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Explore the mechanism for seafarers to reconnect with work after post-pandemic psychological distress (PAPIST\textsubscript{19}): The moderating role of health-supporting climate

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**ABSTRACT**

Covid-19 has disrupted the lives of employees all over the world. After experiencing a prolonged yet ongoing destructive event (i.e., Covid-19), finding an effective and non-invasive way to get employees back and engage in work is a huge challenge for scholars. Few studies have focused on returning to work after a traumatic event (limited time), but the post-pandemic psychological stress caused by the Covid-19 (PAPIST\textsubscript{19}) has not received much attention. Current research addresses this gap and uses a comprehensive model drawn from the transactional model of stress and the Kahn psychological framework to advance the work of predicting PAPIST\textsubscript{19}. Specifically, the current research investigates how PAPIST\textsubscript{19} is related to job engagement, and emotional exhaustion and how job reattachment mediates the relationship. In addition, we use health support climate (HSC) as a boundary condition in our model, which can weaken the impact of PAPIST\textsubscript{19} and enhance the effectiveness of job reattachment in reducing emotional exhaustion and increasing job engagement. To test our model, we collected data in multiple waves from Chinese seaports, where seafarers came to work after the restrictions were lifted in China. The current research is one of the earliest scholarly contributions. It paved the way for the research to solve the problem of workers returning to work after large-scale destructive events, and discussed important implications.

1. Introduction

Maritime transportation is considered to be the backbone of international trade because it is economical, safe, and controls about 80% of world trade (UNCTAD, 2020). For example, China’s shipping alone accounts for about 10% of China’s GDP (NDRC, 2019). However, the current pandemic Covid-19 has severely affected global trade activities, and maritime trade has lost momentum. Compared with previous epidemics in history, the coronavirus disease (also known as Covid-19) shocked the world with its huge adverse effects. For example, the Covid-19 infection rate and death rate are unprecedented and multifaceted and it affects people all over the world without discrimination (Belayi et al., 2021). Such traumatic events can cause fear, anxiety, stress, and helplessness among people facing the threat of death or serious illness (Talwar et al., 2021). The severity of traumatic pain depends on the extent to which the trauma leads to the development of symptoms, such as event-related thoughts, anxiety, avoiding traumatic situations (such as changing conversation), and increasing physical arousal. After the outbreak of Covid-19, seafarers faced certain socio-psychological and economic problems, including being abandoned, isolated, trapped, frustrated, exploited without the benefits of stranding, and such financial consequences for seafarers would lead to depression, anxiety, insomnia, distress, economic uncertainty, strangulation, and disruptions (Okeleke, 2020). Although Covid-19 has left a terrible stain on the minds of workers, work in the different countries and regions is returning to normal. However, the post-pandemic psychological stress attributed by Covid-19 (hereinafter referred to as PAPIST\textsubscript{19} [Post-pAndemic Psychological diSTress Covid-19]) has challenged employees who return to work. PAPIST\textsubscript{19} is referred to as a mental condition that is perceived by employees and triggered by terrible events experienced or witnessed includes symptoms such as distressing thoughts, efforts to avoid thoughts, nightmares, irritability and severe anxiety, and uncontrollable thoughts about Covid-19. Our research paves the ways which help the employees get back to work after PAPIST\textsubscript{19}.

With the increase in vaccinations and the slowdown in the spread of
Covid-19, countries are now lifting travel restrictions, eliminating or shortening the period of quarantine and face-to-face businesses have begun to develop slowly. It has been observed that during the lockdown, people were completely unemployed, telecommuting, or working from home (Said et al., 2021). Similarly, it is evident that due to the outbreak of Covid-19, seafarers are also suffering from psychological imbalances, and scholarly intervention is urgently needed today (Armenio et al., 2021). To reduce the PAPIST19 psychological vulnerability of seafarers, we propose two major challenges. First, seafarers who have experienced prolonged chaos, distress, and emotional distress may find it difficult to stay focused and engaged after PAPIST19. For example, it has been suggested that many employees experience difficulties returning to work after a disaster (North, 2010). Therefore, it is relevant and timely to examine effective interventions to help employees return to work. Second, unlike different acute large-scale catastrophes, the current outbreak is likely to persist for a period of time, and opportunities for community transmission in the workplace cannot be ignored. Therefore, there is a need to devise an effective way to alleviate seafarers’ health and safety concerns and enhance their participation in the work.

The review of extant literature has revealed various research gaps. First, the existing literature mainly focuses on seafarers’ perception of stress caused by work conditions such as job responsibilities and psychosocial factors (Okeleke, 2020). However, how a long-term disruptive event like Covid-19 affects employee emotional exhaustion and work engagement has not been investigated in the ocean and marine management literature. To our knowledge, PAPIST19 has never been studied in seafarers. Addressing this gap is important because PAPIST19 may adversely affect employee productivity (Talwar et al., 2021, 2022; Xu et al., 2021), lead to emotional exhaustion, and reduce work engagement (Dhir et al., 2018; Chen and Eyoun, 2021; Said et al., 2021). Furthermore, if there is an imbalance between available and required resources, employees need to devote resources to dealing with destructive thought triggers, as PAPIST19 can lead to stress and emotional exhaustion (Emad et al., 2021). Therefore, limited knowledge of PAPIST19 may be detrimental to seafarers’ health and organization as depletion of the resource may lead to adverse behavioral and psychological outcomes (Dhir et al., 2019; Okeleke, 2020; Xu et al., 2021). Thus, we believe that the relevant research gaps in the seafarer context need to be better articulated and addressed. Therefore, the current study focuses on how PAPIST19 affects employees returning to work, thereby affecting work engagement and reducing emotional exhaustion.

Second, in the context of large disruptive and traumatic events focusing on seafarers’ psychological distress and outcomes, few studies have focused on sea workers’ context (Bustos et al., 2021; Okeleke, 2020; Tan et al., 2021; Xu et al., 2021; Khanra et al., 2021). While existing research provides thoughtful scholarship on how past traumatic events affect employees, none has explored how seafarers can return to work after long-term disruptive events such as Covid-19. Previous research examined employees’ daily non-work-to-work transition perspectives (Smit, 2016). However, the current study looked at seafarers rejoining work post-pandemic, defined as “the process of mentally reconnecting with work after a period of non-work” (Sonntag and Kühnel, 2016, p. 380). For example, job reattachment helps workers mentally prepare and anticipate their upcoming work assignments. It also helps employees readjust their jobs after prolonged lockdown periods, which require significant psychological resources to enter the workforce (Sonntag and Kühnel, 2016). By focusing on job reattachment, we extend the current study to the context of seafarers returning to work in the current pandemic situation.

Third, due to the unpredictability of the ongoing and long-lasting nature of Covid-19, there is a need to identify effective strategies that can help employees to get engaged with the work, reduce their stress level, and enhance health and safety measures at the workplace. Perceived organizational support has consistently supported the central role of a key driver of employee motivation and commitments (Canhoto and Wei, 2021; Laato et al., 2020). Likewise, health support climate (hereafter referred is as HSC) from the organizations reinforces the employees’ reattachment to work, reduces exhaustion, and promotes job engagement (Bronkhorst, 2015). Moreover, HSC also mitigates the safety concern at the workplace and increases the psychological resources to get engaged with the work. Hence, we adopted HSC as a boundary condition in our proposed model against the backdrop of health and safety concerns of seafarers while returning to work.

In sum, the current study aims to investigate the PAPIST19 as an antecedent of job reattachment and thereby how seafarers will be able to reduce the perceived emotional exhaustion and regain the job engagement after a prolonged break due to lockdown. Moreover, we incorporated HSC as an important intervention as a moderator between the PAPIST19 and job reattachment that can help the seafarers in enhancing the job reattachment by mitigating the health and safety concern. The objective of the present study may be specifically stated with three research questions (RQs). RQ1: Does PAPIST19 influence emotional exhaustion and job engagement? RQ2 Does job reattachment mediate the relationship between PAPIST19 and emotional exhaustion and job engagement? RQ3: What is the role of HSC in contextualizing the effect of PAPIST19 on job reattachment? To formulate the hypotheses and test the conceptual model, we drew from a transactional model of stress (Lazarus and Folkman, 1987) and Kahn’s (1990) psychological framework, well-known overarching theoretical frameworks in psychological stress and engagement literature respectively. Table 1 presents the summary of constructs definitions and Fig. 1 provides our research model.

The four novel contributions of the study may be summarized as follows: First, at the time when the debate on aftershocks of Covid-19 is heating up, it is pressing need to deliberate on the possibility that how to mitigate the PAPIST19 effect on seafarers which perhaps increases their level of exhaustion and reduces the productivity (Canhoto and Wei, 2021; Emad et al., 2021). Prior research has emphasized work-related stress among the seafarers, but how prolonged disruptive events such as Covid-19 influence the employee has never been examined. Accordingly, it highlights the important yet neglected area of the negative effect of PAPIST19 on seafarers. Second, the current study provides novel findings that may be useful for stakeholders in understanding the mediating role of job reattachment that helps the employee to regain focus on the job after PAPIST19. Finding provides thoughtful insights into how the prolonged effect of PAPIST19 can be minimized via job reattachment by increasing the work engagement on one side and decreasing the emotional exhaustion on the other. Third, due to uncertainty in ending pandemic, we examined HSC as a moderator which impacts the outcome of PAPIST19, and provide novel insight how HSC helps the individuals to get a ride from the PAPIST19 and regain focus on the job such as job reattachment, which subsequently reduces the exhaustion and promotes job engagement. Finally, the current study significantly contributed to the limited theoretical foundation on PAPIST19 literature using Kahn (1990). Specifically, we introduced physical health and safety climate as boundary conditions helping in reboobing the employee toward job reattachment.

Table 1

| Constructs               | Explanation                                                                 |
|-------------------------|-----------------------------------------------------------------------------|
| PAPIST19                | The presence and severity of symptoms resulting from Covid-19-related posttraumatic psychological distress. |
| Job Reattachment        | The process of mentally reconnecting to one’s work after a non work period   |
| Health Support Climate  | The extent to which the employee perceived that organizational policies, practices, regulations, and procedures are enough to provide them health-supported climate within the organization. |
| Emotional Exhaustion    | The extent to which individuals invest their physical, cognitive, and emotional energies into their role performance. |
2. Theoretical background and hypothesis development

According to the transactional model of stress, stress is transactional, and it is triggered from the appraisal process that begins when an individual experiences the stress (Lazarus and Folkman, 1987). For example, stress is a continuous process that requires a person to interact with the environment, be aware of threats and/or harm, and then evaluate accordingly (Lazarus, 1990). When people are faced with perceived environmental demands or threats that exceed their processing capabilities, it will trigger stress, which will challenge their productivity and negative psychological and behavioral consequences (Luqman et al., 2017; Cao et al., 2018; Masood et al., 2020; Luqman et al., 2021). Given the wide applicability of the stress model and its applicability in stressful events, we use this model to explain the first RQ (et al., 2021). Given the wide applicability of the stress model and its applicability in stressful events, we use this model to explain the first RQ in our study that is, how seafarers’ appraisal of PAPIST19 can lead to emotional exhaustion and reduce work engagement. We believe that PAPIST19’s ruminating thinking may exceed the absorptive capacity of seafarers, and this discrepancy can lead to emotional exhaustion and reduce work engagement.

Then, we use the popular theoretical framework proposed by Kahn (1990), which explains the conscious and unconscious psychological experience of employees in the work situation. These psychological conditions also explain the interactions and experiences of employees in the organization’s work. Kahn’s pioneering work mentioned the three psychological conditions necessary for employees to focus on their work (that is, psychological meaningful, psychological availability, and psychological safety). Psychological meaningfulness refers to the employees’ personal feelings and work motives aligned with the main organizational goal and standards. Employees with higher meaningful at work may spend more time achieving desired goals and show agility (Luqman et al., 2021; Cai et al., 2018; Luqman et al., 2018). Psychological safety reflects employees’ perception of safety such as freedom of speech without worrying about negative evaluations of their profession and image. When employees perceive a higher level of psychological safety, they may feel safe in the workplace (Bronkhorst, 2015). Psychological availability is important to reflect a person’s physical, mental, and cognitive resources to reconnect them with work (Barrafrem et al., 2020). It has been observed that lack of psychological availability is similar to lack of energy, which can easily distract employees from their initial tasks (Khalid et al., 2021; Cao et al., 2018; Luqman et al., 2020a,b). Employees’ confidence in the availability of resources may help them cope with stressful situations because it enables them to participate in productive thinking and prevent deviations (Nusrat et al., 2021; Luqman et al., 2020a,b).

The framework of Kahn (1990) is widely used in the existing literature to reveal the intermediary mechanism. For example, Nusrat et al. (2021) used psychological conditions to examine the indirect effects of ESM on cyber-slacking behavior in the workplace. This study determined that when employees’ psychological availability is high, their deviant behaviors will decrease. Cai et al. (2018) Determining the psychological status of Kahn is an important determinant of work engagement. Similarly, Lemon and Palenchar (2018) suggested that the level of trust between employees and supervisors will increase, which will increase psychological conditions.

Similarly, in our case, Kahn (1990) provided novel scholarship on the relationship between PAPIST19 and emotional exhaustion and job engagement through job reattachment. We believe that psychological conditions are essential for seafarers to manage the after-effects of Covid-19 when they return to work. Higher levels of psychological conditions drive sea workers to refocus on work and achieve their desired performance. In addition, to achieve work commitment, employees must have the mental resources and energy to deal with the uncertain conditions that have arisen due to the long-term and ongoing pandemic of Covid-19. In addition, HSC can also serve as a resource booster for the sea worker to return to work. Therefore, we believe that Kahn (1990) can be used as an explanatory framework through which seafarers can resume work to overcome PAPIST19, thereby helping seafarers reduce their emotional exhaustion and increase job engagement.

2.1. PAPIST19 and emotional exhaustion

Post-traumatic stress disorder (PTSD) symptoms are used to appear after a disruptive event, and if it continues to occur, continue to experience it (Zhang et al., 2021). Both PTSD and PAPIST19 have similar symptoms, but they differ from person to person. Similarly, PAPIST19 includes symptoms such as increased anxiety, lack of motivation at work, irritability, feelings of helplessness, sleep interruption, fatigue, economic loss, family problems, negative or catastrophic thoughts, and social isolation are fewer. In addition, despite the PAPIST19, it is reported that seafarers in different ports of the world have been exploited during the outbreak of the pandemic which further ignited the PAPIST19. For example, seafarers are stranded on ships and ashore without any stranding benefits. Seafarers belong to a high-risk group that is exposed to Covid-19 and may then infect others. The impact of the blockade on seafarers is obvious to them because many countries have imposed blockade restrictions before entering the port (Milanes et al., 2021). For example, for many Chinese seafarers still face the situation of being stranded, isolated, abandoned, frustrated, and helpless in different parts of the world (Milanes et al., 2021; Perillo et al., 2021). Homelessness and family health problems exacerbated the situation. Ship-owners are unwilling to pay the extra wages. On the other hand, the country has closed its borders and the replacement of crew has been delayed for a long time (Seafarers Happy Index, 2020).

We argued that PAPIST19 is associated with an increased level of emotional exhaustion which is a mimic of negative life event that burns the resources thereby fostering depression (Belaid et al., 2021; Canboto and Wei, 2021). People having an intense job and sustained job demand
likely to suffer from exhaustion and fatigue because of limited resources available to execute the task (Szalma and Hancock, 2002). For example, on the one hand, when countries are now lifting restrictions and relaxing border entry, on the other hand, as Covid-19 continues, many maritime workers, especially those who board the ship, are facing fear and paranoia. Sea workers must follow Covid-19-related standard operating procedures (SOPs), which may make them feel tired. Following the SOP and threat of being infected with Covid-19 will burn the seafarers’ mental resources, which are necessary to focus on work. Unlike the normal cargo shipment, they must handle their work with extra mental and psychological stability, which may put them in a state of exhaustion (Jensen and Oldenburg, 2020). Similarly, the complexity of living and working on a ship can exhaust seafarers physically and mentally. Therefore, we assume the following:

H1a. PAPIST$_{19}$ is positively associated with emotional exhaustion

2.2. PAPIST$_{19}$ and job engagement

Job engagement refers to employees’ commitment, physical mental, and emotional connection with the job (Kahn, 1990). After the shocking effect of PAPIST$_{19}$, job engagement is a focus of great interest. The prolonged and ongoing traumatic experience provokes a situation of uncertainty among the employee. Traumatic outcomes are generally unexpected and uncontrollable which induce the perception of unpreparedness and unable to protect themselves (Akhtar, 2017). Previous studies have acknowledged that occupational stress negatively influences job engagement. For example, job demand, work pressure, time pressure, role ambiguity, and emotional demand at the job are likely to reduce job engagement (Ramesh Kumar, 2020). Likewise, PAPIST$_{19}$ is also associated with certain psychological costs that required physical and emotional resources in the proper function of job-related tasks and maintaining personal growth. In seafarer’s context, PAPIST$_{19}$ is likely to induce anxiety and fear of uncertainty that perhaps have job engagement. PAPIST$_{19}$ perhaps stimulates deviance among the seafarers, when the circumstances exceed the coping mechanism (Emad et al., 2021; Oldenburg et al., 2020). PAPIST$_{19}$ perhaps be a traumatic experience for the seafarers, as it may still pose danger to their life and induce a feeling of helplessness. Such experiences are likely to deviate the employee from their original task such as job engagement. Hence, we hypothesis as:

H1b. PAPIST$_{19}$ is negatively associated with job engagement

2.3. The mediating role of job reattachment

Reattachment to work after a prolonged disruptive event such as Covid-19 is an important factor for the employee. Job reattachment is referred to the mental reconnection with the job after prolonged lock-down or non-working time due to Covid-19. The extant literature has acknowledged that Covid-19 has an impact on all people’s lives across the world, including work experiences, work behavior, family issues, individual wellbeing (Belaid et al., 2021; Xu et al., 2021). The after socks such as PAPIST$_{19}$ can be mitigated among employees via the perception of anticipatory mental contract with the job. It means the employee should think about the work or job-related task in anticipation and disentangle themselves from thoughts of PAPIST$_{19}$. For example, an employee can get a ride from unwanted thoughts if they prepare their mind to stimulate the upcoming task, and this is about the job that needs to be performed in the coming days. Reattachment can also refer to some deliberated thoughts processes while ignoring the ruminative thoughts about the traumatic (Sonntag and Kühnel, 2016).

Moreover, reattachment to work does not mean bringing an affective tone only at workplaces, rather it implies natural, neutral, positive as well negative thoughts about the working experiences. It just mimics the natural working environments in which employees used to work before the pandemic. Reattachment to work is the notion that one indulges themselves in work mode and puts the other thoughts in the background. In other words, reattachment is the process of mentally crossing the boundary between the nonwork and work domains. It reconnects the two poles such as the nonwork and work domain and works before the start of the actual work process (Sonntag and Kühnel, 2016).

We argued that reattachment to work is likely to be cognitive in nature with a more neutral tone which perhaps promotes job engagement and reduces the employee exhaustion level. Reattachment kindles the employee’s energy, gets them directed toward work back, and enhances their resources before the workday starts. Reattachment is deliberately activating experiences that prepare one for the upcoming task and devote energy to accomplish that task. Such a reattachment process enables the employee to mobilize their resources before starting the work and energy must be available to execute the actual task required at the job. Given the importance of energy, Kahn (1990) has endorsed that psychological availability is an important condition to get attached to the work. We propose that PAPIST$_{19}$ induce emotional exhaustion and reduce job engagement from working hours. However, reattachment to work indirectly mitigates the PAPIST$_{19}$ and is an important predictor of work engagement and mitigates the emotional exhaustion. Thus, we hypothesize:

H2a. Job reattachment mediates the relationship between PAPIST$_{19}$ and emotional exhaustion

H2b. Job reattachment mediates the relationship between PAPIST$_{19}$ and job engagement

2.4. The moderating role of health and safety climate (HSC)

HSC refers to employees’ overall perception of the importance of health and safety-related practices, procedures, and regulations while working in an organization (Zohar, 2014). Previous research has acknowledged that the slogan “safety is our top priority” plays an important role in determining the perception of HSC (Zohar, 2014). Compared with organizational goals such as productivity, the relative importance of safety practices reveals the extent to which organizations use safety behaviors in the workplace (Zohar, 2014). HSC may promote workers’ safety behaviors and reduce the perceived psychological pressure caused by negative events (Bronkhorst, 2015). For example, this can be achieved when top management considers safety a priority and invests in health and safety to promote a shared view of high HSC. Employees will take corresponding actions accordingly and show their safety behaviors, such as keeping distance, proper disinfection, avoiding gatherings, and not taking these measures as a burden (Milanex et al., 2021; Perillo et al., 2021).

We expect that the increased awareness of HSC will inform employees of safety priorities, thereby developing more resources to deal with PAPIST$_{19}$ and reduce emotional exhaustion and increase work commitment. For example, according to the theory of resource conservation (COR), if an organization provides epidemic-related safety equipment, such as hand sanitizer, gloves, masks, and a proper hygienic working environment, it will increase its available resources to participate in work (Barraffem et al., 2020; Emad et al., 2021) thereby alleviate safety issues in the workplace. Increasing mental resources may enhance the ability to cope with stress and relieve fatigue. We also assume that HSC strengthens the seafarer’s motivation process and positive impact on work resources to help re-adapt to work. Therefore, we believe that considering the health and safety issues of seafarers when returning to work, HSC has been moderate in our proposed model in the following ways.

H3. HSC moderates the negative relationship between PAPIST$_{19}$ and job reattachment in such a way that the negative relationship will be weaker when employees perceive HCS as high versus low.

H4. HSC moderates the indirect relationship between PAPIST$_{19}$ and emotional exhaustion through job reattachment such that the mediated
relationship will be weaker when the perception of HSC is high vs. low.

H5. HSC moderates the indirect relationship between PAPIST19 and job engagement through job reattachment such that the mediated relationship will be stronger when the perception of HSC is high vs. low.

3. Methodology

Given the nature of seafaring, we designed a web-based survey. To rule out potential common method bias (CMB) (Podsakoff et al., 2012), we administered the survey using the time lag method in three waves. Firstly, our target was 50 ship management companies operating in China. However, only 21 ship management companies agreed to participate in this study. Initially, the survey project was written in English and later translated into Chinese by two bilingual experts using a back-to-back translation method (Brislin et al., 1973). Then, to ensure the readability and validity of the content, we sent a questionnaire to human resources managers who directly deal with ship workers and have sailing experience. After the human resources manager suggested slightly changing the language, we sent the final questionnaire to the liaison officer of each shipping company and distributed it to the seafarers.

At least a month's time difference was used between the three waves. For example, in the first wave, we invited a total of 650 seafarers and received 405 (response rate: 62.3%) responses to fill in the survey items. In the second wave, about a month later, respondents who previously filled out the survey items were invited to complete the survey. However, 345 respondents accepted the invitation and responded, with an overall response rate of 53%. In the third wave, we invited the recent respondents again one month later, however, only 283 seafarers responded, representing a final response rate of approximately 43.5% compared to the initial call. Of the 283 respondents, most were men, and only 38 women worked in different ship companies. Seafarers have an average age of 33.7 years, works about 51 h a week, and has been an employee of the company for 7.33 year approximately. Descriptive statistics show that the sample of women is small, almost equal to 14% of the total sample size. However, it is sufficient to represent the female maritime personnel currently working in China. For example, according to “China Daily” reports, the number of Chinese female captains, officers, and general seafarers accounted for about 15% of the total number of seafarers.

3.1. Measures

3.1.1. PAPIST19 (Time 1)

We assessed PAPIST19 using the DSM-IV post-traumatic distress symptoms (PTSD) criteria developed by Breslau et al. (1999). PTSD is an effective measurement method that is widely used to assess distress events based on the three dimensions of intrusion, avoidance, and hyper-arousal. We modified the items slightly according to our context. We added a reference Covid-19 to each item to better capture the attention of the respondents. For example, respondents were asked to indicate the extent to which they had experienced any of the 17 Covid-19-related perceptions in the past year (regardless of whether they were infected with Covid-19 or not). The example items are 1) Intrusion-Intrusive and painful memories caused by the idea of Covid-19. 2) Avoidance-Try to avoid thoughts and feelings related to Covid-19. 3) Hyper-arousal -irritability, an outburst of anger due to Covid-19. We used a 7-point Likert Type scale (1 = “not at all” to 7, “often”). The Cronbach alpha reliability of this measurement is 0.95.

3.1.2. Job reattachment (Time 2)

We used a five-item scale developed by Sonnentag and Kühnle (2016) to capture the work reattachment. In earlier versions, this scale was used to assess daily reattachment before the start of the workday. We revised the scale from the perspective of resuming work after lock-in (i.e., pandemic) so that employees recalled what they did before resuming work and agreed to each item. Specifically, based on the concept of our reattachment, we developed a set of items to record the morning experience, aiming to get ourselves back to work: an example item is “Before I started my work this morning, I mentally tuned into my work.” We used a 7-point Likert Type scale (1, “not at all” to 7, “often”). The average alpha reliability of the scale is 0.90.

3.1.3. Emotional exhaustion (Time 3)

A three-item scale developed by Wharton (1993) was used to measure emotional exhaustion. Respondents were asked to report on their current perception of emotional exhaustion on a 7-point Likert-type scale (1 = “not at all”, 7 = “very”). Example items, such as “I feel emotionally exhausted” The average alpha reliability of the scale is 0.91.

3.1.4. Job engagement (Time 3)

The Job engagement was evaluated using a 15-item scale developed and validated by Rich et al. (2010). Before being rated by the respondents, we added the background of seafarers. Participants were asked to indicate the extent to which each item reflected their response to the seafarer’s participation in the work using the 7 points Likert scale (1 = “never” to 7 = “always”). An example item is “I exert my full effort to my job.” The average alpha reliability of the scale is 0.91.

3.1.5. Health support climate (Time 1)

HSC is captured using a six-item scale developed by Bronkhorst (2015). An example item is “My organization ensures all the necessary safety regulations and equipment to minimize physical strain in my job.” The alpha reliability of the scale is 0.89.

3.1.6. Control variables

Under the guidance of previous research, we controlled four variables, namely age, gender, consciousness, and neuroticism. Neurotic people have pervasive personalities or mixed characteristics when measuring emotions such as worry, anxiety, irritability, and sadness. Therefore, to reveal the true research gap proposed in the model, we controlled neuroticism using the Neuroticism scale of Bauermeister and Gallacher (2020) at time 1. Extant literature has shown that people with conscientiousness traits may pay more attention to themselves, such as always trying to figure out themselves, being organized, task-oriented, and exercising self-discipline, hence likely to feel more exhaustion and less job engagement. Therefore, we also controlled conscientiousness which was adopted from the scale of Carver and Scheier (2013) at time 1.

4. Analysis and results

Although we collected time-lagged multi-wave data to avoid CMB, the self-reported nature of the data may pose a potential CMB threat. To eliminate this potential threat, we conducted Harman’s single factor test and the Marker variable technique. First, we use Harman’s single factor test (Podsakoff et al., 2012) for the five conceptual variables in the proposed model. The results show that the first single factor only calculates a variance of 26.3%, which is far below the 50 threshold limit. In addition, the five variables calculated a total of 75.3% of the total variance with eigenvalues greater than 1. Therefore it provides evidence that there is no CMB problem in the data. Next, we use the marker variable technique to further identify CMB problems in the data (Williams et al., 2010). The results of the marker variables are shown in Table 2, indicating that there is no CMB problem in the data.

4.1. Descriptive statistics

Next, we examined the descriptive statistics and correlations (see Table 3). Correlation analysis shows that the correlation between the constructs is significant in the expected direction. For example, the use
of PAPIST\textsubscript{19} is positively correlated with emotional exhaustion (\(r = 0.41, p < .01\)) and negative correlated with job engagement (\(r = -0.33, p < .01\)). As predicted, we found that job reattachment as mediating variables are positively correlated with job engagement (\(r = 0.46, p < .01\)) and negatively correlated with emotional exhaustion (\(r = -0.42, p < .01\)). Similarly, we found a negative correlation between PAPIST\textsubscript{19} and job reattachment (\(r = -0.39, p < .01\)).

### 4.2. Measurement model

We used Mplus 8.6 to perform a series of confirmatory factor analyses (CFA) to check model fitness and establish convergence and discriminant validity. The results are listed in Table 4. Compared with the four, three and two-factor alternative models, results show that the five-factor models we proposed, including PAPIST\textsubscript{19}, HSC, job reattachment, emotional exhaustion, and job engagement, show a suitable fit (\(\chi^2/(df) = 1724.01\) (968), \(\chi^2/df = 1.78\), RMSEA = 0.05, CFI = 0.96, TLI = 0.93). All unrestricted factor loads are higher than 0.70 and are statistically significant.

Next, we performed an HTMT analysis to rule out similarities between latent constructs. An HTMT value greater than 0.85 indicates a discriminative problem, however, our analysis shows that the value is well below the threshold limit (please see Table 5) (Henseler et al., 2015).

### 4.3. Structural model

To evaluate all the suggested relationships, we applied Structural Equation Modeling (SEM) in MPlus (version 8.6). The results (see Table 6) show that there is a significant negative relationship between PAPIST\textsubscript{19} and employees’ level of job engagement (H1a, \(\gamma = -0.23, SE. 0.06, t = 3.83, p < .001\)), and positive relationship with emotional exhaustion (H1b, \(\gamma = 0.49, SE. 0.08, t = 6.12, p < .001\)), indicating that continuous thought of PAPIST\textsubscript{19} reduce the employees level of job engagement and enhance the emotional exhaustion. Therefore, Hypothesis 1 is supported.

Next, the results confirmed the mediation role of job reattachment that there is a significant positive and indirect relationship between PAPIST\textsubscript{19} and emotional exhaustion (indirect effect = -0.11, 95\%CI = [-0.05, 0.22]). In addition, the results also confirmed that job reattachment negatively mediates the indirect impact of PAPIST\textsubscript{19} on job engagement (indirect impact = -0.15, 95\%CI = [-0.012, -0.29]). Therefore, Hypothesis 2 is fully supported.

The results of the control variables showed that only respondents with conscientiousness personality traits positively influence emotional exhaustion (\(\gamma = 0.13, SE. 0.04, t = 2.50, p < .05\)) and negative effects (\(\gamma = -0.14, SE. 0.05, t = 2.80, p < .05\)). This is consistent with the existing literature, that is, self-disciplined, responsible, organized, and hard-working people are always inclined to achieve expected goals, but they will be affected by negative events such as abuse supervision and leadership exploitation, thereby emotional exhaustion and less job commitment (Chi and Liang, 2013). Similarly, in our case, seafarers with conscientiousness personality traits showed emotional exhaustion and job reattachment.

| Table 2 | Model fit indices and model comparison for CFA model with marker variable. |
| Model | \(\chi^2\) (df) | CFI | RMSEA (90\% CI) | LR of \(\Delta \chi^2\) | Model Comparison |
|-------|----------------|------|----------------|-------------------|----------------|
| CFA   | 1724.01        | 0.93 | 0.05           |                   | Vs. Baseline   |
| Marker| (968)          |      | (0.049-0.057)  |                   |                |
| Baseline | 1744.01    | 0.91 | 0.08           |                   |                 |
| Method- | 1365.5       | 0.94 | 0.055          | 378.5, df = 1      | Vs. Baseline   |
| C     | (977)         |      | (0.052-0.061)  | 1, p = 0.00*      |                 |
| Method- | 1054.8       | 0.95 | 0.054          | 310.7, df = 1     | Vs. Method-C   |
| U     | (937)         |      | (0.050-0.058)  | 39, p = 0.042*    |                 |
| Method- | 995.5        | 0.94 | 0.061          | -59.3, df = 1     | Vs. Method-U   |
| R     | (967)         |      | (0.058-0.069)  | 14, p = 0.25**    |                 |

Note: “CFA = confirmatory factor analysis, CFA = comparative fit index, RMSEA = root mean square error of approximation, LR = likelihood ratio test, U = unconstrained, C = constrained, R = restricted.”

| Table 3 | Descriptive statistics and correlations. |
|---------|-----------------------------------------|
|         | X | SD | 1 | 2 | 3 | 4 | 5 | 6 |
| 1. C19 PTSD | 3.5 | .80 | 1 |  |  |  |  |  |
| 2. Job Reattachment | 3.0 | 1.3 | .39** | 1 |  |  |  |  |
| 3. Emotional Exhaustion | 3.5 | 1.3 | .41** | .42** | 1 |  |  |  |
| 4. Job Engagement | 3.4 | 1.0 | .35** | .46** | .21** | 1 |  |  |
| 5. Health Support Climate | 3.0 | 1.3 | .13** | .26** | .05 | .25** | 1 |  |
| 6. Consciousness | 2.7 | 1.2 | .03 | .07 | .14* | .01 | .09 |  |
| 7. Neuroticism | 3.5 | .94 | .14* | .04 | .05 | .10 | .02 | .05 |

**p < 0.01, *p < 0.05, X = Mean, SD, Standard Deviation.

| Table 4 | Series of factor analysis and fit indices. |
|---------|------------------------------------------|
| Models | Factors | \(\chi^2\) | df | \(\chi^2/df\) | \(\Delta\chi^2\) | RMSEA | GFI | CFI | TLI |
| Model 1 | 5 Factors: PAPIST\textsubscript{19}, HSC, JR, EE, JE | 1724.01 | 968 | 1.78 | – | .05 | .98 | .93 | .93 |
| Model 2 | 4 Factors: PAPIST\textsubscript{19}, HSC, JR, EE | 945.3 | 419 | 2.25 | 1328.6 | .06 | .83 | .91 | .92 |
| Model 3 | 3 Factors: PAPIST\textsubscript{19}, JR, EE | 912.4 | 309 | 2.95 | 1121.9 | .09 | .85 | .81 | .88 |
| Model 4 | 2 Factor: HSC, JE | 668.2 | 188 | 3.55 | 900.7 | .10 | .79 | .74 | .62 |

**Note: PAPIST\textsubscript{19} = post-C19 psychological distress, HSC = health support climate, JR = job reattachment, EE = emotional exhaustion, JE = job engagement, SC, Consciousness, Neu = Neuroticism, \(\chi^2 = \) Chi-Square, df = degree of freedom, RMSEA = root mean square error approximation, GFI = Goodness of fit index, CFI, comparative fit index, TLI = Tucker-Lewis index.**

| Table 5 | HTMT analysis. |
|---------|----------------|
|         | 1. Job engagement | 2 | 3 | 4 | 5 | 6 | 7 |
|         | PAPIST\textsubscript{19} | 0.25 |  |  |  |  |  |
| 2. PAPIST\textsubscript{19} | 0.26 | 0.15 |  |  |  |  |
| 3. Health support climate | 0.29 | 0.52 | 0.10 |  |  |  |
| 4. Neuroticism | 0.48 | 0.37 | 0.27 | 0.32 |  |  |
| 5. Job reattachment | 0.32 | 0.51 | 0.10 | 0.61 | 0.36 |  |  |
| 6. Consciousness | 0.23 | 0.38 | 0.06 | 0.34 | 0.45 | 0.38 |  |  |
4.4. Moderation analysis

By using the method of Edwards and Lambert (2007) to test the moderation effect of HSC between PAPIST in job reattachment at high and low values (−1 standard deviation [SD], mean value, and +1 SD), the moderation analysis shows that there is an interaction between PAPIST and HSC was positively associated to employees’ job reattachment (Interaction effect = 0.22, 95%CI = [0.14, 0.32]). Thus, hypothesis 3 was supported. The nature of the interaction effect is illustrated in Fig. 2.

Next, the index of moderated mediation has a significant indirect relationship to the hypothesis relationship between PAPIST and emotional exhaustion (γ = −0.07, SE = 0.02, CI = [−0.01, −0.07]). The conditional indirect effect of PAPIST and emotional exhaustion via job reattachment (γ = −0.10, SE = 0.04, p < 0.05) was significant when HSC was higher while insignificant when TC was low (γ = 0.02, p > 0.05), thus supported H4. Similarly, the index of moderated mediation has a significant indirect relationship to the hypothesis relationship between PAPIST and emotional exhaustion via job reattachment (index = −0.07, SE = 0.02, CI = [−0.01, −0.12]). The conditional indirect effect of PAPIST and job engagement via job reattachment (γ = −0.12, p < 0.05) was significant when HSC was high while insignificant when HSC was low (γ = 0.04, p > 0.05) thus supported HS.

Sample size (N) = 283.

5. Discussion

The current study investigated the conceptual model in a post-pandemic context which facilitates seafarers to reattach to the work. A current model comprising of five variables including namely, PAPIST, reattachment, HSC, emotional exhaustion, and job engagement. We proposed the relationship among the context-specific identified variables based on Kahn’s (1990) psychological framework and proposed three research questions.

H1a and H1b addressed RQ1 and examined whether PAPIST affects emotional exhaustion and job engagement. The first question is based on appraisal theory. As the pandemic continues, the background is described as an uncertain and ongoing threat. We found that there is a positive relationship between PAPIST and emotional exhaustion, and a negative relationship between PAPIST and seafarers’ work engagement. The results of the hypothesis testing show that exposure of employees to traumatic events may exacerbate the already tense work needs of seafarers, especially those seafarers who have faced the event at an early stage (Okekele, 2020). In view of the arduous work requirements, coupled with PAPIST, seafarers have fewer psychological resources to engage in work and feel emotionally exhausted. For example, even though shipping companies are working for seafarers again, it is difficult for employees to devote themselves to work due to PAPIST. This is in contrast to recent existing studies, which show that employees are happy to return to work after a prolonged lockdown, and the negative organizational impact of the pandemic may inspire innovative exploration (Mercier et al., 2021). Our findings mean that seafarers are in a state of fear and paranoia because they have a constant threat of contracting Covid-19 and comply with strict regulations to avoid infection. Under such working conditions on the shore, it may harm the seafarers’ mental and psychological stability, making it difficult for them to get back to work.

H2a and H2b addressed RQ2 and inquired about the mediating role of job reattachment between PAPIST and emotional exhaustion and work engagement. Specifically, this mechanism explains how psychological resources can help employees overcome the negative impact of PAPIST in the workplace and help them start working again. The results of the seafarer sample provide strong support for our hypothesis that job reattachment completely mediates the indirect effects of PAPIST on emotional exhaustion and work engagement. The results of the study indicate that work reattachment may develop social and emotional resources among employees, thereby stimulating work engagement and reducing exhaustion levels. Reattachment to work conserve their limited physical, emotional, and cognitive resources, thereby supporting their psychological availability. In other words,
reattaching to work helps seafarers prepare for the reboot in work, and may increase their level of work engagement and reduce emotional exhaustion. Consistent with the framework of Kahn (1990), job reattachment provides psychological resources and reduces the impact of PAPIST19 on emotional exhaustion and work engagement. This is also consistent with the existing literature, which points out that employees' psychological resources enable them to perform job requirements and keep them engaged in the original task (Cai et al., 2018; Rameshkumar, 2020). In addition, the availability of physical, mental, and emotional resources helps employees manage their work efforts, maintain their flexibility, and prevent them from deviating from work (Nusrat et al., 2021; Talwar et al., 2021).

Finally, H3-H5 addressed RQ3, in which we examine the boundary role of HSC in contextualizing the impact of PAPIST19 on job reattachment. Consistent with existing research, HSC proved the moderating role between PAPIST19 and job reattachment, and the results of H3-H5 are supported. The positive moderating effect of HSC on the PAPIST19 and work reattachment relationship shows that when seafarers’ perception of HSC is higher, the negative relationship becomes insignificant. This means that seafarers who want to rejoin the work after the long-term devastating effects of Covid-19 may become more resourceful when they believe that the organization provides them with additional healthcare services. The reason for this elevated HSC role is that seafarers appreciate an open, healthy and safe working environment and see that their transportation company cares about their physical and mental health. This high level of mental security allows them to return to work and mitigate the adverse effects of PAPIST19. Therefore, HSC indirectly affects the outcome variable such as emotional exhaustion and job engagement. For example, in a moderate mediation, we found that high HSC weakens the indirect relationship between PAPIST19 and emotional exhaustion, and strengthens it with job engagement through job reattachment respectively. This means that perceptions of a safe working environment have produced positive results, especially in uncertain situations, such as in Covid-19. Our results are consistent with existing research based on the Kahn (1990) framework. Previous studies have shown that the psychological safety of employees promotes interpersonal trust among employees, improves the level of commitment to the organization, helps reduce deviation, and increases work commitment (Meyer et al., 2004; Rameshkumar, 2020). Similarly, we recommend that HSC cultivate the psychological safety of seafarers who return to work after Covid-19 and prevent negative thoughts such as PAPIST19.

6. Implications

6.1. Theoretical

The current research provides four key contributions that can expand the understanding of the working environment and job reattachment after covid-19: First, the current research examines for the first time PAPIST19 and its impact on seafarers' job engagement and emotional exhaustion levels. Previously, post-traumatic disorders were time-limited events being examined among staff working in war zones, mental hospitals, and law enforcement agencies (Brown and Session, 2003; Violanti, 2001). However, the current study provides a differentiated view of PAPIST19 and explains how it continues to ping workers who return to work after a long destructive event that is Covid-19. We contributed to the appraisal theory (Lazarus and Folkman, 1987) and post-pandemic related frameworks and suggested that PAPIST19 context should be evaluated holistically for when employees are coming back to their work physically. In addition, after the pandemic context at the workplace has rarely been received the attention of the academic community, the current research provides a fresh and novel perspective for the ongoing debate on the after-effects of COVID-19 and its attributable consequences.

Second, the current research provides new findings that may expand the understanding of work reattachment and help employees refocus on work after PAPIST19. These findings provide thoughtful insights and mechanisms to overcome the long-term effects of PAPIST19 by increasing work engagement and reducing emotional exhaustion. The previous literature looked at the daily returning to work from non-work domains (Sonnentag and Kühnel, 2016). We provide a novel non-intrusive way and attract scholars’ and practitioners’ attention to reattachment to work after Covid-19. We suggest that returning to work after a negative event (such as a Covid-19) may be a promising strategy for employees (Hepburn, O’Callaghan, Stern, Stiglitz and Zenghelis, 2020). Consistent with the underlying mechanism of reattachment, we provide a method by which employees can rebuild their cognitive and emotional connection to work. For example, when workers are physically engaged in work, they need to be psychologically prepared to indulge in work. Given the destructive and painful time employees experience during lockdown and isolation in ports and homes, such mental efforts may rebuild their psychological connection with work, thereby helping them to engage in work. Due to the latest situation of the work after covid-19, there is a lack of systematic guidance on the job reattachment in the literature. However, existing literature encourages employees to shelve past events and disturbances (Sonnentag et al., 2016) and organize a to-do list for upcoming tasks.

Third, given the uncertain nature of the ongoing pandemic, we examined HSC as a moderator that affects the outcome of PAPIST19 and provided new insights on how HSC can help individuals get rid of PAPIST19 thoughts and refocus on work, such as reattachment to work, thereby reducing emotional exhaustion and facilitating work engagement. In addition, our research indicates that the importance of HSC goes beyond the traditional security measures adopted by shipment companies. We recommend that HSC is inevitable in the process of reconnecting employees to their jobs. We have found that HSC acts as a buffer and recommend that safety protocols should be prioritized in higher-risk work environments. A strong belief in HSC may reduce ruminations about disruptive events and encourage employees to reconnect with work (Kahn, 1990).

Finally, the current research has made a significant contribution to the limited theoretical basis of the PAPIST19 literature using Kahn (1990). The theoretical framework in the context of Covid-19 helps to overcome the adverse consequences of PAPIST19. Since there is less research on working conditions after the pandemic, current research provides strong psychological reasoning in resource perspectives such as HSC along with meaningful, safety, and availability conditions, to help employees reconnect with work and reduce deviant behaviors. The underlying mechanism of psychological condition reduces the negative impact of PAPIST19 and promotes work engagement.

6.2. Practical

Our research provides meaningful insights for shipment companies, policymakers, seafarers, and practitioners. First, our research emphasizes how seafarers may negatively evaluate PAPIST19, which will affect their work engagement and lead to a high degree of emotional exhaustion. This shows that even though the organization has opened up its work facilities, employees still face difficulties in the workplace and cannot perform their duties effectively. Managers should not put pressure on the work to get into the work, because this will increase the pressure of the employees rather than the focus of the work. Second, our research provides guidance for managers, practitioners, and policymakers to consider the psychological conditions of seafarers to promote their wellbeing and productivity, such as work engagement. Our research shows that managers should encourage managers to overcome persistent threats and train them on how to get rid of PAPIST19. For example, managers can promote balanced working conditions by providing continuous advice and guidance to achieve their goals and minimize the threat of isolation. Managers should allow employees to freely share their opinions, as it can eliminate the concerns caused by Covid-19 and mitigate health-related threats.
Next, it is very important to share HSC practices in a friendly way. Workers are encouraged to follow them instead of imposing them. It may increase fatigue rather than reduce it. Based on the research findings, managers should formulate safety-related rules and regulations and modify organizational practices accordingly. For example, employees’ tolerance for late completion of tasks is always low, and employees tend to complete them within a given time. We suggest that organizations should be aware that Covid-19 is a huge survival challenge for them and their workers (Schiliro, 2020). Workers who return to work need the support of the organization. Without their support, they cannot effectively get into the work. Finally, managers should view the intervening role of work reattachment as a non-intrusive way to involve employees in work. We emphasize that employees who return to work may face the problems of staying at work. Therefore, returning to work plays an important role in minimizing the long-term negative effects of Covid-19 and reducing their perceived fatigue.

6.3. Limitations and directions for future research

Due to certain limitations, the research results should be explained carefully. First, given the nature of self-reported data, CMB may influence the results (Podsakoff et al., 2012). However, to eliminate the concerns of CMB, we use a time lag of about one month to collect data in multiple waves, which may reduce the threat of CMB. Second, the internal validity of the study may not be sufficient to establish a link between the suggested variables. Future research should adopt experimental design and cross-lag methods to establish causal relationships between constructs. Both of these research designs are known for establishing causal relationships. Third, we use HSC as theoretically and context-relevant constructs as moderators. Future research should explicitly consider the background of seafarers and investigate other factors such as leadership roles and their commitment to workers. Fourth, we control two personality traits in our model, such as neuroticism and consciousness. However, given the findings of previous studies, personality is an important predictor of a person’s behavior. We suggest that future research should consider the big five personality traits and examine how different seafarers exhibit different work behaviors when returning to work. Fifth, we use reattachment as an intermediary mechanism, and future research should explore all the psychological conditions of the Kahn (1990) framework, as previously adopted by Nusrat et al. (2021). Finally, when we recruit seafarers from China, our research may limit the generality of research across industries and jobs. Future research should employ cross-cultural research designs and replicate our findings to other industries. Cross-cultural PAPIST may provide society and academia with practical advice to revise their staff return-to-work policies.

7. Conclusion

The Covid-19 pandemic has adversely affected the psychological health of marine workers. This study provides mechanisms for workers returning to work after a large-scale disruptive event, known as Covid-19. This study used survey methods and SEM analysis to examine whether job reattachment affects the relationship between PAPIST and work engagement and emotional exhaustion. Furthermore, the results of this study contribute to our understanding of the moderating role of HSCs in mitigating the detrimental effects of PAPIST on job reattachment. Drawing on the transactional model of stress and the Kahn psychological framework, the current study provides thoughtful insights for shipping companies, practitioners, policymakers, and academics that job reattachment should be an option to reduce emotional exhaustion and increase work engagement for offshore workers after Covid-19.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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