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IMPACT OF COVID-19 ON THE EMPLOYEES' MENTAL HEALTH AND HOW IT HAMPERS CREATIVITY AND INNOVATION: A CROSS-CULTURAL BIBLIOMETRIC ANALYSIS

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Abstract: The study aims to carry out a cross-cultural analysis of the impact of Covid-19 on employees' mental health. The study also analyse ways in which Covid-19 hampers creativity and innovation. The study was guided by four specific objectives which include determining the effect of Covid-19 on the mental health of workers namely to identify factors that contribute to mental health problems among employees during Covid-19; to determine the impact of Covid-19 on the creativity and innovation of workers and to determine the creativities and innovations brought by Covid-19 on workers.

The research method used in this study was a systematic review. Studies addressing the impact of covid-19 on employees and creativity and innovation were searched online from PubMed, Scopus, Science Direct, and EMBASE databases. Keywords in combination with key variables were used to search the articles. The review for this study was presented according to the guidelines provided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Inclusion and exclusion criteria were used to select the right articles. Inclusion criteria included; articles published in 2019, and articles published in the English language.

The findings revealed that the major mental health problems following Covid-19 are stress, fear, depression, anxiety, and sleep disorder. Concerning the second objective, it was found that fear of job loss and lack of social support are the major factors causing mental health problems among employees following the Covid-19 pandemic. The findings in the third objective revealed that

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creativity enhances resilience, reduce stress, help employees manage challenges brought by Covid-19, help employees accomplish task, control emotions, and enhance productivity. Results on the fourth objective revealed that the major type of creativity identified is teleworking. The major conclusion was that Covid-19 has caused significant mental health problems in employees and enhanced creativity and innovation.

Keywords: Mental Health, Creativity, Innovation, Employees.

Resumo: O principal objectivo deste estudo é investigar o impacto do Covid-19 na saúde mental dos empregados. O estudo também investiga as formas como o Covid-19 prejudica a criatividade e a inovação. Este foi orientado por quatro objetivos específicos que incluem a determinação do efeito do Covid-19 na saúde mental dos empregados, nomeadamente (1) identificar factores que contribuem para os problemas de saúde mental durante o Covid-19, (2) determinar o impacto do Covid-19 na criatividade e inovação dos trabalhadores e (3) determinar a criatividade e a inovação resultante do Covid-19 aos trabalhadores.

O método de investigação utilizado neste estudo foi uma revisão sistemática. Estudos sobre o impacto da Covid-19 nos trabalhadores e na criatividade e inovação foram pesquisados a partir das bases de dados PubMed, Scopus, Science Direct, e EMBASE. Foram utilizadas palavras-chave em combinação com variáveis-chave para pesquisar os artigos. A revisão para este estudo foi apresentada de acordo com as directrizes fornecidas pelo Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Foram utilizados critérios de inclusão e exclusão para seleccionar os artigos correctos. Os critérios de inclusão consideram artigos publicados em 2019 e artigos publicados em língua inglesa.

Os resultados revelaram que os principais problemas de saúde mental após o Covid-19 são o stress, o medo, a depressão, a ansiedade e os distúrbios do sono. Relativamente ao segundo objectivo, verificou-se que o medo da perda de emprego e a falta de apoio social são os principais fatores que causam problemas de saúde mental aos empregados após uma pandemia de Covid-19. As conclusões do terceiro objectivo revelaram que a criatividade aumenta a resiliência, reduz o stress, ajuda os empregados a gerir os desafios trazidos pelo Covid-19, ajuda os empregados a realizar as tarefas, ajuda a controlar as emoções e aumenta a produtividade. Os resultados sobre o quarto objetivo revelaram que o principal tipo de criatividade identificada é o teletrabalho. A principal conclusão foi que o Covid-19 causou problemas de saúde mental significativos aos empregados e reforçou a criatividade e inovação.

Palavras-chave: Saúde Mental, Criatividade, Inovação, Empregados, Covid-19.

1. Introduction

Covid-19 has changed life drastically since it was first reported in China at the end of 2019. The current covid-19 pandemic has created a unique situation not only for the current lifetime but across generations (Venkatesh, 2020). Although the current Covid-19 pandemic has had an impact similar to the pandemic that occurred over 100 years ago, Covid-19 has caused a great impact globally than other pandemics. The World Health Organization, the Centre for Disease Control and various health organizations globally are working to manage the disease and its impact on health; however, little is known about when the current pandemic will end creating more anxiety among people globally (Venkatesh, 2020).

World Health Organization (WHO) defined mental health as a state of well-being where a person realizes their abilities, can manage normal stress and can work productively (World Health Organization, 2017). According to the Mental Health Foundation, mental health is defined by how people think and feel about themselves and their life. It can have an adverse impact on how people cope and manage their time during adversity (MHF, 2008).

Underson (1992) defined creativity as going beyond current boundaries whether in technology, knowledge, current practices, or norms. He further argued that creativity involves bringing new relationships to life. Schumpter (1947), who is also considered the founder of the theory of innovation, defined innovation as the economic impact of technological change involving the use of a new combination of existing productive forces to solve the problem of the business. Twiss and Goodridge (1989) defined innovation as "the activity of combining science, technology, economics, and management to realize novelty and enhance from the emergence of the idea to its commercialization in the form of production, exchange, and consumption.".

The Covid-19 pandemic has spread across the world forcing governments to initiate preventive measures causing unprecedented effects on employees (Schmidtke et al., 2021). The global prevalence of mental health before the pandemic was 28% for depression, 26.9% for anxiety, 36.5% for stress, 50% for psychological distress, 24.1% for PTSD, and 27.6% for sleeping problems (Nochaiwong et al., 2021). Previous studies have revealed that pandemics have a great impact on mental health. Since the beginning of the pandemic, the mental health of individuals and their quality of life has been major concerns (Brodeur et al., 2021). Various measures developed to prevent the spread of the Covid-19 pandemic have caused a significant impact on the mental health of workers. Countries across the world have developed measures such as social distance policies, isolations, forced, lockdowns, employee layoffs, and travel bans (Giorgi et al., 2020). All these measures have caused a significant impact on the mental health of workers. Further, some employees have lost their jobs while others have been forced to work from home or remotely. Other workers particularly those

working in healthcare facilities are also suffering from mental health problems because of the fear of getting the virus, and their experience of seeing patients suffering and dying from the disease (Kock et al., 2021). According to Patel et al. (2022), there has been a substantial deterioration in mental health during the ongoing covid-19 pandemic compared to before the pandemic.

Creativity is considered essential to organizational innovation. According to Tang et al. (2020), creating an environment that fosters employees' creativity is not an easy task, particularly during stressful conditions such as the Covid-19 pandemic. According to the American Institute of Stress (2017), 83% of employees are affected by stress at work and stress is the major source of psychological and physical problems. The Covid-19 pandemic has made it even more salient due to the economic and social pressure that it has caused. Most studies conducted in the U.S. within the first few months of the Covid-19 pandemic revealed that 69% of employees considered covid-19 pandemic as the most stressful time in their entire professional careers.

Innovation has gained traction as a way of achieving development and humanitarian goals in the last decade. Innovation has made major progress in all sectors and most governments globally are viewing innovation as a catalyst for their progress towards sustainable development (Ramalingam & Prabhu, 2020). Although Covid-19 has caused a huge impact on the health and livelihoods of people globally, it has also created fertile breeding for novel solutions and approaches. For instance, a study conducted by the US-based Policy Cures program revealed that investment in health-related innovation has been extraordinary (Policy Cures, 2020). The scale of innovation resources has also been enormous globally. For instance, USD 9 billion had been spent on innovation in seven months to address Covid-19. This investment exceeded previous pandemics by far. For instance, USD1.9 billion was spent globally on the research of Ebola between 2014 and 2018 (Ramalingam & Prabhu, 2020). Further, the nature of innovation during the covid-19 period has been notable. For instance, it is estimated that 100 COVID-19 tests had been approved by the US Food and Drug Administration (FDA) within six months compared to the Ebola outbreak which took FDA three months to approve the first test. Innovation also made it possible for scientists to develop a COVID-19 vaccine in a record 69 days compared to 25 months for the first vaccine in the previous global coronavirus outbreak such as SARS in 2002-04 (Ramalingam & Prabhu, 2020). Some studies have also revealed mixed findings. In a study conducted by Garcia (2008), it was reported that innovation in an organization is a risky activity because the probability of economic success from innovation is between 20% and 30%. Therefore, the current study investigates the success as well as challenges related to innovation and creativity during the Covid-19 pandemic. Most innovations that are visible during the Covid-19 pandemic are health-focused innovations. Such forms of innovations are the only ones that can easily be dined and quantified in financial terms. However, there have been many innovations that deal with the indirect impact of the pandemic such as online working practices

(Ramalingam & Prabhu, 2020). Therefore, the current study aims to understand various forms of innovations caused by the Covid-19 pandemic.

The Covid-19 pandemic has had effects similar to previous pandemics. However, Covid-19 has had a major effect on previous pandemics due to global disturbance in all sectors compared to previous pandemics. However, there are limited studies that have investigated the impact of covid-19 on employees' health. Most of the studies that investigate the impact of Covid-19 on employees' health cannot be used for generalizability due to bias involved in their research design (Davidsen & Petersen, 2020). Therefore, there was a need for this study to fill this gap. How mental health has deteriorated during the ongoing Covid-19 pandemic is poorly understood (Patel et al., 2022). Further, the consequences of health inequality are unclear; hence, the need for this study. Studies have also provided conflicting findings regarding the impact of Covid-19 on creativity and innovation (Venkatesh, 2020). Some studies have found that the Covid-19 pandemic has enhanced creativity and innovation while others have found that Covid-19 has had a negative impact. On the same note, studies regarding the relationship between mental health problems such as stress and creativity are mixed. For instance, some studies have revealed a positive relationship (Ohly & Fritz, 2010) while others have revealed a negative relationship (Kherdhaouria et al., 2017). Therefore, this study was necessary to refute such differences.

2. Theoretical Framework

2.1. Mental health

According to Rowling et al. (2002), mental health is the ability of an individual or group of people to relate with each other and the surrounding in a way that enhances subjective well-being, maximum development and use of cognitive skills, relational capabilities, and ability to achieve a common goal. According to the Mental Health Foundation, mental health is defined by how people think and feel about themselves and their life. It can harm how people cope and manage their time during adversity (MHF, 2008). According to Bhugra et al. (2013), mental health does not exist in isolation because it is an integral component of overall health and can be defined in three different ways; a state of absence of disease, a condition that allows the organism performs full functions and a condition of balance within oneself and between oneself and one's environment (physical and social). These scholars claimed that the state of mental health means that an individual can establish and maintain an affectionate relationship, carry out their social roles and communicate positive actions. World Health Organization (WHO) defined mental health as a state of well-being where a person realizes their abilities, can manage normal stress and can work productively (World Health Organization, 2017). Although different organizations and authors have provided different definitions

of mental health, they have all addressed some common things. For instance, well-being, knowing oneself, and interacting with others and the environment are common features in all the definitions.

2.1.1. Effect of Covid-19 on workers' mental health

Spoorthy et al. (2020) conducted a review study comprising 23 articles from various databases to investigate the impact of Covid-19 on mental health and found that various socio-demographic factors are related to stress, anxiety, and depressive symptoms among healthcare workers. Their study further revealed that healthcare workers suffered from mental problems due to speculations on how the virus spread lack of definitive treatment and the rate at which the disease spread. These authors also reported that healthcare workers are facing a significant degree of stress, anxiety, depression, and insomnia; however, they did not present their findings statistically making it harder to determine the exact extent of the impact. Similarly, Heather (2020) conducted a study to investigate the impact of Covid-19 on the mental health of healthcare workers and found that the disease has created stress for healthcare workers. According to this study, the Covid-19 pandemic has caused a shortage of personal protective equipment, high mortality and morbidity, and the reality of losing colleagues to the disease. These events have caused short-term and long-term effects on their mental health. Although Heather has revealed crucial findings related to the research topic, the author used healthcare workers which may not be the case in other professions.

Vizheh et al. (2020) conducted a similar study using healthcare workers to determine how Covid-19 has affected their mental well-being and found similar findings. In their study, which was a systematic review that included 11 articles from various databases, the scholars found that the lowest prevalence of anxiety, depression, and stress among HCWs was 24.1%, 12.1%, and 29.8%, respectively while the highest score as 67.55%, 55.89%, and 62.99%, respectively. Further, their study revealed that workers working in areas with more infection, frontline female workers, and young medical staff with little experience with a high degree of psychological symptoms. However, the small sample size used in this study makes its findings less reliable for generalization purposes. Further, the authors also focused on healthcare workers which may not be the same in other job professions. According to Rana et al. (2020), the Covid-19 pandemic has brought a high mortality rate and mental catastrophe to the world. The authors claimed that the unpredictability of the diseases ranging from clinical presentation, spread, causes, and treatment has enhanced psychological fear anxiety and prejudice. However, the findings did not use a well-defined methodology making their findings less credible. Further, Rana and colleagues did not provide a clear sample size for their study making their findings less reliable.

Vanhaecht et al. (2021) found that Covid-19 may aggravate the workplace environment which affects the mental health of healthcare workers. In their study, they included a sample size of

4,509 healthcare workers comprising 40.6% paramedics, 33.4% nurses, 13.4% doctors, and 12.2% management staff. The study revealed that cases of mental health problems were significantly higher during Covid-19 than before. Unlike most previous studies, these authors used a large sample size making their findings suitable for generalization purposes. They also diversified the participants making their findings suitable for understanding the impact of Covid-19 on the mental health of workers in different positions. However, its limitation is that it focuses on healthcare which may not be the same as in other industries.

2.1.2. Factors that contribute to mental health problems among workers during the Covid-19 pandemic

A study to investigate the relationship between fear of Covid-19, mental concerns, financial concerns, and performance of healthcare employees using a mediated model conducted by Sarfraz et al. (2022), revealed that all these elements relate to employees' well-being. The study. This study involved 489 participants (233 male and 256 female) both of whom were health workers selected through purposive sampling and revealed that employees are worried about the disease and are more devastated by fear of losing their job and financial constraints brought by the disease. The methodology used in this study was appropriate because frontline workers have adequate information about the fear involved when dealing with Covid-19. However, Sarfraz et al. (2022) compared multiple variables making it difficult to conclude and make generalizability. On the same note, Bilal et al. (2020) conducted a study to investigate the impact of the Covid-19 pandemic on job security and how that affects workers' well-being and found that job security affects the well-being of frontline workers. The study also revealed that a high perception of fear of Covid-19 and its relationship with job insecurity is related to a high risk to employees' well-being. The involved 600 participants dealing directly with the treatment of Covid-19 patients. Although the study involved a large number of participants, involving nurses might have influenced the findings since they deal with Covid-19 patients directly. Their study had similar findings to those of Sarfraz et al. (2022); however, they did not compare many variables.

Similarly, Darvishmotevali and Ali (2020) found that fear affects individual well-being. In their study to investigate the relationship between fear, subjective well-being, and job performance, they revealed that people's lives and jobs are at risk following the Covid-19 outbreak. In particular, Darvishmotevali and Ali revealed that the threat of losing a job makes it harder for workers to remain engaged at work, increases the temptation of leaving the job, and decreases subjective well-being. On the contrary, Barnejee (2020) argued that healthcare workers are least affected by fear because they are used to working in a stressful and emotional environment. According to this author, healthcare workers are naturally adaptive to the extreme environment and based on the stress-adaptation model,

they are more likely to overcome stress during a crisis compared to workers in other fields. Since Barnejee (2020) focused on healthcare workers who are used to working in a stressful environment, his findings may not reflect the reality in other industries. In a study to investigate how workplaces respond to mental health due to covid-19 in Japan conducted by Sasaki et al. (2020), it was revealed that covid-19 has caused significant mental health problems to employees due to fear of contracting the disease. Although the study found that measures taken at the workplace positively address the fear among employees (β=0.123, p<.001), such measures were also found to correlate negatively with psychological distress (β=−0.068, p=0032). Unlike previous studies, Sasaki et al. (2020) revealed a crucial finding that needs further studies. The study also used a good sample size (n=1,448) making its findings reliable. However, it is not possible to draw a conclusion based on this study because it was cross-sectional.

According to Verma et al. (2021), the Covid-19 pandemic has caused an unprecedented impact in all sectors around the world. In particular, the pandemic has caused millions of people to lose their jobs while those who are still working are living with the fear of losing their jobs due to economic constraints caused by the pandemic. Further, Verma et al. (2021) stated that the unprecedented nature of Covid-19 is creating more fear of losing a job; hence, creating more mental problems for employees. Fear of job insecurity was reported to cause low motivation, stress, and higher workplace injuries since workers do not concentrate. Unlike previous studies that focus on healthcare workers, these scholars focus on the general workforce. However, their findings are less reliable because they did not use a specific methodology. Similarly, Khudaykulov et al. (2022) conducted an empirical study to determine the impact of fear of Covid-19 and job insecurity on depression and anxiety and found a positive relationship between job insecurity on depression and anxiety. The study also revealed that fear of Covid-19 also enhances the risk of depression and anxiety. Although the study by Khudaykulov et al. (2020) has revealed crucial findings related to the research topic, it has various limitations. For instance, it uses a cross-sectional study design which is considered inferior to a longitudinal study. Further, like previous studies, Khudaykulov and colleagues used a limited sample size of 283 participants from healthcare facilities; hence, their findings may not reflect the situation in other industries. Posel et al. (2021) conducted a study to investigate the relationship between job loss and mental health during Covid-19 in South Africa and found that the pandemic has caused unprecedented job loss affecting the psychological well-being of employees significantly. The researchers recommend that the governments have focused on physical health and it is high time for the health policy to focus on both physical and mental health. The evidence provided by Posel et al. (2021) is strong because their study used a longitudinal design. However, the study did not include the sample size used; hence, questioning its credibility.

In a study conducted by Hou et al. (2020) to investigate the relationship between social support and the mental health of healthcare workers during the Covid-19 pandemic, it was revealed that social support is crucial in helping healthcare workers overcome mental health challenges. According to these authors, the low level of psychological health following social support can be explained by the buffing effect of social support since workers can get help whenever they need it. This study involved 1,521 participants all of whom were healthcare workers from the local hospitals. This was a large sample size making their findings suitable for generalization purposes. However, this study was cross-sectional hence, its findings are less reliable because this kind of research design is usually considered weak compared to longitudinal studies. On the same note, De Kock et al. (2021) conducted a study to investigate how Covid-19 has affected healthcare workers and the implication of supporting their mental well-being and found that female nurses are more likely to benefit from programs that support psychological well-being. The study also revealed that social support helps workers manage their psychological well-being by enhancing their resilience. This study has revealed crucial findings related to the issue being investigated; however, the authors did not use empirical studies making it harder to use their findings for generalizability to the population reviewed. Although current studies (De Kock et al., 2021; Hou et al., 2020) have found a relationship between social support and the mental health of workers, previous studies before the pandemic found otherwise. In a meta-analysis conducted by Guo et al. (2014), it was found a weak association between social support and mental health. However, their sample may explain such a finding because they only used aged people. Another study by Fiori and Denckla (2012) also contradicted the current studies because it found that social support is only effective for females and not males. Sahni (2020) conducted a study to investigate how Covid-19 pandemic has affected employees' behavior and coping mechanisms using 23 in-depth interviews (Male 12; female 13, an average age of 39 years) and found that the pandemic has increased the stress level of employees. The author revealed that factors such as ineffective communication at work, lack of clarity and direction, and interruptions during WFH resulting in loss of resources like time and energy can trigger stress among employees during the pandemic period. The study suggests the need for psychosocial support, community support, and an effective organizational system to address this problem. This finding is crucial because it focuses on different industries (service industry employees) and is not specific to healthcare employees like most of the previous studies.

2.2. Creativity and innovation

Mihaly (1997) defined creativity as the ability to make or bring a new thing into existence. Fisher and Barrett (2019) defined creativity in the workplace as the creation of new and useful ideas or solutions. According to Akambi and Lortimbir (2015), innovation is the process of adding

something new to an existing product or innovation. In innovation, the product or process already exists and has worked well but involves making it work better to fulfil a different need.

2.2.1. Impact of Covid-19 on the creativity and innovation of employees

Vahdat (2022) conducted a study to investigate how IT-based technologies are changing how human resource management is operating and found that Covid-19 has introduced many novel policies, innovations, and a wide range of creative interventions. According to Vahdat, the Covid-19 pandemic has not just proved that this is a difficult time but has also revealed that this is a testing time for organizations and employers globally to swiftly adapt themselves to new thinking and planning. The study also revealed that business innovations are critical during and after the post-Covid-19 period due to various changes that the pandemic has brought to the business environment. This study reveals crucial findings related to the topic; however, it used review articles thus the need for more studies. According to Cohen and Cromwell (2021), the Covid-19 pandemic is a wicked problem; however, the challenges brought by this pandemic can be managed through creativity and innovation that are already underway to respond to the pandemic. Cohen and Cromwell (2021) argued that the impact of innovation and creativity is already evident. For example, the use of alcohol distillers to generate hand sanitisers and 3D printing face shields. The authors further provided that innovations have enhanced healthcare capacities such as creating ventilator machines by engineering firms and pharmaceutical companies repurposing current drugs to alleviate covid-19 symptoms. Such changes also require employees in the respective sectors to adapt to such innovations. Although this article provides crucial arguments related to creativity and innovation in the management of Covid-19, the authors did not follow a research structure such as a clear methodology making their arguments less reliable. On the same note, Karaboga et al. (2022) conducted a study to investigate the relationship between creativity, personal accomplishment, and task performance using 345 participants and found that creative workers help employees overcome challenges brought on by Covid-19 such as burnout and stress. Creative ideas help employees accomplish their tasks and enhance productivity during the crisis; hence, reducing stress and other related factors that affect psychological well-being. Like previous studies, Karaboga et al. (2022) used a small sample size making its findings not suitable for generalization.

Tang et al. (2021) conducted a cross-cultural study to determine the relationship between creativity and well-being using a sample of 1,420 employees from three countries; China (n=489, 40% females), Germany (n=599, 47% females), and the United States (n=332, 43% females) and found a positive relationship between creativity and psychological well-being. According to these authors, creativity during covid-19 pandemic (1) enhances resilience and coping mechanism; thus, enabling workers to overcome challenges brought on by the pandemic, and (2) provides strong

evidence because data from three different countries were used to prove that creativity has a coping effect that could help people during the pandemic. Similarly, Orkibi et al. (2021) conducted an international study using a sample size of 1,432 adults from four countries; Israel (n=310), the United States (n=312), Italy (n=378), and China (n=569) to determine the relationship between creative adaptability and emotional wellbeing and found that creative adaptability enhances emotional well-being through creative self-efficacy, resilient coping, and emotion regulation. However, there was a slight difference in the countries which can be explained by different cultures and the severity of the pandemic. For instance, Orkibi et al. (2021) found that creative adaptability had a negative impact t on emotional well-being in China but had a positive impact in Israel, Italy, and the United States. On the same note, Zhai et al. (2021) conducted a study to investigate the relationship between emotional creativity and posttraumatic growth and mental health during the covid-19 pandemic using a multiple mediation model and data from 423 participants and found the relationship between emotional creativity and posttraumatic growth, anxiety, and depression. The findings from this study revealed that emotional creativity can help employees cope with stressful events during Covid-19. The study by Zhai et al. (2021) is crucial for the current project because it provides possible ways in which emotional creativity is related to psychological well-being.

2.2.2. Creativities and innovations brought by Covid-19 on employees

According to International Labor Organization, covid-19 has disrupted all sectors forcing employees to adopt a working-from-home strategy (ILO, 2020). Before the pandemic, the rate of teleworking was low across the world. For instance, teleworking in Europe before the pandemic was about 30% in Netherlands, Denmark, and Sweden about 10% in Italy, Greece, and the Czech Republic, up to 20% in the United States, and about 16% in Japan (ILO, 2020). However, the rate of teleworking has increased exponentially and by March 2020, about 4 in 10 employees in Europe started teleworking. In Finland, 60% of employees started teleworking and on average, 24% of employees that had never worked from home before were working from home in Europe (ILO, 2020). Although most countries encouraged employees to adopt teleworking during the Covid-19 period, such a change caught most employees unprepared; hence, affecting their performance and psychological well-being. Similarly, in a report about how a tech company with more than 400 employees in 7 African countries has adopted teleworking provided by Henry (2020), it was reported that the company has shifted to 100% teleworking and is working. Like previous studies, Henry reported that the introduction of remote working at the firm caught employees unaware and unprepared; however, motivation strategies provided by the company have boosted employees' morale. For instance, the firm is communicating with employees to understand their well-being and what it can do to better their working experience. In a survey conducted by Liberty Games to reveal

how the UK workforce is coping with working from home, it was revealed that working from home can be very stressful despite all the luxuries that come with it. The survey revealed that instructions and tasks communicated through messaging and Zoom since lockdown can be miscommunicated or end up taking longer than expected; hence, causing stress to employees. For instance, 29% of the respondents claimed that working from home is stressful (McCulley, 2020). Further, the survey revealed that employees are now working for more hours than before through teleworking with 38% of the respondents saying that they are more likely to work for more hours. Further, the study found that more than 31% of Brits struggle to concentrate at work and more than 35% feel bored (McCulley, 2020). Although McCulley provides crucial statistics concerning teleworking, the article does not provide a clear methodology used; hence, its findings are less reliable. According to Dé et al. (2020), stringent measures such as lockdowns brought in by covid-19 pandemic have forced businesses to adopt innovative strategies such as teleworking to continue surviving in business. The use of the internet has increased significantly for communication, interaction, and working from home. De et al. (2020) argued that some organizations and cities such as Bangalore in India have witnessed a 100% increase in internet usage and video conferencing applications to facilitate teleworking during the Covid-19 pandemic. Lal et al. (2021) conducted a study using interpretive and qualitative approaches using data from 29 individuals who had started working from home full-time to understand the impact of teleworking on social interaction and found that employees are struggling to maintain social interaction. Further, the studies revealed that employees are struggling with technology due to factors such as job uncertainty, increased workloads, and the absence of cues and emotional intelligence. Although participants in this study revealed that working from home has negatively affected them, some reported that they were not willing to return to work in the traditional office claiming that social interaction may distract them from their work. The study by Lal et al. is crucial because it highlights different perceptions related to working from home. However, the study used a small sample size; hence, cannot be used for generalizability. In a study to investigate how cloud computing technology has helped to fight covid-19 pandemic conducted by lhomdy et al. (2021), it was revealed that technology is the crucial innovative savior of businesses during the covid-19 pandemic. Despite the increasing use of technology, organizations are still struggling to incorporate them because workers were not prepared.

3. Method

The method used in this study involved a systematic review. The selected articles for this study involved those related to the impact of Covid-19 on employees and creativity and innovation. Databases that can be accessed freely were used to obtain the articles used for this study. The review for this study was presented according to the guidelines provided by Preferred Reporting Items for

Systematic Reviews and Meta-Analyses (PRISMA). A systematic or literature review is used as a research method for various reasons. For instance, to understand current knowledge concerning the topic, to understand the origin of the development of knowledge concerning the topic, to identify lacking evidence on the issue, to identify the relationships between key variables on the issue or to justify whether the issue or topic is worthy to be investigated (Edoardo & Pearson, 2014). Since the issue being investigated (Covid-19) is still new in the literature and is still affecting millions of people globally, its impact on mental health and creativity and innovation may not be clear and conclusive. Therefore, a systematic review was appropriate for this study so that existing gaps that form the basis for further studies could be identified. Additionally, a systematic review is crucial to traditional literature search because it provides a comprehensive and unbiased synthesis of multiple studies in a single document (Egger et al., 2001). Unlike a traditional literature review which focuses more on summarizing knowledge, a systematic review ensures that all relevant evidence related to the topic and reporting report data on the topic are utilized (Tricco et al., 2011). These features made this method appropriate for this study because it was quantitative in nature. Further, the systematic review method was crucial for this study because the exhaustive reporting associated with this method is of a similar standard to those produced by primary research design (Eduardo & Pearson, 2014). Although this method was used in this study, it also has some limitations. For instance, this method relies heavily on the author's knowledge and experience. This method also provides a limited presence on the topic because it is up to the researcher to determine how much information to collect based on the number of studies used.

3.1. Information sources and search strategy

Sources or studies used for this project were searched through online databases. Databases that can be accessed freely were used to obtain the articles used for this study. The databases used include; PubMed, Scopus, Science Direct, and EMBASE. This study is limited to online databases because they are easily accessible. The keywords were used to search for appropriate articles related to the research questions. Since the use of keywords generated a lot of articles some of which are not specific to the research topics, a combination of words was used. The articles were then filtered to obtain only those that meet inclusion and exclusion criteria.

3.2. Search terms

Search terms and combinations are crucial in the systematic review. For his project, four key or umbrella terms were first identified which include; Covid-19, employees, mental health, creativity, and innovation. After identifying umbrella terms with the help of PICO, various keywords were then identified to describe the four umbrella terms. The keywords used include; "psychosocial problems"

or “depression” or “anxiety” or “stress” or “distress” or “post-traumatic stress symptoms” or “suicide” or “insomnia” or “sleep problems” or “job loss” or “fear” or “social support” or “technology” or “teleworking” or “economic loss.” After identifying keywords, the Boolean operators, “OR” and “AND” were used to combine the keywords. After using the Boolean operators, the combination of search terms generated include; “covid-19” AND “mental health”, “covid-19” AND “employees mental health”, “mental health” OR “psychological well-being”, “covid-19” AND “innovation”, Innovation” OR “creativity”, “covid-19” AND “mental health” AND “employees.”.

3.3. Inclusion and exclusion criteria

Various inclusion and exclusion strategies were used to select the right articles for this project. Inclusion and exclusion criteria are important in systematic review because they set limits on the articles to be used in the study (Sanfilippo et al., 2020). Inclusion and exclusion criteria also ensure that only credible sources that answer the research questions are selected and used. Since this study was investigating the impact of covid-19 on the mental health and creativity of employees, only studies published from December 2019 onwards were used because Covid-19 was first reported in December 2019 (WHO, 2020). Further, only articles published in the English language were selected and included in this study because there was no translator. No article was excluded based on the country of publication. Articles published in any country were included in the study to reduce bias and understand the impact of covid-19 on the phenomena being investigated in detail. Since this study was investigating the impact of covid-19 on the mental health and creativity of employees, studies that captured employees from any industry were included.

3.4. Credibility and reliability criteria

Creditability and reliability criteria were used to select appropriate articles for this study. Although there is no specific criteria or system for conducting creditability and reliability analyses s since their analysis depends on the context of research (Bin Ali & Usman, 2018), screening was done for the articles used in this study. Quality assessment for this systematic review was done using Farrington’s methodological quality assessment scale (Farrington, 2003). Farrington’s (2023) scale comprises four criteria that can be used to determine quality studies as illustrated in Table 1 below. While considering the quality criteria, the researcher was mindful to consider the difference between quantitative and qualitative studies.

Table 1: Farrington's Scale

Criteria	Description of the criteria	Examples of how a criterion was checked	
		In a qualitative study	**In a quantitative study**
Descriptive validity	The factual accuracy of the account as reported by the researchers (i.e., the extent to which the gathered information is accurate and objective).	Did the author's record and transcribe the statements accurately? Did the authors explain how data was collected and reported?	Not Applicable
Statistical inclusion validity	Whether the presumed cause and the presumed effect are related	Not Applicable	Does the paper use the right statistical tests? Does the paper involve an adequate sample size that represents the population?
Construct validity	For qualitative studies: Examines the objectivity of the researcher (i.e., the findings are derived from the data itself and not influenced by the researcher's assumptions or beliefs). For quantitative studies: Refers to the adequacy of the operational definitions, and measurements of theoretical constructs.	Did the researchers use data triangulation (i.e., use of multiple sources of evidence)?	Does the paper provide a detailed description of the scales used in data collection
External validity/transferability	For qualitative studies: The extent to which the results obtained from the study can be generalized beyond the setting of this study. For quantitative: The extent to which the results obtained from the sample can be generalized to the population it was drawn from.	Does the study compare and contrast multiple case studies to enable theoretical generalizability? Does the study provide a "thick description" of the research setting?	Was the sample randomly selected? if not, what measures were taken to reduce selection bias?

Source: Al-Tabaa et al. (2019).

3.5. Sample Size

Out of the 1,200 articles that were initially identified, 28 articles met the inclusion and exclusion criteria and were used for this study. The process of obtaining the sample size or studies that met inclusion and exclusion criteria was done using the PRISMA approach (Figure 1).

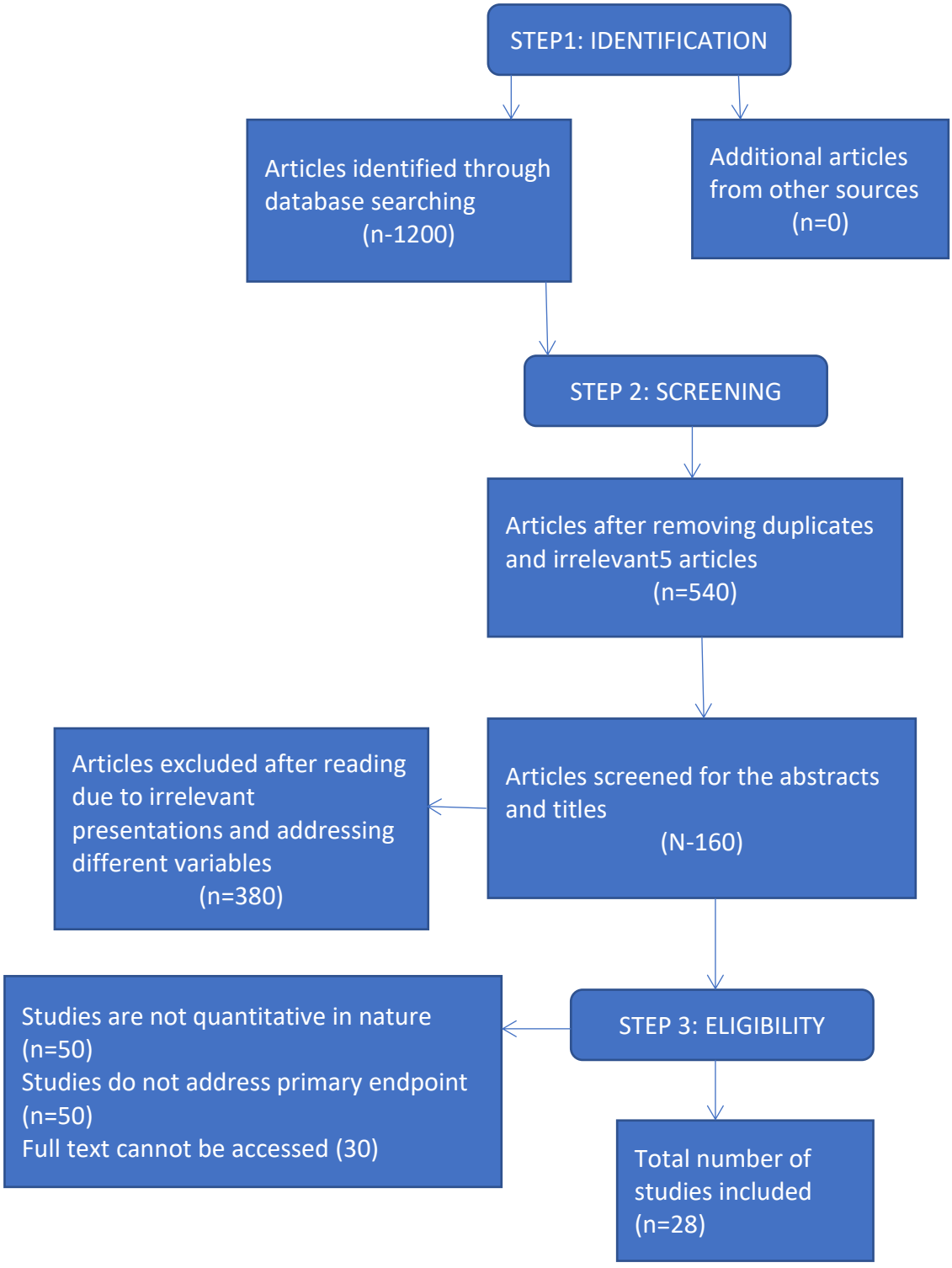

Figure 1: Research design

4. Results

4.1. Profession

Among the 28 articles considered, 35.71% (10 articles) used healthcare workers as their target group while 15 articles or 53.57% used employees from other industries.

4.2. Methodology

The majority of the studies used were quantitative studies (9 studies) followed by systematic review studies (6); four studies used the qualitative method and cross-sectional studies each while only one study used the longitudinal method (Figure 2).

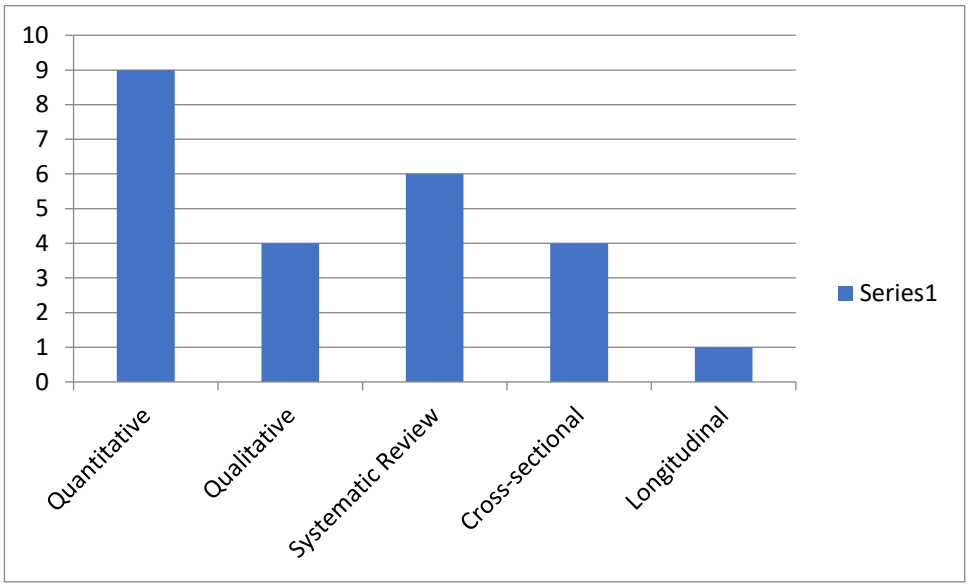

Figure 2 Methodology used

4.3. Country of publication

The majority of the articles (7 studies) were published in China followed by the United States and the UK (4-each); 2 studies were published in Israel and Germany while India, Italy, Africa and Europe published one each (Figure 3).

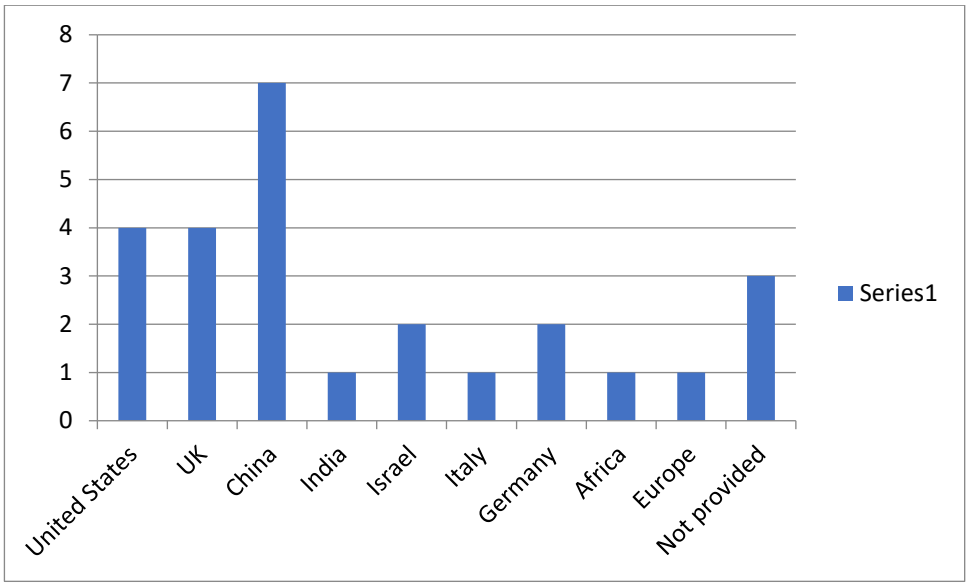

Figure 3: Country of publication

4.4. Types of mental health caused by Covid-19 on employees

The results from the 28 articles used revealed that stress was the major mental health problem scoring 35.71% followed by fear at 25.00%; about 14.29% of employees experience depression while anxiety and sleep disorders scored the least with 7.14 and 3.57% (Figure 4).

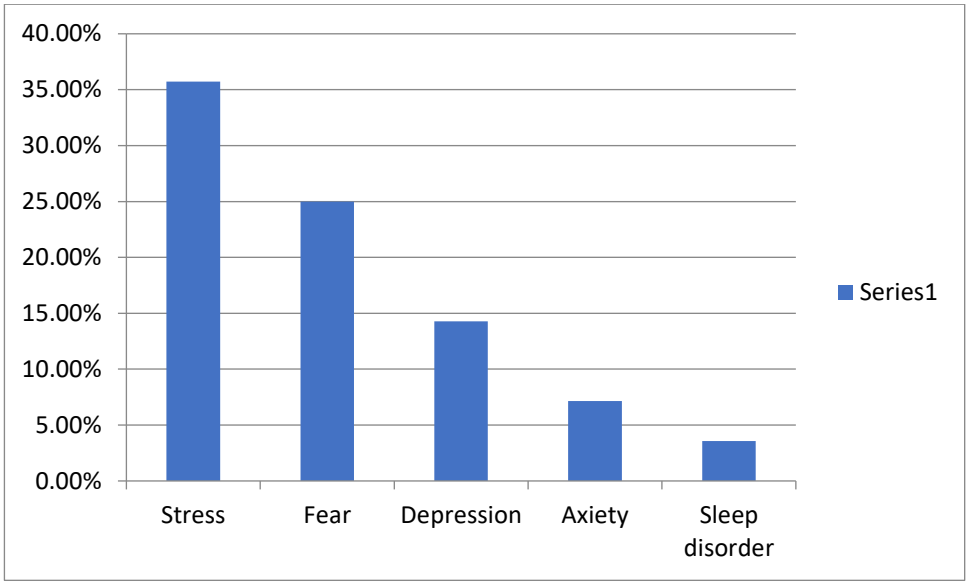

Figure 4: Types of mental health caused by Covid-19 on employees

4.5. Causes of mental health

Various causes of mental health among employees were discovered as shown in the table above. The major cause of mental health among employees was fear of job loss (33.33%), lack of social support (20.00%) and stress (13.33%), while the least was lack of clarity, lack of direction, depression and anxiety scoring 6.67% each (Table 2).

Table 2: Cause of mental health

Causes of Mental Health Among Employees	Frequency	Percentage
Lack of social support	3	20.00%
Lack of clarity	1	6.67%
Lack of direction	1	6.67%
Lack of communication	1	6.67%
Fear of Job Loss	5	33.33%
Stress	2	13.33%
Depression	1	6.67%
Anxiety	1	6.67%

4.6. Impact of creativity and innovation on employees

The figure above shows the impact of creativity on employees during the Covid-19 pandemic. The major impact was enhancing resilience with three articles reporting the same followed by helping employees overcome Covid-19 challenges and manage stress respectively (2 articles each). However, three articles also reported that creativity and innovation have caused stress to employees. One study reported that Covid-19 helps employees to accomplish tasks, reduce burnout, reduce depression, enhance productivity and regulate emotions.

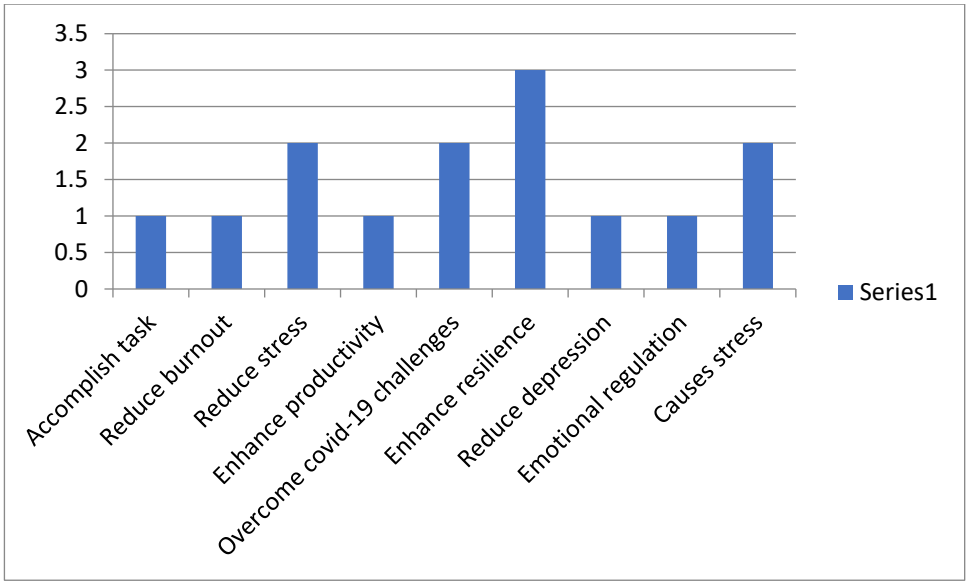

Figure 5: Impact of creativity and innovation

4.7. Major innovations and creativities

The major innovation and creativity following Covid-19 was teleworking with 45.45% of the articles reporting that employees are embracing teleworking to cope with challenges caused by the Covid-19 pandemic (Figure 6).

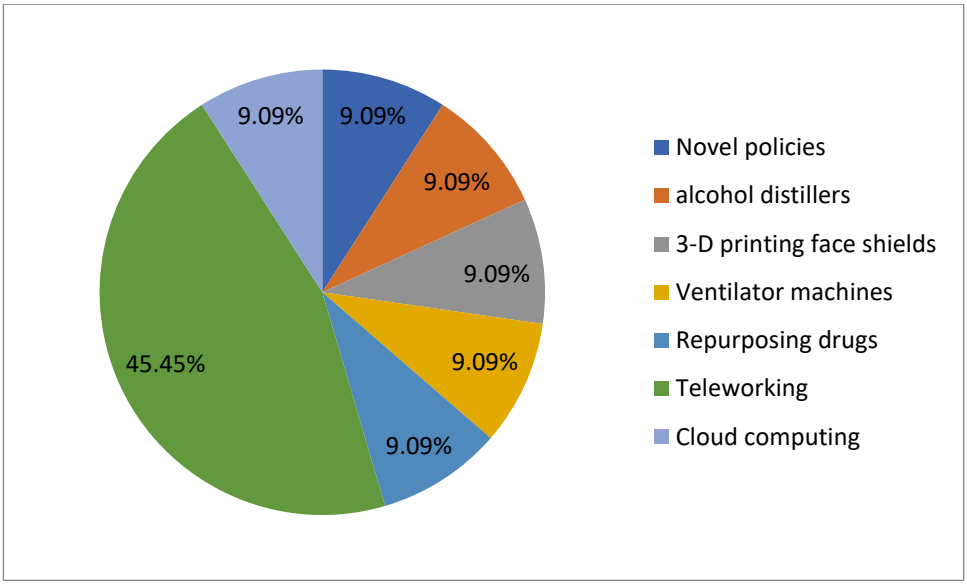

Figure 6: Major innovations and creativities

5. Discussion and conclusión

5.1. Employees' profession

The study revealed that most studies have focused on healthcare workers (35.71%). Although this number is smaller than the other category that was investigated (other workers), it is still a large percentage because comprised of all other sectors. It was crucial to investigate the impact of covid-19 on employees' mental health from different sectors because they may have experienced unique challenges. The findings concerning the employee profession are similar to various studies and reports. According to the World Health Organization (2021), healthcare workers are one of the most affected groups because they were the first people to intervene and face deadly diseases even when many of the protective measures and the nature of the diseases were unknown. According to the report, healthcare workers are frontline workers who face a lot of challenges in the war against the Covid-19 pandemic. In addition to the risk of exposure to the virus, while treating infected patients, they also face other challenges such as lack of personal protective equipment, lack of incentives and insurance, burnout, stress, and surge capacity among others compared to professions in other fields (WHO, 2021). Similarly, Perante et al. (2022) argued that healthcare workers are the most affected working group following the Covid-19 pandemic because they are among the first respondents who stood on the frontline in the wake of the pandemic. The nature of their job also creates more challenges for healthcare workers because they are physically exposed to the disease, and experience psychological distress and financial difficulties. Since multiple studies have proven that healthcare workers are among the most affected population following the Covid-19 pandemic, it

is most likely the reason why most researchers have focused on this group t understand the mental impact of Covid-19 on employees.

5.2. Sample size

The total sample size used by all 28 articles was 13,023. This means that at least each article had a sample size of 465. This is a fair representation meaning that the findings generated from this study may reveal the real picture of the phenomenon being investigated in this paper. The sample size is the small unit obtained from a larger population (Taherdoost, 2017). Since the sample size is a reflection of the entire population, it is critical to have the right sample size. It is also crucial to select the right sample size because it can affect the accuracy of the research. For instance, a small sample size may produce skewed results that do not represent the reality of the entire population while a very large sample may make the study too complex (Taherdoost, 2017). The criteria for selecting an appropriate sample size are found in the work of Krejcie and Morgan (1970). The software provided by Morse (1999) can also be used to determine the appropriate sample size. It is the responsibility of the researcher to select an appropriate sample size while considering the analysis technique and significant values. Other factors that may guide the researcher to select an appropriate sample size are; the research topic, the objective of the research, the number of subgroups, and the population (Delice, 2010). Generally, a sample size of 50 to 500 is usually considered appropriate. Based on these studies, it is clear that the articles used in this study had an average sample size that is considered suitable for research.

5.3. Methodology/Research design

The studies used in this paper employed different research methodologies or designs. The results reveal that they employed five methodologies (quantitative, qualitative, systematic review, cross-sectional and longitudinal). Using studies that employed diverse methodologies was crucial in understanding the phenomenon under investigation. It is nearly impossible to deny the findings from all those studies since they have tested similar things using the same methodology. Ed quantitative research method followed by systematic review. Quantitative research is the systematic investigation of a phenomenon that involves the collection of quantifiable data that can be transformed into usable statistics (Apuke, 2017). Quantitative data describes the characteristics of behavior and is easy to interpret. Since the current study aimed at presenting the findings quantitatively, then, the use of more quantitative studies was crucial. Further, more systematic reviews were also an advantage to the current study which is also systematic in nature.

5.4. Country of publication

The current research also investigated the country of publication for the resources used in the study. Most articles used in this study were published in China, the United States, and the United Kingdom. The findings from this study are similar to various reports and findings. According to the National Science Board report of 2019, China published more articles than any other country followed by the U.S. and European countries (NSB, 2019). However, the publications from the U.S are still more impactful in all fields (NSB, 2019). The same findings are provided by Wang et al (2020) who claimed that China is investing heavily in scientific research to match that of the United States.

5.5. Types of mental health caused by Covid-19 on employees

The study revealed that covid-19 causes different types of mental health which include; stress, fear, depression, anxiety, and sleep disorder. Among these, stress and fear were the most prevalent form of mental problems faced by employees (35% and 25 respectively. Anxiety and sleep disorders were the least prevalent. The findings from this study correlate with various studies conducted before. In a study conducted by Aly et al. (2021) among healthcare workers to determine their experience of stress, anxiety, and depression during the covid-19 period, 98.5% of the participants reported experiencing moderate to severe stress, 90.5% experienced anxiety while 94% experienced moderate to severe depression. Similarly, Vizhe et al. (2020) found that the prevalence of stress was 29.8%, anxiety was 24.1%, and depression was 12.1%. However, other studies have found that employees experience either more depression or anxiety than stress. For instance, in a systematic review study conducted by Salari et al. (2020), it was found that 29.6% of the participants experienced stress, 31.9% experienced anxiety, and 33.7% experienced depression. Regardless of the differences in scores, the finding from this study is similar to previous studies because they all found that mental health among employees is a major concern following the Covid-19 pandemic. Like previous studies, stress, anxiety, and depression are the major mental health problem that employees across all sectors are suffering from following the covid-19 pandemic.

5.6. Causes of mental health

The studies investigated various causes of stress among employees following the Covid-19 period, revealing that the major two causes of the mental health problem are fear of job loss and lack of social support. Loss of jobs is a major concern during the pandemic because most businesses were forced to close their businesses and lay off employees. Those who are still working are also not sure when their day will come because the Covid-19 pandemic is very unpredictable. Previous studies have confirmed this finding. According to Vanhaecht et al. (2021), employees are uncertain about

their jobs and are working under intense fear of losing their jobs and income. Studies have also revealed that social support is critical in helping people cope with challenges brought on by the Covid-19 pandemic. According to Hou et al. (2020), social support has a buffering role on stress; hence, helping employees manage their mental health. The findings from this study are also in accordance with the study by Szkody et al. (2021) who claimed that social support helps people manage stress, anxiety, and depression during the Covid-19 pandemic. Covid-19 has led to the establishment of stringent measures such as lockdowns and self-isolation subjecting people to a lot of stress and anxiety (Szkody et al., 2021). Lack of social support for such people can significantly impact their mental health. These two major factors (job loss and social support) are responsible for or explain why other factors such as stress and depression scored low because the level of stress, depression, and anxiety can significantly reduce where there is job security and adequate social support.

5.7. Impact of creativity and innovation on employees

The study investigated the impact of innovation and creativity and revealed different findings both positive and negative impacts. As provided in the results, the major positive impacts were enhancing resilience, reducing stress, and helping employees to cope with challenges brought on by the covid-19 pandemic. Three articles supported resilience as the key impact of creativity and innovation. The uncertainty created by Covid-19 requires strong resilience. Since life must continue following covid-19, it can only be achieved through strong resilience. The number of articles that reported that creativity and innovation reduce stress was the same as those that reported otherwise claiming that creativity and innovation cause stress. Multiple studies have found stress to be the major mental health challenge following Covid-19 (Aly et al., 2021; Vizhe et al., 2020). However, creativity and innovation can also create stress in a situation where employees are found unaware or unprepared to use new technologies at work (lhomdy et al., 2021; ILO, 2020). New technologies such as teleworking also affect employee engagement causing more mental health problems than solutions. The findings on helping employees to overcome Covid-19 challenges are also supported by wide literature. The Covid-19 pandemic has led to the establishment of stringent measures such as social distance policies, isolations, forced, lockdowns, employee layoffs, and travel bans (Giorgi et al., 2020). These challenges can be addressed by creativity and innovations such as video conferencing rather than physical meetings (De et al., 2020) and teleworking rather than going to the office (Lal et al., 2021). Other factors such as accomplishing the task, reducing burnout, enhancing productivity, and reducing depression scored low because they can be managed once the major three factors (resilience, stress, and overcoming Covid-19 challenges) have been addressed.

5.8. Major Innovations

The study investigated major innovations and creativity brought about by Covid-19 and found that teleworking (working from home) is the most adopted technology. 45.45% while the rest scored 9.09%. Most of the Covid-19 restrictions such as travel bans, social distancing, and lockdowns restricted most employees across all sectors except those providing essential needs from traditional working in the office. Teleworking was the best option to ensure that businesses and organizations remain viable (Lal et al., 2021).

6. Conclusions

The major aim of this study was to carry out a cross-cultural analysis of the impact of Covid-19 on employees' mental health. The study also analyse ways in which Covid-19 hampers creativity and innovation.

The systematic review method used has answered all four specific objectives of this study. Concerning the first objective on the impact of Covid-19 on the mental health of employees, the study has found that Covid-19 has had a major impact on employees' mental health. The major mental health problems following Covid-19 are stress, fear, depression, anxiety, and sleep disorder. This study has also achieved the second objective concerning factors that contribute to mental health problems among employees during Covid-19. The study has found that fear of job loss and lack of social support are the major factors causing mental health problems in employees following the Covid-19 pandemic. There were also other small factors such as stress, lack of clarity at work, poor communication, and lack of direction that this study identified. The study has answered the third objective of understanding the impact of Covid-19 on the creativity and innovation of workers. The study has revealed that creativity enhances resilience, reduces stress, helps employees manage challenges brought on by Covid-19, helps employees accomplish a task, controls emotions, and enhance productivity. The study has achieved objective four concerning the types of creativities and innovations brought by Covid-19 on workers. The major type of creativity identified is teleworking while others include novel policies, 3-D printing, ventilator machines, repurposing drugs, and cloud computing.

Thus, we conclude that (1) the Covid-19 pandemic had a cross-cutting impact on the mental health of organizational employees, (2) creativity helps mitigate the impacts of Covid-19, and (3) Covid-19 was a source of creativities and innovative solutions for employees. As a global phenomenon, the impact of Covid-19 on employees' mental health and creativity has been the subject of growing interest in the scientific community. This interest has materialized in the production of scientific papers by researchers of various nationalities, establishing comparative analyses between several countries, and substantiating cross-cultural studies.

Although this study has answered the research objectives, there are still some gaps that require further studies.

This study is significant because it adds knowledge to the existing literature. The existing literature is still limited because few studies on this topic have been conducted. Therefore, conducting this study will add new critical knowledge regarding the impact of Covid-19 on employees' mental health and creativity, and innovation. This study is also crucial because its findings can be used by employers to initiate strategies to address the impact on mental health. Having workers with mental health problems can negatively affect productivity and performance. Therefore, this study will help employers address mental health problems. Further, this study is important because it could help organizations determine how to operate and enhance productivity during the Covid-19 pandemic. Findings on the impact on creativity and innovation may help organizations adopt appropriate technology to ensure they remain operational during the pandemic. Moreover, this study is crucial because it forms the background for future studies. Through this study, research gaps may be identified that may need further investigation in the future.

Most studies used in this paper focus on healthcare workers and few on social support workers. Very few studies focus on other industries. The findings from studies using samples of healthcare workers may not reflect the reality in other industries where workers do not treat affected patients. This makes it harder to use such findings for generalization purposes. Therefore, more studies that focus on other industries are still needed. Most studies related to this topic are published in China and based in Wuhan, the first city to report Covid-19. China was not affected more by Covid-19 than many other parts particularly the U.S. and Europe. Therefore, there is a need for more studies that focus on the most affected region such as the U.S. and Europe. Most studies used in this project have used cross-sectional studies. Although some have used a large sample size, their findings cannot be used for generalizability. There is, also, a need for more investigation on this matter using longitudinal studies and empirical evidence. Multiple studies used in this paper have used a small sample size. It is not possible to use their findings for generalizability; hence, the need for more research that uses a large sample size (Zhai et al., 2021). Very few studies investigating the relationship between creativity and mental well-being have been conducted. Therefore, more studies should be conducted in this area.

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