2004).

The theory of shattered assumptions (Janoff-Bulman, 1992) postulates that when individuals are exposed to traumatic events, it shatters their basic cognitive schemas of how they see the world, perceive others people, and themselves. Abrupt changes in the core schemas are a threat to employees' psychological conditions, and there is a need for a stable mechanism in the conceptual systems to buffer such events. In case no such mechanism is devised, it may result in trauma and health problems (Birkeland et al.,

2016). Public health emergencies and epidemics change the cognitive schemas and employee perceptions of the world as a safe place (Janoff-Bulman, 1992). The behaviour of leadership can be instrumental in how such traumatic events impact the health of affected employees (Birkeland et al., 2015). Positive forms of leadership such as inclusive leadership help in rebuild the confidence of employees through interaction and trustworthiness (George & Zhou, 2007). Inclusive leadership contributes to the re-creation of employee perceptions of the world as a safe place by enhancing psychological meaningfulness and vitality (Binyamin & Brender-Ilan, 2018); thereby diminishing the negative impact of the adverse events such as public health emergencies and epidemics.

The relationship of leaders with their subordinates develops and changes over time (Bluedorn & Jaussi, 2008; Shamir, 2011). Especially during testing periods, such as public health emergencies and epidemics, nurses experience feelings of vulnerability. During such times subordinates may be more eager to scrutinize leaders (Hurst, 1995). It is possible that they process stress in a way that helps make sense of current threat and fears i.e. appraising others' reactions during the epidemic in a negative way (Ehlers & Clark, 2000).

How the workplace responds to traumatic events can result in a strong influence on psychological distress (Byron & Peterson, 2002). The behaviour of leaders either intensifies or soothes the outcome of extreme situations and stressful events (Hannah et al., 2009). A study on the psychological effects resulting from a terrorist attack in Oslo concluded that a higher level of supportive leadership is associated with a lower level of psychological distress (Birkeland et al., 2015). Several studies in the extant literature examine the relationship between the work environment and psychological distress. However, almost all of these are limited to general daily routines where employees have rare chances of suffering from high psychological distress (Elovainio et al., 2013; Ybema & van den Bos, 2010). In contrast, nurses who have undergone the experience of COVID-19 outbreak may be more susceptible to psychological distress due to the extreme situation at the workplace.

This paper examines the baseline research question stemming from past research about the influences of inclusive leadership and links it to psychological distress among healthcare workers based on the propositions put forth in the job demands-resources theory (Bakker Arnold & Demerouti, 2007). Building on job demands-resources theory's fundamental principle, nurses are more likely to undergo work-related stress because their job demands are greater than the resources available to meet those demands. This resources insufficiency causes feelings of anxiety while employees try to achieve targeted performance goals (Bakker & Demerouti, 2014; Crawford et al., 2010). In their review of the literature, Stuke and Bempohl (2016) found that high job demands had a significant influence on job stress level among employees. More recently, Cheng et al. (2020) observed that job demands are related to the mental health of healthcare workers. Gleason et al. (2020) found that disruptive behaviour and low job resources are related to psychological conditions. Based on 18,702 observations, Oshio et al. (2018) proved that job demands-resources factors have a significant effect on psychological distress.

During the epidemic in Wuhan, the job demands of nurses have increased and intensified. They had to face a shortage in medical supplies and safety materials such as masks, protective gear and goggles, which are compulsory during interaction with patients (Yu & Li, 2020). Further to these previous arguments, this study posits that psychological distress has relatively increased in recent times. The time-trend effects require a significant consideration due to the repeated instances of epidemic outbreaks in the past two decades. The review of the literature on service theory shows that healthcare workers are increasingly performing roles that de-

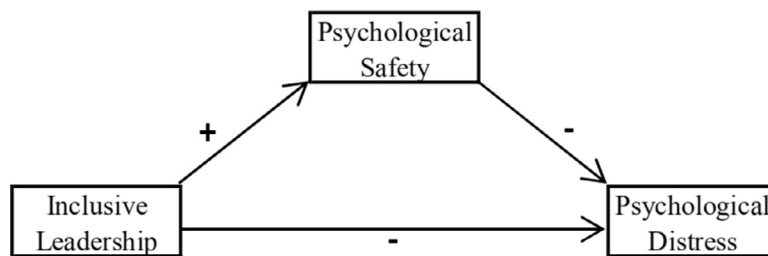


Fig. 1. Research model.

mand additional competencies such as being more collaborative and more risk-tolerant (Bowen, 2016; Stuke & Bermphohl, 2016).

From a psychological point of view, job demands are higher during an epidemic and require more mental exertion. Inclusive leadership plays a role in curbing such psychological pressures by providing the employees with ease and peace of mind because they believe there is someone they can turn to in times of need. Inclusive leaders are inherently keen listeners; thus, most situations of hypertension or mental stress can be alleviated through regular interaction of subordinates with such leaders. The supportive behaviour of inclusive leaders minimizes uncertainty, anxiety, and role stress. Therefore, this study hypothesizes that:

Hypothesis 1. Inclusive leadership has an inverse relationship with the psychological distress of healthcare workers during an epidemic.

2.3. The mediating role of psychological safety

Edmondson (2014) jokes while explaining psychological safety, "It turns out no one wakes up in the morning and jumps out of bed because they can't wait to get to work today to look ignorant, incompetent, intrusive, or negative". Psychological safety is defined as "individuals' perceptions that they shall not be humiliated for voicing their concerns or punished for mistakes at the workplace" (Edmondson, 1999; Edmondson, 2014). Scholars have noticed that "the degree of psychological safety varies across medicine" (Edmondson & Lei, 2014; Nembhard & Edmondson, 2006; Rosenbaum, 2019), thus indicating a need for more research on its role and influencing factors in healthcare services.

In the field of medicine, it is frequently observed that managers try to manage others' impression of them to protect their professional image (Edmondson, 2003). A recent study on head nurses in China found that leaders were more focused on improved work efficiency instead of paying attention to their leadership roles and expectations (Wang et al., 2019). Leaders in clinical settings need to focus on adding meaning to work. They must remind people about the nature of their work and the potential of things to go wrong (Edmondson, 2017). Inclusive leaders' openness ensures these aspects, which in turn create psychological safety at the workplace. Inclusive leaders extend not just intellectual support but also connect with subordinates at an emotional level (Hirak et al., 2012). This maintains such a work context that helps employees experience a higher level of psychological safety and motivates them towards proactive behaviour (Hassan & Jiang, 2019; Javed et al., 2017; Mikyoung & Moon, 2019).

Inclusive leadership refers to such leaders who interact with subordinates in a culture of openness, accessibility, and availability to help them at any time (Nembhard & Edmondson, 2006). This inclusive behaviour helps bring about a positive mood among employees and at the workplace in general (Hollander, 2009) which in turn, as a pleasant affective state, reduces the potential of em-

ployee psychological distress. Inclusive leadership promotes inclusiveness through openness (Choi et al., 2015), allowing for employees to thrive at the workplace. If leaders are not open and hide information or knowledge, this can lead to negative outcomes through deteriorated psychological safety (Jiang et al., 2019).

In a recent study, Mikyoung and Moon (2019) proved that inclusive leadership is positively related to psychological safety, which in turn plays a mediating role between inclusive leadership and employee extra-role behaviours. Javed et al. (2017) demonstrated a positive relationship between inclusive leadership, psychological safety and the mediating role of psychological safety between inclusive leadership and employees' extra-role behaviour. Inclusive leadership promotes a forgiveness climate which affects the service recovery performance of employees. Another study by Guchait et al. (2019) found that psychological safety mediates between forgiveness climate and employees' service recovery. Along the same lines, this paper argues that psychological safety can mediate between inclusive leadership and psychological distress, such that inclusive leadership reduces psychological distress amongst employees during an epidemic due to the positive environment of psychological safety created by inclusive leadership. This study makes a contribution in the context of public health emergencies involving epidemics. It helps understand the mechanism that links IL's influence on psychological distress by fostering employees' occupational wellbeing. Therefore, we assume that psychological safety is a connecting mechanism in the relationship between inclusive leadership and positive outcomes such as extra role behaviour (Javed et al., 2019) and a positive mindset with lower levels of psychological distress (Fig. 1). The above discussion leads us to hypothesize that:

Hypothesis 2. Psychological Safety mediates the relationship between inclusive leadership and Psychological Distress of healthcare workers during an epidemic

3. Methods

3.1. Sample and procedure

The researchers met with nursing staff co-chiefs at five hospitals in Wuhan and explained the purpose of the research in order to obtain permission, and explained the procedure. At least one head nurse was also present in the meeting. A web-based questionnaire with a cross-sectional study design was used due to restrictions on the mobility of unrelated personnel in the hospitals. A group chat was created by one of the authors on the Wechat platform, the application which is most commonly used by the Chinese population. The QR code of this group was printed on an A4 sized paper along with a disclosure statement explaining that the purpose of the group was to find participants for an academic research survey; that it was voluntary and results were to be analyzed in aggregate without identifying any individual; assured them of con-

Confidentiality; and clearly stated that joining the group would constitute their informed consent to participate in the research. Head nurses placed this QR code and disclosure statement on the notice boards near nurse reporting desks and duty stations. A total of 497 nurses joined the group chat (the first 100 by QR code, and subsequently through invitation by the group chat members to their co-workers). The research plan was followed as initially designed with only one change. The researchers had planned to explain the steps of the study in person to the nurses during a meeting in the presence of the head nurses. However, due to a sharp increase in infections and the general public rushing to the hospitals, it became impossible for irrelevant personnel such as the researchers to enter the hospitals. Therefore, the instructional meetings were held by the head nurses (who were present in the initial meetings). They explained the procedure of this study to the participants. Also, the procedure and dates of the three phases of data collection were also included in the displayed disclosure statements before the data collection. At all three times of data collection, the authors coordinated with the head nurses and asked for feedback from participants in the Wechat group to run checks to see if there were any questions or points of confusion. At all times, the researchers ensured respondents felt comfortable and understood the process. The progress of filling out the questionnaire was monitored by the authors and reinforced using reminders in the group chat at least once 12 hours after the initial distribution of the online questionnaire link. It was anticipated that easy access to the questionnaire via website links would require less effort than a paper and pencil method. This proved to be the case as the study received a sufficiently high number of responses as compared to the minimum sample size required statistically.

The data were collected with temporal separation to avoid common method bias as per recommendations of Cortina and Landis (2013). A multi-stage survey approach helps provide superior quality data and reduces the potential of common-method variance bias. Time-variant measures improve the reliability and validity of the measurement model. This temporal separation helps establish causality (Podsakoff et al., 2012).

Data for the marker variable were collected at time one on January 13, 2020, along with demographics; data for psychological distress and psychological safety were collected at time two on January 15, 2020, while data for inclusive leadership was collected at time three on February 15, 2020. The interval between time one and time two was shorter (two days) because the data being collected was for variables that were less likely to affect each other's responses. This was so because data collection at time 1 included demographics, marker variable and control variable data, while time 2 involved the dependent variable and the mediating variable. When respondents fill out the questions for all the variables in one go, they may anticipate the nature of the desirable

responses and falsify responses in order to appear consistent and rational. This scenario is dubbed as consistency motif (Podsakoff & Organ, 1986) which can cause some responses to one variable to affect the responses to another variable in the questionnaire if data were collected simultaneously (Podsakoff et al., 2003). The interval between time 2 (dependent and mediation variable) and time 3 (independent variable) was kept longer because the variables at these two time points were the main constructs of the study and researchers wanted to ensure that response to time two variables did not affect the responses to variables at time 3. The authors placed the questionnaire on a third-party Chinese service provider's website, and its URL was shared to the group chat. No contact information was required except for the Wechat ID to match the respondents with the nurses in the group chat. Nurses had 48 hours to open and fill out the online questionnaire at their convenience following the time of posting the link of the questionnaire in the group chat. A timer was associated with the questionnaires filled out online to assess the time taken by each respondent. This helped researchers screen for unusually faster response times which may indicate that respondents did not exhibit due diligence in reading the statements before answering. The average time taken to fill the questionnaire, ranged between 6 to 10 minutes (Time 1), 5 to 8 minutes (Time 2) and 4 to 6 minutes (Time 3). At Time 1 and Time 2, a total of 483 nurses filled out the online questionnaire for demographics, marker variable, psychological safety and psychological distress. Twelve responses that took less than 3 minutes were discarded. Another four responses were removed while screening for missing data, yielding 467 usable responses. These respondents were retained, and the nurses whose responses were unusable, or those who did not participate, were removed from the group chat. At time 3, February 15, 2020, these 467 respondents were asked to fill out the questionnaire related to inclusive leadership out of which 459 responses were received while 451 (90.74%) responses were deemed usable after screening for an unreasonably short duration and missing values.

3.2. Participants

Hospital nurses in China have five career levels: nurse, senior nurse, supervisor nurse, co-chief superintendent nurse and chief superintendent nurse. Moreover, most Chinese head nurses are supervisor nurses or co-chief superintendent nurses (Wang et al., 2019). The data were collected from nurses, senior nurses and supervisor nurses. The respondents (Table 1) included only the on-duty nurses and did not involve those on leave. The participants also invited their co-worker nurses to take part in the study. Thus, the sampling technique used for this study was mixed/snowball sampling. To ensure the adequacy of the sample size, the researchers followed the expert advice of Hair et al. (2013), while

Table 1
Sample profile.

	n	%age		n	%age
Gender			Education		
Male	96	21.29%	High School/Diploma	145	32.15%
Female	355	78.71%	Bachelor Degree	267	59.20%
Age (Years)			Master Degree	39	8.65%
<25	96	21.29%	Designations/Cadres		
25 < 35	138	30.60%	Nurse	239	53.0%
35 <45	157	34.81%	Senior Nurse	124	27.5%
45 & Older	60	13.30%	Supervisor Nurse	88	19.5%
Experience (Years)			Working Hours per Week		
01 < 03	197	43.68%	<40	94	20.8%
03 < 05	157	34.81%	40 < 48	143	31.7%
05 < 07	54	11.97%	48 < 60	171	37.9%
07 or more	43	9.53%	60 or more	43	9.5%

not dismissing the '10 times rule' by Gefen and Straub (2004), commonly used in studies using partial least squares (PLS)-SEM. Hair et al. (2013) suggest that the sample size should be based on a power analysis taking into consideration the largest number of predictors pointing towards a single variable. In this study, there were two predictors pointing towards the dependent variable. In such a setting, the minimum recommended sample size is 52, for two predictors at a five per cent significance level for a minimum 0.25 R-Square with 80% statistical power (Hair et al., 2013). The sample size of 451 is more than satisfactory for a PLS-SEM analysis

3.3. Common method bias

There was no common method bias detected in our data after running the full collinearity checks for VIF values suggested by Kock (2015). The researchers ran the PLS Algorithm 3 times by treating each of the 3 variables as dependent variables one by one. On all three occasions, the inner VIF values were lower than 3.3 at the factor level, suggesting there was no common method bias. Additionally, to remove the possibility of common method bias, the researchers also used a priori measured marker variable approach (Chin et al., 2013). A 3-item scale of computer self-efficacy adapted from Taylor and Todd (1995) was selected as a marker variable, and it was theoretically unrelated to model constructs. Data were collected for the marker variable before the data for the main constructs. The differences between the values of R-square in psychological safety and psychological distress before and after adding the marker variable were less than 1 per cent, well below the suggested 10 per cent limit (Chin et al., 2013). This proves the responses were free from any bias.

3.4. Measures

All Measures have been adopted from previous studies and have a well-established reliability over time. *Inclusive Leadership* was measured using a 9-item scale adapted from Carmeli et al. (2010). Sample questions included "The leader is attentive to new opportunities to improve work processes" (openness); "The leader is available for consultation on problems" and "The leader is accessible for discussing emerging problems". The reliability was checked using Cronbach's alpha (α) and composite reliability which were 0.85 and 0.88, respectively. These were above the recommended value of 0.70. Validity was assessed with the average variance extracted (AVE), which was 0.503, above the minimum required benchmark of 0.50 (Hair et al., 2019).

Psychological safety was measured with a 7-item scale developed by Edmondson (1999). Sample questions are, "It is safe to take a risk on this team." and "Members of this team are able to bring up problems and tough issues". Cronbach's α (0.86) and composite reliability (0.86) values were above the required level, and the AVE was 0.507. Both inclusive leadership and psychological safety were measured on a 5-point Likert-type scale (1 = strongly disagree, to 5 = strongly agree).

Psychological distress was measured using the 6-item (K6) scale developed by Kessler and Mroczek (1994) for non-specific psychological distress over 30 preceding days (0=none to 4=all the time), with the score ranging from zero to 24. Cronbach's α was 0.82, and the composite reliability was 0.87, with an average variance extracted value of 0.530. The Chinese and Korean versions were recently validated for Asian American respondents by Jang et al. (2018). The K6 scale has been regularly used by National Health Services in the United Kingdom for annual surveys between 1997 and 2015 (Patel et al., 2018) and multiple studies have shown psychometric properties to be acceptable (Jong Won

& Sun Hae, 2015; Patel et al., 2018). The mean scores for inclusive leadership, psychological safety and psychological distress were 5.46, 5.53 and 12.80.

3.5. Control variables

Based on past studies on psychological distress (Eriksen et al., 2006; Stuke & Bermpohl, 2016), control variables of age, gender, education, experience and working hours were included.

3.6. Data analysis

The data were analyzed using SmartPLS software, version 3.2.9 (Ringle et al., 2015). Partial Least square structural equation modelling (PLS-SEM) was used as it performs better with predictive models (Hair et al., 2013). Moreover, it simultaneously estimates relationships between multiple independent and dependent variables (of the structural models) and the latent, multiple observed or unobserved constructs of the measurement models (Sarstedt et al., 2017).

To check whether control variables had any confounding effect on the dependent variable, the differences between responses were analyzed by splitting data into two groups for each of the control variables and the structural model was run for each control variable separately. The multi-group analysis was run choosing the percentile bootstrap setting in smartPLS software to examine the differences between respondents based on working hours (<48 hours and 48 or more hours); gender (Females = 1, Males = 2), age (< 34 years and 35 years or older), experience (< 5 years and 5 years or more).

3.7. Ethics and informed consent

The sample and procedure section above clarifies that the prior permissions were obtained from the hospital administration in personal meetings where the nature of the study was explained to be pure academic research. The respondents were provided with full disclosure, voluntary nature, confidentiality statements which indicated that joining the group chat to participate in the survey would constitute informed consent.

4. Results

4.1. Assessment results of measurement model

The psychometric features of the measurement model were assessed using confirmatory factor analysis (Hair et al., 2020). The item reliability of a construct is determined by its factor loading (the correlation between each item and the respective construct.) The threshold for the factor loading of an indicator was set at 0.5 (Hair et al., 2017). The factor loadings (Table 2) ranged between 0.582 and 0.801. Most of the item values exceeded 0.70, with significant t-statistics ($p < 0.001$). However, one item each for inclusive leadership and psychological safety with an outer loading of less than 0.50 was removed as per recommendations by experts (Hair et al., 2017).

The construct-level internal reliability was established using Cronbach's alpha and composite reliability (CR). The composite reliability determines how well its own items measure a construct; it is the shared variance among the indicators used to measure a construct. The recommended value is 0.70 (Hair et al., 2017). All the constructs displayed high CR scores exceeding 0.8, indicating that the constructs had good internal consistency and reliability. The convergent validity of the constructs was confirmed by following the Fornell and Larcker (1981) criterion, as all the

Table 2
Confirmatory factor analysis.

Indicators	Factor Loadings	Mean	Standard Deviation	T Statistics	P Values
IL1 <- IL	0.789	0.790	0.025	31.189	<0.001
IL2 <- IL	0.747	0.747	0.026	29.263	<0.001
IL3 <- IL	0.773	0.774	0.027	28.384	<0.001
IL4 <- IL	0.755	0.754	0.026	29.307	<0.001
IL5 <- IL	0.582	0.582	0.037	15.710	<0.001
IL6 <- IL	0.624	0.624	0.030	20.966	<0.001
IL7 <- IL	0.702	0.703	0.035	19.828	<0.001
IL8 <- IL	0.675	0.674	0.033	20.636	<0.001
PD1 <- PD	0.774	0.764	0.066	11.704	<0.001
PD2 <- PD	0.653	0.642	0.084	7.812	<0.001
PD3 <- PD	0.718	0.708	0.060	11.991	<0.001
PD4 <- PD	0.782	0.772	0.067	11.642	<0.001
PD5 <- PD	0.676	0.664	0.080	8.472	<0.001
PD6 <- PD	0.667	0.670	0.062	10.771	<0.001
PS1 <- PS	0.801	0.802	0.023	34.744	<0.001
PS3 <- PS	0.732	0.730	0.029	25.367	<0.001
PS4 <- PS	0.613	0.616	0.037	16.800	<0.001
PS5 <- PS	0.606	0.603	0.044	13.664	<0.001
PS6 <- PS	0.791	0.790	0.023	34.713	<0.001
PS7 <- PS	0.795	0.794	0.018	43.292	<0.001

Note: IL = Inclusive leadership, PS = Psychological Safety, PD = Psychological distress.

Table 3
Discriminant validity.

	IL	PD	PS
IL	0.71	0.393	0.813
PD	-0.503	0.711	0.331
PS	0.658	-0.476	0.729

Note: IL = Inclusive leadership, PS = Psychological Safety, PD = Psychological distress.

AVE values were higher than 0.50 (Sarstedt et al., 2017). The discriminant validity is a measure indicating that the constructs are different from each other (see It was assessed using the Fornell-Larcker criterion as well as the heterotrait-monotrait (HTMT) criterion developed by Henseler et al. (2014) and the values were below the recommended conservative threshold of 0.85 (Sarstedt et al., 2017). Table 3 displays the square root of AVE values along diagonal, while HTMT values are above the diagonal.

4.2. Model quality and strength

The smartPLS-SEM technique used in this study is a variance-based technique rather than a covariance-based technique, which is used by other softwares such as Statistical Package for the Social Sciences (SPSS) and AMOS. It can run multiple relationships between simultaneous multiple independent variables with dependent variables. The model fit in smartPLS is termed as model strength and quality. This is assessed by calculating the strength of specific paths signifying hypothesized relationship known as interaction effects denoted by f^2 and predictive relevance denoted by Q^2 values (Sarstedt et al., 2017). The interaction effect obtained using f^2 values was substantially large (>0.35) for interaction be-

tween inclusive leadership and psychological safety and within an acceptable level (0.02 or higher) for interactions of both inclusive leadership and psychological safety with psychological distress as per recommendations made by Cohen (1988). A Q^2 value of greater than zero implies that the model has good predictive relevance (Chin, 1998; Chin, 2010). The Q^2 values were obtained using the Blindfolding function and were above zero, suggesting significant predictive relevance.

4.3. Assessment of the structural model

A 5000-sampled bias-corrected bootstrap was run with a 95 per cent confidence level to generate the t-values (Hair et al., 2017; Sarstedt et al., 2016) using a two-tailed estimation (Hair et al., 2013). Keeping this in mind, and based on the t-value rule of thumb for the interpretation of a two-tailed test, i.e., 1.96, the hypothesized relationships proved to be significant. Inclusive leadership ($\beta = -0.316$, $t = 5.825$), together with psychological safety ($\beta = -0.266$) explained 28.6 % variance in psychological distress. Inclusive leadership ($\beta=0.684$) explained 46.8% variance in psychological safety. The mediation result for psychological safety was assessed through the built-in calculation system in the smartPLS software with 'specific indirect effect' values displayed in the reports menu.

The specific indirect effect was significant ($\beta = -0.182$, $t = 4.701$) and proved to be a complementary mediator between inclusive leadership and psychological distress as inclusive leadership also has a significant negative effect on psychological distress. Table 4 displays R-square values before and after adding the maker variable to the model, proving that the results were not affected by method bias.

Table 4
Results of structural model & specific indirect effect.

	Mean	Standard Deviation	t-value	P-Value	2.5% CI	97.5% CI	Hypotheses	Remarks
IL -> PD	-0.316	0.054	5.825	<0.001	-0.437	-0.225	H1 = Supported	
IL -> PS -> PD	-0.182	0.044	4.701	<0.001	-0.245	-0.079	H2 = Supported	
IL -> PS	0.684	0.019	31.872	<0.001	0.669	0.746	-	
PS -> PD	-0.266	0.058	4.893	<0.001	-0.343	-0.108	-	

Note: IL = Inclusive leadership, PS = Psychological Safety, PD = Psychological distress.

4.4. Multi-group analysis results

A percentile bootstrap with 5000 subsamples was run for PLS-MGA. Benchmarks proposed in the literature state that differences are indicated when the p-value differential column displays values below 0.05 or above 0.95 (Ringle et al., 2015). Respondents were divided into age groups of young (under 35 years) and old (35 years and above); gender (1 = female, 2 = male); less experienced (<5 years) and more experienced (5 years or more) and working hours (less than 48 hours and 48 hours or more). The p-values show no significant differences between respondents on the bases of age, gender, education, or experience. However, young respondents differed in their response to the relationship of inclusive leadership and psychological distress. The parametric and Welch-Satterthwaite results were also found to be consistent with these results.

5. Discussion

This paper aimed to study the relationship between inclusive leadership and psychological distress while evaluating the mediating mechanism of psychological safety. Inclusive leadership creates an environment of psychological safety, and through this mechanism, the leaders help reduce psychological distress during strenuous conditions such as an epidemic. The results show that inclusive leadership is positively associated with psychological safety which is similar to recent studies by Mikyoung and Moon (2019) and Javed et al. (2017). It further extends those results by providing empirical evidence that inclusive leadership has a significant negative effect on the psychological distress of nurses during public health emergencies and traumatic events. Being exposed to critical epidemic diseases is bound to produce emotional stress and anxiety when healthcare workers feel unsafe.

Previous researchers have emphasized the management of nurses under normal circumstances (Choi et al., 2017; Masood & Afsar, 2017) rather than in situations of public health emergencies such as a pandemic. This study compensates for this gap in the literature. The results suggest inclusive leaders create a more open and psychologically safe environment for healthcare workers. This, in turn, helps maintain and improve employees' vitality and reduce psychological distress, which facilitates contribution and ability to focus at work.

The current study's results showed a high level of inclusive leadership behaviour among nursing leaders in Wuhan with a mean score of 5.46, which differs from a previous study by Wang et al. (2019) that claimed that the head nurses in China exhibit very low level of inclusive leadership. Inclusive leadership is one of the positive leadership styles studied in this paper due to its impact on the psychological distress of nurses working during the COVID-19 epidemic. The results show that a positive leadership style reduces distress levels. This result is similar to a previous study's results, which had confirmed the influence of a positive leadership style on the psychological distress of victims of a traumatic event (Birkeland et al., 2015).

On the other hand, this study contradicts the results of a previous study by Eriksen et al. (2006) that found there was no relationship between work factors and psychological distress. It also differs from another study's results, which found positive leadership styles were not significantly related to psychological distress (Nielsen et al., 2018). A longitudinal study by Birkeland et al. (2016) also found that there was no relation between positive leadership styles and psychological distress in the long run. However, it can be argued that such studies were conducted under normal conditions and not in public health emergency situations. Moreover, although those studies included certain positive leadership styles, they did not study inclusive leadership style directly.

Although some previous studies have shown differences between respondents based on age (Huang & Zhao, 2020), gender (Lee & You, 2020), this study showed no differences between respondents based on these confounding variables. This shows that inclusive leadership has a negative impact on psychological distress across all respondents, irrespective of these confounding effects.

This study contributes to the existing literature by i) responding to call for research by Birkeland et al. (2016) to examine effects of leadership roles during a traumatic event, i.e., the epidemic in Wuhan; ii) filling the gap in research on effects of inclusive leadership on psychological distress, and examining the mediating role of psychological safety between inclusive leadership and psychological distress. Moreover, it also addresses the gap in the literature with respect to the impact of inclusive leadership style amongst nurses working in critical care, which is a first.

This study adds to knowledge by providing indirect support for job demands-resources theory. Although this study's empirical context does not measure job demands-resources at the workplace, it was used as a theoretical lens to support hypotheses development and interpret the subsequent results. The difference between available job resources and job demands predicts role stress because nurses perform their tasks using insufficient resources during epidemics. When exposed to increased job demands and diminishing resources, they not only experience stress episodes but also become prone to prolonged psychological distress as well. This study's theoretical expectations proposed during hypotheses development concur with the results of empirical analysis. The shift in the balance between job demands and resources among healthcare workers coincides with increased psychological distress during an epidemic. The strong empirical support suggests that the application of job demands-resources theory can further advance research in the health services sector (Gabler et al., 2017).

This study also validates the theory of shattered assumptions by Janoff-Bulman (1992), which posits that situations such as epidemics bring trauma and shatter the employee perceptions of the world being a safe place. Inclusive leadership can serve as such a mechanism to rebuild these perceptions. With a leader who is open and available, employees appreciate the supervisor's recognition of their emotions of fear and threat. This way, the emotional toll and demands faced by subordinates are subdued, leading to reduced levels of psychological distress (Tucker et al., 2020).

The resources under job demands-resources theory primarily constitute internal resources of psychological capital, work autonomy, and value along with external resources of leadership styles, fringe benefits and social support (Bakker & Demerouti, 2014; Bakker Arnold & Demerouti, 2007). Psychological safety serves as an internal resource, and inclusive leadership serves as an external resource that motivates the development of a positive mood with an open and accessible environment. Using these tenets of the job demands-resources theory, hospital leadership can introduce critical remedial practices to ensure an inclusive environment, which may help prevent an imbalance between psychological resources and demands. If such an imbalance can be avoided, it is likely to reduce the occurrence of sudden negative workplace outcomes in general and in particular, under increased risks in epidemiological work.

Managing nurses has emerged as a key issue in recent research in healthcare (Wang et al., 2019). To establish a psychologically safe environment for the healthcare workers, leaders should primarily focus on fear and safety concerns during an epidemic. For nursing leadership, the results of the study prove that an inclusive leadership style can be effective in the implementation of mental health support initiatives as a built-in mechanism for nurses. Training programs on inclusive leadership and incentives should be introduced for nurses in informal managing roles to inculcate a culture of openness, availability and accessibility.

This study adds to the literature by validating the effectiveness of the inherent functions of an inclusive leadership style in curbing psychological distress during an epidemic. As evident in studies on SARS with respect to coping strategies for healthcare workers, supportive behaviours, and clear communication has been the key to ensuring nurses' mental health and well being. These characteristics are similar to the inclusive leadership style, which was only introduced in years after the SARS epidemic. In this spirit, this study validates the inclusive leadership style due to its impact during COVID-19, therefore following the same pattern as observed in the SARS epidemic.

By creating an inclusive environment, open and accessible leadership inspires psychological safety among co-workers and subordinates to be forthcoming, sharing, and to be helpful to others. This belief stems from the concept of psychological safety, the idea that there is someone to turn to in times of need, and helps reduce psychological distress among healthcare workers. It is important not just for the workers but for the patients as well. A mentally healthy and psychologically relaxed nurse is less likely to make mistakes, which reduces the likelihood of adverse events at hospitals, leading to improved patient outcomes.

6. Limitations and future research

This study is related to nursing staff only, and caution is advised when generalizing the findings to another cadre, industry or type of firms. This study was conducted in Chinese hospitals in Wuhan at the epicentre of the COVID-19 outbreak; its generalizability may be improved with further research by drawing samples from American, Australian or European regions that are currently suffering from a highly infectious phase of COVID-19 and healthcare workers are highly likely to face psychological distress. A web-based questionnaire was used in this study. Although it comes with the advantages of faster and more cost-effective responses, past research shows that it may have some limitations such as lower completion rates and selective participation, which may affect the point estimates of the dependent variable. However, this was not the case in the current study. A cross-sectional design was a limitation of this study with single-source data, although there was no contamination due to common method bias. For future studies, it is suggested that multi-source studies on inclusive leadership in healthcare could be carried out with additional outcome variables related to extra-role behaviours of employees as reported by peers or supervisors. Another direction for future research could be extending this research into a longitudinal study on inclusive leadership, comparing its effects on psychological distress during an epidemic with its effects under normal circumstances after the epidemic is over. This would help establish whether the impact of inclusive leadership and psychological safety on psychological distress varies in the long run after the epidemic is over.

7. Conclusions

Recurring or prolonged experiences of stress and anxiety at the workplace, without a mechanism to counter such effects, can culminate into psychological distress. This study shows that inclusive leadership in healthcare is vital in avoiding psychological distress and helps nurses maintain sound mental health. Weber's charismatic style of leadership informed the development of inclusive leadership in this study. Inclusive leadership is distinct from other styles, but it has evolved, in part, based on inspiration from the charismatic leadership style. Positive leadership styles, such as inclusive leadership, bring healthcare workers together with sharing and caring behaviour. It makes subordinates feel psychologically safe and helps them stay mentally strong to continue fighting

diseases such as COVID-19, which cause public health emergencies and trauma.

Conflict of Interest

The authors declare there was no conflict of interest.

CRediT authorship contribution statement

Fuqiang Zhao: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Writing - review & editing. **Fawad Ahmed:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Resources, Writing - original draft, Writing - review & editing. **Naveed Ahmad Faraz:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Software, Writing - original draft.

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Supplementary materials

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