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Title: Psychological impact of the COVID-19 pandemic on mental health nurses

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Abstract

The aim of this research was to assess the psychological effects of the novel coronavirus disease (COVID-19) on mental health nurses. An internet-based questionnaire that included the Impact of Event Scale-Revised (IES-R) and the Zung Self Rating Anxiety Score (SAS) was used to assess the impact of the pandemic on the wellbeing of mental health nurses in an Irish mental health service. Among the nurses surveyed (n=161), twelve percent of the participants had an overall IES-R score from 24 to 32 indicating that posttraumatic stress disorder (PTSD) was a clinical concern, while 38% had an overall IES-R score >32 indicating that PTSD was a probable diagnosis. The mean SAS score that had been converted to anxiety index scores was 40.78 (SD = 9.25). The results showed that 30% of mental health nurses experienced anxiety levels from moderate to extreme. Overall findings confirm that mental health nurses are experiencing psychological distress as a result of working during the COVID-19 pandemic. Nurses who were < 30 years of age or who were in their current roles for less than a year or were ward-based and worked full-time, were most likely to be affected. Working during COVID-19 has not been routine work practice and for a cohort of workers who are already under pressure, the sacrifice in terms of general well-being has been immense. The offer of individualized psychological support for mental health nurses working during the pandemic should be both practical in nature and flexible enough to meet individual needs.

Introduction

The novel coronavirus strain named SARS-CoV-2 that causes severe respiratory illness originated as a cluster of unexplained pneumonia cases in Wuhan in China in late 2019. In 2020, it began rapidly spreading and the World Health Organization (WHO) declared a world pandemic on 11 March 2020, following the spread in 114 countries (Di Gennaro et al., 2020). The Republic of Ireland (ROI) saw its first COVID-19 case on 29 February 2020, with its first attributed death on 11 March 2020. Widespread outbreaks of infectious disease, such as COVID-19, are associated with psychological distress and symptoms of mental illness (Moghanibashi-Mansourieh, 2020; Shechter et al., 2020; Spoorthy et al., 2020). It is known from research conducted in the aftermath of previous pandemics such as Ebola (O'Leary et al. 2018) and Severe Acute Respiratory Syndrome (SARS) (Sim et al., 2010), that a heavy mental burden lingers in the general population, caused by quarantine and living through uncertainty. Studies that have attempted to assess mental health trends since the beginning of the COVID-19 pandemic have reported symptoms of anxiety disorder, depression, and loneliness (Fancourt et al., 2020). A rapid review from the first phase of the pandemic (Sheridan-Rains et al., 2020) highlighted the spectrum of deteriorating mental health for those with existing difficulties. As the number of the general population affected by this pandemic continues to rise, the mental health profession faces both a challenge and an opportunity (Kirwan et al., 2021). In his paper, Fearon (2020) sums up changes that took place in a mental health service as 'initiatives that would have been unthinkable two months ago are now mainstream' and as a result, staff have had to adapt quickly.

For health care workers (HCWs) in the pandemic, Santarone, McKenney and Elkbuli (2020) found that psychological burden and general wellness received heightened awareness, with research continuing to show high rates of burnout, psychological stress and suicide. HCW's continue to face several challenges, including treating patients with COVID-19, helping to reduce the spread of infection, developing short and long-term approaches to continue to treat patients in a safe environment. Bao et al. (2020) report that HCWs who are caring for patients who are either severely ill, feel scared, or experiencing bereavement are themselves exposed to trauma. HCW's also run the risk of becoming infected by the virus and the ensuing challenges and stress they may experience, can trigger common mental disorders, including anxiety and depression and posttraumatic stress disorder (Bao et al., 2020).

Recent research evidence has shown that HCWs who have direct contact with COVID-19 patients are at higher risk for anxiety (Liu et al., 2020). Chen et al. (2020) carried out a study to assess the psychological effects of the coronavirus disease on medical staff and the general population. Amongst the findings, 50.97% of interviewees responded that they needed psychological counselling, of which medical staff (doctors and nurses) accounted for 65.87%. Chen et al. (2020) concluded that during the ongoing COVID-19 outbreak, great attention should be paid to the mental health of the population, especially medical staff and measures such as psychological interventions should be implemented for lowering the psychosocial effects.

In terms of posttraumatic stress disorder (PTSD) and the severity of the condition, Cénat et al. (2020) and Dutheil et al. (2020) confirm that it is a common consequence of pandemics. Similar adverse psychological reactions were reported among health care workers in studies during the 2003 SARS outbreak (Bai et al., 2004). Wen et al (2020) completed a recent study involving 1,563 HCWs and they found that more than half of the participants reported depressive symptoms, 44.7% anxiety, and 36.1% sleep disturbance. Khanal et al.'s (2020) study found that HCW's directly involved in the diagnosis, treatment, and care of patients with COVID-19 were at risk of developing mental health symptoms. Their study aimed to identify factors associated with anxiety, depression and insomnia among HCW's involved in COVID-19 in Nepal. They concluded that more than one-third of the participants had some symptoms of anxiety, over a third of the participants experienced symptoms of depression and symptoms of insomnia were also prevalent in over a third of the participants. Significantly, they found that nurses had a higher proportion of symptoms related to 'abnormal' anxiety, 'abnormal depression' and severe clinical insomnia when compared to other professions (Khanal et al., 2020).

Johnson et al. (2021) explored the experiences of a mixed group of mental health staff and highlighted challenges around infection control and the transition to new ways of working. They found that whilst the multiple responses to the COVID-19 crisis were cautiously welcomed, staff had specific concerns about mental health service users, including people whose conditions are exacerbated by pandemic anxieties and social disruptions and those who cannot engage with remote care. A recent mixed methods study by Foye et al. (2021) also highlights the major challenges facing inpatient mental health nurses in providing care and

treatment while wearing PPE and maintaining social distancing with patients who may not have capacity to understand guidelines, and within environments that are often unsuitable and unadaptable. These concerns are also expressed by Kozloff et al. (2020), who discuss difficulties in implementing infection control and social distancing guidance in settings where people may be very distressed or cognitively impaired. Kirwan et al. (2021) describe the immense changes that one mental health service had to undergo since the pandemic began, in order to cope with the rapid and vast transitions to remote working, infection control and the challenges of maintaining standards of care for mental health service users.

In an international position paper concerning the impact of COVID-19 on mental health services (Moreno et al., 2020), a call is made to rethink conventional approaches to systems planning and greater inclusion of service users, carers, and representatives of populations who experience health disparities. This echoes many other expert views expressed since the start of the pandemic, concerning the potential negative impacts of the pandemic on mental health services (Percudani et al., 2020; Yao et al., 2020). The challenges confronting mental health services and the nurses who work in them, provide opportunities also, for positive service developments (Kavoor et al. 2020; Samuels et al. 2020). However, there is a lack of research directly assessing and reporting the experiences and perspectives of those currently working in the mental health system and whom are attempting to respond to these challenges on the frontline (Johnson et al., 2021). Finally, the World Health Organization has advocated for the integration of mental health and psychosocial support into the COVID-19 response (WHO, 2020). It is necessary therefore, to consider the experiences and health of those who are the frontline of our mental health services to ensure that investments made now will reduce the predicted burden on mental health services later.

Study methods

Aim
It is recognized that for mental health nurses, 2021 will present significant challenges (Thomas, 2021). To date, the majority of COVID-19-related publications have centred on the physical aspects and consequences of the pandemic with less consideration on the mental health impacts that continue to evolve. This study therefore aims to examine the impact that the

COVID-19 has had on the psychological wellbeing of mental health nurses and to determine future psychological support needs.

Setting

The mental health service at the centre of this study is the largest independent provider of mental health services in Ireland. It consists of three inpatient-approved centres; a 241 adult bed and a 14-bedded adolescent unit on the man site with an additional a 52-bedded adult approved centre outside the main campus. The service provides a wide range of mental health specialties, including general adult psychiatry, psychiatry of old age, addictions and dual diagnosis, eating disorders, anxiety disorders, a young adult service. It also offers a wide range of day programmes that are accessed internally or via direct primary care referral, and a network of outpatient and community-based clinics.

The service remained open throughout the pandemic and continued to treat services users either in-patient or via a remote in-patient homecare service. Since March 2020, change occurred at a fast pace. A reduction in person-to-person contact was implemented across all areas and there was limited access to the campuses, which included restricted visiting hours. The wearing of face-masks was implemented for all members of staff. For ward-based nursing staff, many of the familiar routines associated with caring for a person with mental health illness changed. The activities that might bring people into close contact ceased and all the learning and teachings on communication skills that are the corner stone of mental health nursing changed radically. Nursing handovers and ward rounds were done via electronic devices, with nurses allocated different rooms to maintain distance. Breaks were also taken alone or were socially distanced.

Participants and inclusion

All mental health nurses (n =300) who worked across the three settings described above were invited via email link to participate in this study. Nurses who were not yet qualified and whom did not work during the pandemic were excluded.

Recruitment and data collection

An online survey was distributed via Qualtrics to all mental health nurses who worked across an Irish independent mental health service (n =300). Data collection period was from September-October 2020. All responses (n =161) were recorded and subjected to analysis using SPPS (V26.0).

Measures
The Impact of Event Scale (Revised) (IES-R) was used, consisting of 22 items in three subscales: (a) the intrusion subscale with eight items related to intrusive thoughts, nightmares, intrusive feelings and imagery, and dissociative-like re-experiencing, (b) the avoidance subscale with eight items related to feelings, situations and ideas and (c) the hyperarousal subscale with six items related to anger, irritability, difficulty concentrating, hypervigilance and heightened startle. Each item is rated on a scale from 0 to 4 (0 = "not at all," 1 = "a little bit," 2 = "moderately," 3 = "quite a bit," and 4 = "extremely") over the past seven days. Participants were asked to indicate how distressing each item had been for them during the past seven days specifically in this research with respect to the COVID-19 pandemic and the lockdown measures. Participants with a maximum overall IES-R score of above 23 are recognized to be a clinical concern for PTSD (Weiss, 2004; Weiss, 2007). In particular, PTSD is a clinical concern in individuals with IES-R score from 24 to 32 (Asukai et al., 2002), while PTSD is a probable diagnosis for individuals with IES-R score of above 32 (Creamer et al., 2003). To measure traumatic stress symptoms in the context of viral outbreaks, the Impact of Event Scale has found to be valuable (Horowitz, 1979).

The Zung Self Rating Anxiety Score (SAS) (Zung, 1971) is a 20-item instrument based on scoring in four groups of manifestations: cognitive, autonomic, motor, and central nervous system symptoms that enables participants to rate their current levels of anxiety, covering both psychological and somatic symptoms. For each item, respondents indicated their response using a scale of 1 (none or a little of the time) to 4 (most or all the time). Thus, the total raw scores ranged from 20 to 80, which are then converted to an "Anxiety Index" (AI) score, which can then be used on this scale to determine the clinical interpretation of one's level of anxiety. Index scores are determined by dividing the sum of the raw scores by 80, and multiplying by 100. A raw score - index score conversion table is provided by Zung (1971, p. 376). Based on the AI, the participants were categorized as: no anxiety (AI: 20-44); minimal to moderate (AI:

45-59); severe (AI; 60-74); and extreme anxiety (AI ≥75).Previous studies have shown that the SAS has good internal consistency with a Cronbach's alpha of 0.83 (Dunstan and Scott, 2020).

Statistical Analysis

Categorical variables are described in terms of frequency and percentage, and continuous variables are described in terms of mean and standard deviation. All statistical analyses were performed using SPSS (26.0). A Mann-Whitney U test and one-way ANOVA was used to determine significance of difference in continuous variables between groups. A p value of <0.05 determined significance.

Ethical considerations

The hospital research ethics committee provided ethical approval and all ethical and governance processes were followed throughout the study (Ref: Protocol 07/20). The participants provided informed consent to participate in this study. All data collected was anonymous in nature, thereby ensuring confidentiality of participants was maintained throughout. Participants were informed of the anonymity of their participation in the information leaflet prior to providing consent to participate.

Results

Sample Demographics
The online survey for this study was distributed to 300 mental health nurses. A total of 161 completed the survey and were included in the data analysis (Table 1). However, only 119 completed the IES-R in full and 124 completed the SAS. The gender breakdown for the whole group was 82% female (n= 132) and 18% male (n= 29). A significant number (78%, n=126), were under the age of 50 years with the largest age category in the 30-39 age range (34%, n =55). They were an experienced group of nurses with 62% (n = 100) qualified over ten years and 45% (n =28) in their current role over ten years. The majority of the group worked full time at 78% (n = 126) and 66% were ward based nurses (n=106).

Insert Table 1: Demographic variables

The Impact of Event Scale-Revised (IES-R) was used to measure the psychological distress in response to working through the COVID-19 pandemic (see Table 2). As a group (n =119) the Mean score >24, indicating that posttraumatic stress disorder (PTSD) is a clinical concern. According to the creator of the IES-R, individuals with maximum overall IES-R score of greater than 23 are of concern (Weiss, 2007). In particular, PTSD is a clinical concern in individuals with IES-R score from 24 to 32 (Asukai et al., 2002), while PTSD is a probable diagnosis for individuals with IES-R score of above 32 (Creamer et al., 2003). Increased scores on the IES-R and the subscales are representative of greater distress and are associated with increased concern for PTSD and health and well-being consequences. IES-R score from 24 to 32 were present in 12% (n =15). Whilst scores >32, indicating a probable diagnosis of PTSD were present in 32% (n = 38) of those surveyed.

In the IES-R, 73% of participants (n =119) responded positively to the statement 'I thought about it when I didn't mean to', 70% 'stayed away from reminders about it', 69% 'tried not to think about it', 67% 'other things made me think about it' and 66% agreed that 'I avoided letting myself become upset when thinking about it.'

*** Insert Table 2: Impact of an Event Scale (Revised) ***

When means are compared across work settings (ward/non-ward based), age range and years' experience as a nurse, there were higher mean IES-R ranges in nurses who worked full-time and had less than one year in their current work setting. Ward based nurses compared with non-ward based nurses represented a significant increase in IES-R scores (p< 0.05). In terms of age, those aged >50 years were the only group not to score within the clinical range (M=20, SD=16) (see Table 4). The mean SAS score for the group was 40.78 (SD 9.25) with the severity of anxiety represented in Table 3. 48% of respondents (n =124) reported feeling 'more nervous and anxious than usual' some or most of the time, 33% 'frequently felt upset' some or most of the time, 31% 'felt afraid' some or most of the time and 31% 'felt that things were ok' little or none of the time.

***Insert Table 3: Severity of Anxiety in Zung Self-Rating Anxiety Scale (SAS) (n=124) ***

Insert Table 4: Comparison of IES-R and SAS scores among subgroups of sample population and statistical significance

Discussion

The aim of this study was to explore the psychological impact of mental health nurses working during the COVID-19 pandemic. Results indicated that 30% of mental health nurses experienced SAS anxiety levels from moderate to extreme and that mental health nurses are experiencing considerable psychological distress as a result of working during the COVID-19 pandemic. In terms of distress rated by the IES-R scale, nurses under the age of 30 years, who were in their current roles for less than a year, were ward based and worked full-time, were most likely to be affected.

Any major pandemic outbreak will have a negative psychological effect and COVID-19 is no different. A recent systematic review examined 61 viral epidemic outbreak studies and concluded that the prevalence of anxiety, depression, PTSD and burnout was high during and after outbreaks (Serrano-Ripoli et al., 2020). They revealed this to be of particular concern for the long-lasting effect on the mental health of healthcare workers. Other recent research exploring the experience of caring for patients with the COVID-19 virus (Chen et al., 2020; Maben & Bridges, 2020; Frawley et al., 2020) suggest that mental health nurses are likely to encounter ever more distressing, social and emotional challenges in clinical practice. They not only have to deal with the major changes to their everyday working environments and the threat of contracting or passing on COVID-19, but also the elevated distress of those in their care. Mental health patients may not always have the capacity to take on board public health advice on social distancing and hygiene adding to this distress (Moreno et al., 2020). Remote care has proven to be successful in some instances (Liu et al. 2020b), however there are also challenges and drawbacks in its' use, especially for people who might be in most need. Potential issues include access and knowledge of the requisite technology, internet access, data allowance costs, and privacy and data security (Moreno et al., 2020). In the long term, addressing these and other issues can leave mental health nurses exposed to additional stressors or work-based challenges.

A large Chinese study on the public psychological states of 600 people during the COVID-19 outbreak showed that their SAS score was 36.92 (SD = 7.33) and 6.33% had anxiety (Wang et al., 2020). In comparison, the participants of this study had a mean SAS score of 40.78 (SD = 9.25), with 30% demonstrating some degree of anxiety. Our results indicate that mental health nurses therefore had higher anxiety than the general population cohort measured directly after the outbreak of COVID-19. In a similar study, healthcare workers were anxious regarding their safety and the safety of their families and reported psychological effects from reports of mortality from COVID-19 infection (Cai et al., 2020; Peeri et al., 2020). This correlates with other literature highlighting the psychological impact for healthcare workers during COVID-19, specifically nurses (Maben and Bridges, 2020; Taylor and Bridges, 2020). More specifically, in our study, the group of nurses in the age range of 20-29 years scored higher in their SAS scores (43.38) than the group mean (40.78) and their colleagues in older age groups. Research has shown that newly qualified mental health nurses experience fear during their adaptation period, especially when they perceive mental healthcare users as dangerous and the working environment as risky, with little concern for their safety (Mabala et al., 2019). They have been found to experience an extensive range of emotions, such as anxiety, fear, depression, emotional exhaustion, helplessness, feeling of immense time pressures, and despair (Ebrahimi et al. 2016). Navigating this transition vis-à- vis a global pandemic goes some way to explain these higher scores in this age cohort.

This study also found that PTSD was a clinical concern for 12% of the group and a probable diagnosis in 32% using the IES-R scale. In a similar study, Wang et al. using the same cut-off points for the IES-R, found that PTSD is a clinical concern in 22% of the participants and a probable diagnosis in 54% (Wang et al., 2020). The differences here may be related to the fact that the data in the Wang et al. study (2020) was collected during the initial phase of the COVID-19 outbreak in China from 31 January to 2 February 2020, when a lack of medical evidence regarding the treatment and prevention of the disease, the exponential rise in the number of infected people, and the increasing death toll was creating global alarm and anxiety.

In our study, there was a significant difference in IES-R scores for nurses who were ward based compared to those who were non-ward based. In other words, those who had direct patient contact were most impacted by the pandemic. A Chinese study (Lai et al., 2020) also revealed

a high prevalence (71.5%) of mental health symptoms measured by the IES-R scale among health care workers with direct contact of patients with COVID-19. Mental health nurses are the staff who spend most face-to-face time with patients in acute settings and as such have had to adapt their practice significantly since the start of the pandemic. They are also dealing with people who are highly distressed by their own mental health difficulties, which may have been exacerbated by the pandemic. The use of personal protective equipment, social distancing and restricted visiting means that the usual therapeutic tools of engagement are compromised with patients in some cases left even more distressed or suspicious through lack of capacity to understand the new restrictions (Johnson et al., 2021). There is an added layer of complexity when having to use physical restraint for people at risk of harm or suicide adding further to the burden facing the mental health nurse.

Practice implications

The safety and well-being of mental health nurses who have been serving on the frontline should be the priority for care and support as the pandemic battle recedes. The responsibility of psychological well-being is often left to the individual and in nursing, this equates to the much used concept of resilience, that for Traynor allows organizations 'off the hook' in terms of their responsibility to the employee (2018). For mental health nurses, working during the COVID-19 pandemic has not been routine work practice and for a cohort of workers who are already under pressure, the sacrifice in terms of general well-being has been immense. The offer of individualised psychological support for mental health nurses working during the pandemic should be both practical in nature and flexible enough to meet the needs of the individual.

Research implications

Frawley et al. (2020) report there will be an unintended, yet enduring impact of the pandemic in the context of individual mental health. COVID-19 has resulted in an increase in known risk factors for mental health problems (Moreno et al., 2020). Lockdown and physical distancing has led to social isolation, loss of income, loneliness, limited access to basic services, increased access to food, alcohol, and online gambling, and decreased family and social support for those most vulnerable. There is an onus therefore on the research community to focus on the

experiences and perspectives of mental health nurses (O'Connor et al., 2020) so that they are best supported and robust enough to provide the necessary care to those in need. Further research exploring the impact of psychological supports specifically for mental health nurses in the frontline is necessary to evaluate the most appropriate interventions. Maben and Bridges (2020) in looking at the type of supports necessary for nurses post-pandemic, highlight a multi-layered approach addressing physiological and safety needs, offering peer and team support and addressing the roles and needs of managers and leaders as well as long-term recovery support needs.

Strengths and Limitations

To our knowledge, this is the first quantitative study evaluating the psychological impact of working during the COVID-19 pandemic on mental health nurses. However, there are some limitations in this study. Firstly, the survey collection point is for one period of time, just before the second wave of the pandemic in the Republic of Ireland. Follow-up studies on the longer-term mental health effects of this population need to be further explored. Secondly, the sample size of the questionnaire survey is limited, a larger sample survey can further reduce the bias. The uptake of this survey was most likely affected by the pandemic and it is a possibility that those most affected were not inclined to fill out a survey. Additionally, participants were not asked about personal issues such as family concerns, isolation, financial and other issues that may have accounted for these high scores. Future research should consider a longitudinal perspective on this pandemic, using repeated data points to see if and how experiences have changed over the course of the pandemic and include questions regarding personal issues that may contribute to the distress experienced.

Conclusion

The response to the COVID-19 pandemic has had a significant impact on mental health services (Moreno et al., 2020). For mental health nurses, navigating the rules of ever changing practices and adapting roles to meet the requirements of infection control has not just been a one off event, but a sustained period of flux. The healthcare crises experienced during the peaks of the COVID-19 pandemic have borne witness to the capacity of the nursing profession to respond to and adapt practices successfully. However, the long-term effects of this sustained period of crisis has yet to be addressed. The provision of psychological support for mental health nurses

working during COVID-19 is now a priority for the preservation of their wellbeing in both the short and long term. The response required from those in authority should be both preventative in the case of those least affected, to actively responsive to those struggling most. Whilst we are still living with COVID-19, this response should also be flexible as the needs of the mental health nurse population changes over the course of the pandemic. In line with the findings of this study, individualized psychological interventions targeting the post-traumatic nature of the distress should be established, especially for mental health nurses at greater risk of suffering from psychological distress.

In summary, COVID-19 is not just a medical pandemic, but an event that is disrupting our social order (Teti et al., 2020). Whilst most people were told to stay home, frontline workers including mental health nurses continued working in unprecedented times. In the wake of the outbreak, there has been widespread attention rightly given to the clinical treatment of the disease in general health settings. However, equal attention should now be paid to nurses working in mental health settings as the severity of the disease recedes and mental health services come under increased pressure.

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