



Professional and personal opinions of doctors in training during the first wave of the COVID19 pandemic

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Abstract

Background The COVID19 pandemic is one of the greatest modern global healthcare crises. The resultant morbidity and mortality of public and healthcare professionals has led to psychological impacts and economic repercussions. We set out to assess the concerns of doctors in training during this crisis.

Methods A questionnaire was developed and delivered via Survey Monkey to doctors in training from 27 March to 6 April 2020, 2 weeks prior to the expected surge in Ireland and UK. The Perceived Stress Scale (PSS) was incorporated to gauge respondent stress as they prepared for the COVID19 impact.

Results A total of 285 participants engaged with 197 (69%) completing all questions. Almost 86% of respondents had been trained in donning and doffing personal protective equipment (PPE), and nearly 85% felt confident in the process. Overall, most respondents felt somewhat prepared (60%) or well prepared (20%) to treat COVID19 patients. However, 42% worried that their hospital would struggle, or not cope at all; in particular, 91% highlighted the risk of running out of PPE. Family health (86%), personal health (72%), and social life (47%) topped the list of junior doctor concerns. According to the PSS, the majority of respondents (62%) had moderate stress.

Conclusions This survey is the first to measure the concerns of doctors in training in Ireland as regards the COVID19 pandemic. Worries included PPE exhaustion and personal and family health. A significant majority had moderate stress. Additional supports for doctors in training are essential to aid stress and manage concerns better.

Keywords Burnout · COVID19 · Doctors in training · NCHD · Physician stress

Introduction

The novel coronavirus SARS-CoV-2 was first detected in Wuhan, China, in December 2019 [1]. Since then, the virus has spread around the world with marked variations in impact. The World Health Organization declared it as a pandemic on 11 March 2020 [2]. Some countries have experienced relatively larger volumes of patients, overwhelming hospitals and healthcare systems, and resulting in the deaths of a significant number of healthcare professionals [3, 4]. As cases grew worldwide, unaffected countries braced for the impact of COVID19, preparing for the worst-case scenario in many places [5]. The first positive case for COVID19 was detected in Ireland on 29 February 2020 in Cork [6].

From this time, cases and deaths in Ireland increased steadily. As of 24 September 2020, the total number of confirmed cases in Ireland was 33,675 while the total number of deaths was 1794 [7]. Ireland also reports that 27% of COVID19 positive cases were healthcare workers [8]. The COVID19 pandemic impact on the general population has included anxiety, depression, distress, sleep disturbances, and suicidality [9]. Significant mental health effects have been documented among healthcare workers (HCWs) treating COVID19 patients [10, 11]. Non-Consultant Hospital Doctors (NCHDs) or doctors in training face disruptions to their normal work and leisure activities, potential redeployment to frontline services, and cancellation of educational and group activities. There are also concerns for their own personal safety, availability of personal protective equipment (PPE), and appropriate training for the management of COVID19 patients. Doctors are also a risk to the health of their family members, and some have chosen to isolate themselves to lessen potential viral spread to loved ones [12]. Social

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distancing has also impacted junior doctors' social and personal lives, including stress-relieving pursuits they may have accessed prior to the COVID19 wave to help maintain a healthy work-life balance.

Junior doctors form an integral part of healthcare systems around the world and are an important aspect of medical care. Since the pandemic began, junior doctors have often been at the forefront of medical care for patients with COVID19 as well. As such, it is important to document their experience of the pandemic. The aim of this survey was to evaluate the concerns, anxieties, and perceived stress level prior to the first COVID19 wave in Ireland. This would serve to highlight the preparation put in place as well as the supports available to junior doctors at this time. Therefore, as the potential for a significant tsunami of COVID19 patients loomed, and national hospitals initiated an intensive preparatory phase, we set out to document and measure the concerns, anxieties, and perceived stress level of NCHDs at this uncertain time.

Methods

We developed a survey with questions relevant to doctors in training/NCHDs actively preparing for a potential surge in patients affected with COVID19. The term doctors in training is used to refer to all non-consultant hospital doctors and includes doctors who are on formal training schemes as well as those who are not but continue to gain experience and training during the course of their work. It was based upon surveys that had been published in this space [13]. A Likert scale was used for respondents to answer the questions. Section 1 included questions regarding junior doctors' preparedness for dealing with COVID19 patients. This included questions regarding access to PPE, presence of protocols to deal with suspected COVID19 patients, and contacts as well as respondents' personal concerns. Section 2 incorporated the validated Perceived Stress Scale (PSS) to gauge our participant's stress in the weeks leading up to the expected surge of patients affected by COVID19. The PSS is the most widely used psychological instrument for measuring the respondent's perception of stress. The questions are of a general nature and hence are relatively free of content specific to any subpopulation group. It comprises 10 easy-to-understand questions measured on a 5-point Likert scale [14].

We acquired ethical approval for the survey through the Irish Clinical Research Ethics Committee (CREC). The survey was developed via Survey Monkey and then was disseminated to doctors in training through an online link via social media, training organization emails, and NCHD WhatsApp groups. The survey was sent out between 27 March and 6 April 2020. Participant's scores on the PSS were calculated. Simple descriptive statistics such as range and percentages

were used to analyze the data. Chi-squared statistical analysis was used for comparing results between two respondent groups. A p value cut-off of 0.05 was taken as statistically significant.

Results

A total of 285 participants engaged with the survey with 212 (74%) completing all answers in Sect. 1 which included questions regarding workplace preparations for COVID19, while 197 (69%) completed all answers (Sects. 1 + 2). Over half of respondents were registrars or specialist registrars (SPRs) (116, 54%), 37% were Senior House Officers (SHOs), and 8% were interns. Respondents belonged to a variety of hospitals across Ireland with most working at Cork University Hospital (59, 28%), but representation was also from University Hospital Limerick (17, 8%), Mater Misericordiae University Hospital (11, 5%), and St. James' Hospital Dublin (11.5%) (Table 1). There were 14 overseas respondents (UK predominantly).

With regard to access to PPE, most respondents felt they had adequate access to gloves, gowns, and surgical face masks as needed (94%, 90%, and 89% respectively) (Table 2). Access to goggles was somewhat less with 74% of respondents reporting they had complete access or access on most occasions. Availability of N95/FFP2 face masks was felt to be deficient, with about half of respondents stating that they did not have easy access to them. In relation to concerns regarding the supply of PPE, 91% of respondents were apprehensive that their

Table 1 Hospitals that respondents were employed in during survey

Hospital name	Respondents(n, %) Total responses 208
Cork University Hospital	59
University Hospital Limerick	17
Overseas respondents	14
St James Hospital	11
Mater Misericordiae University Hospital	11
University Hospital Galway	10
University Hospital Waterford	9
Beaumont Hospital	7
St Vincent's University Hospital	6
Mercy University Hospital	6
Tallaght General Hospital	5
Connolly Hospital Blanchardstown	5
Mayo General Hospital	5
Naas General Hospital	5
Wexford General Hospital	4
Others	34

Table 2 Access to PPE

	Yes I have access (n, %)	I mostly have access (n, %)	I occasionally have access (n, %)	No, I don't have any access (n, %)	Total respondents
Gloves	160, 74%	43, 20%	9, 4%	2, 1%	215
Gowns	137, 64%	55, 26%	15, 7%	7, 3%	214
Goggles/eye shields	95, 44%	64, 30%	42, 20%	13, 6%	214
Surgical face mask	144, 67%	47, 22%	17, 8%	6, 3%	214
N95/FFP2 respirator mask	61, 29%	50, 24%	44, 21%	57, 27%	212

hospital might run out of PPE. Almost 86% of respondents had received hospital-led training in donning and doffing PPE, and nearly 85% felt significantly confident in the process with responses of 7 or above on a scale of 0–10.

Nearly 80% of respondents reported that their hospitals had an official occupational health policy in place to address employees with suspected or known exposure to COVID19, and 91% reported that their hospitals had a clear protocol for managing COVID19 patients (Table 3). Most respondents felt somewhat prepared (60%) or well prepared (20%) to treat COVID19 patients, with only 20% of respondents feeling unprepared or poorly prepared. Most respondents, nearly 62% felt somewhat or very safe in the workplace during the

pandemic. However, nearly 42% of respondents worried that their hospital would struggle (30%), or could not cope at all (12%), with COVID19 patients (Fig. 1).

When asked about personal concerns, family health (86%), personal health (72%), and social life (47%), topped the list of worries (Fig. 2). Respondents highlighted the following as areas of concern: the pandemic's negative effect on training, availability of PPE and adherence to social distancing, stress and uncertainty, risks posed to healthcare staff and finally comments appreciating timely, and rapid response from their hospitals to the pandemic.

Further analysis of results according to our respondents' roles revealed that while responses were similar

Table 3 Safety and confidence in work environment

	Interns/FY1	SHOs/FY2-3	Registrar/SpR/FY4 +
Has your hospital provided information to you regarding the novel coronavirus?	Yes: 83% No: 11% Don't know: 6%	Yes: 96% No: 3% Don't know: 1%	Yes: 94% No: 5% Don't know: 1%
Have you been trained on safely donning and doffing	Yes: 72% No: 28% Don't know: 0%	Yes: 90% No: 10% Don't know: 0%	Yes: 87% No: 13% Don't know: 0%
How confident do you feel in your ability to don and doff PPE appropriately?	0–3 No/low levels of confidence: 0% 4–6 Moderate confidence: 18% 7–10 confidence: 82%	0–3 No/low levels of confidence: 0% 4–6 Moderate confidence: 12% 7–10 High confidence: 88%	0–3 Un/low levels of confidence: 4% 4–6 Moderate confidence: 10% 7–10 High confidence: 86%
Are you concerned that your hospital might run out of PPE?	Yes: 94% No: 6%	Yes: 89% No: 11%	Yes: 92% No: 8%
Does your hospital have a policy in place to address employees with suspected or known exposure to coronavirus?	Yes: 83% No: 6% Don't know: 11%	Yes: 83% No: 8% Don't know: 8%	Yes: 76% No: 7% Don't know: 17%
Has your clinic or hospital recommended a protocol for patients that could potentially have COVID19	Yes: 78% No: 11% Don't know: 11%	Yes: 93% No: 2% Don't know: 5%	Yes: 93% No: 4% Don't know: 3%
Do you believe that your hospital can cope with a large increase in patient numbers related to the COVID19 outbreak?	Cope very well 6% Somewhat cope 55% Somewhat struggle 17% Cannot cope at all 22%	Cope very well 18% Somewhat cope 49% Somewhat struggle 24% Cannot cope at all 9%	Cope very well 12% Somewhat cope 39% Somewhat struggle 36% Cannot cope at all 13%
Do you feel prepared to treat a patient that has potentially contracted COVID19?	Well prepared 11% Somewhat prepared 50% Poorly prepared 22% Unprepared 17%	Well prepared 22% Somewhat prepared 60% Poorly prepared 16% Unprepared 2%	Well prepared 22% Somewhat prepared 63% Poorly prepared 11% Unprepared 4%
How safe do you feel in your workplace during the pandemic?	Very safe 0% Somewhat safe 66% Somewhat unsafe 17% Very unsafe 17%	Very safe 22% Somewhat safe 45% Somewhat unsafe 22% Very unsafe 11%	Very safe 10% Somewhat safe 51% Somewhat unsafe 30% Very unsafe 9%

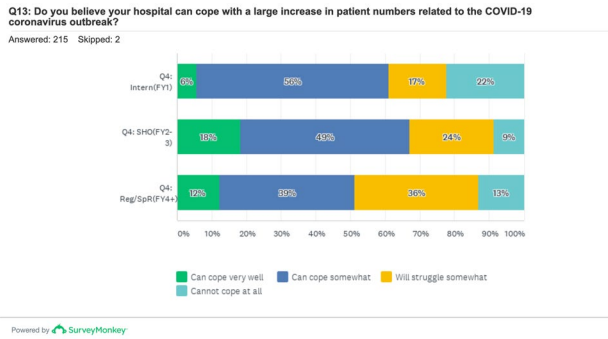


Fig. 1 Perception of ability of hospital to cope with a large increase in patient numbers related to COVID19

for most questions, subtle differences were present. A lower percentage (72%) of intern respondents had been trained on donning and doffing PPE, as compared to 90% for senior house officers ($p < 0.05$). We found that interns reported having poor access to PPE as compared to more experienced doctors. Interns' access to gloves, goggles, and N95 respirator masks was significantly less as compared to Senior House Officers ($p = 0.009$, $p = 0.000034$, and $p = 0.034$ respectively). A lower percentage (77%) of intern respondents reported that their hospital had a protocol for COVID19 patients, as compared to 92% for both SHOs and registrars/specialist registrars. This difference was not statistically significant. Overall, a lower percentage (61%) of interns felt prepared to treat patient with COVID19 compared to 83% of registrars/specialist registrars ($p = 0.01$) (Fig. 3). These results highlight that interns require further support and education in preparing for the COVID19 pandemic and such events in the future.

Our results also showed that 48% of registrars and specialist registrars felt that their hospital could not cope or would struggle with the increase in patients related to COVID19. This was higher than 33% of senior house officers and 38% of interns with the same sentiments. This indicates a greater concern among the more experienced registrars/specialist registrars regarding their hospitals' ability to cope with the expected surge in patients.

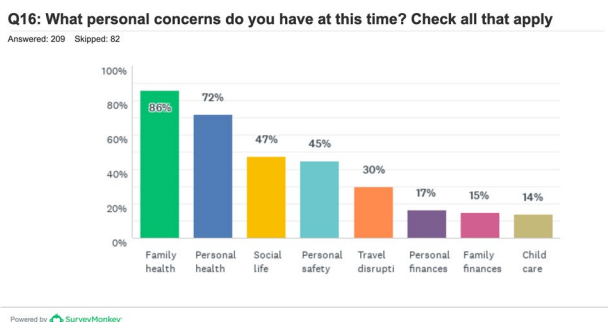


Fig. 2 Personal concerns of respondents

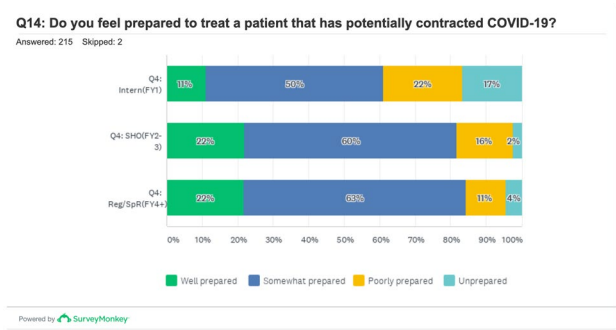


Fig. 3 Perception of preparedness to treat a patient with COVID19

Overseas respondents made up about 6% ($n = 14$) of total respondents, representing experiences from the USA, UK, New Zealand, and Qatar. Their responses were mostly in line with those working in Irish hospitals, with some small differences. For example, only 64% of overseas respondents reported that their hospital had a policy in place to deal with COVID19 exposure among employees as compared to 80% in Irish respondents. At the same time, a hundred percent of overseas respondents reported that their hospital had a protocol in place to deal with COVID19 patients, as compared to 91% of Irish respondents. However, the small number of overseas responses precludes any statistical comparison between the two groups.

The second part of the questionnaire incorporated the Perceived Stress Scale to gauge respondents' perceived stress at this time. From a total of 197, the majority had moderate stress with scores of 123 respondents (62%) falling between scores of 14 and 26, 55 (28%) had low stress with scores of 13 and below, while 19 respondents (9%) had scores of 27 and above indicating high perceived stress. These results are significant as they indicate a moderate level of stress for junior doctors in our survey at baseline prior to the expected COVID19 wave (Fig. 4).

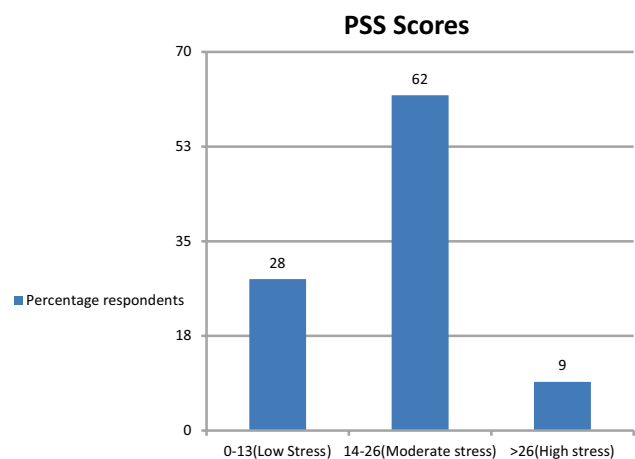


Fig. 4 Perceived Stress Scale results

Discussion

This survey is the first known effort to gauge the concerns of doctors in training in Ireland with regard to the COVID19 pandemic. All grades of junior doctors were well represented across the island of Ireland with a small percentage of overseas respondents (6%).

These results highlight the preparations that have been carried out across the Irish health system while awaiting a predicted surge of patients with COVID19. Most respondents reported that their hospitals had a clear protocol in place for managing patients with COVID19. In addition, most respondent's hospitals had a policy in place for managing staff members with suspected or diagnosed COVID19. This is comparable to or better than findings from surveys conducted elsewhere [15–19]. Only half of respondents from a Jordanian survey reported access to institutional protocols to deal with COVID19 cases [16]. Less than 40% of respondents from a study carried out in Nepal reported a policy to receive suspected or proven cases with COVID19 [17]. Most respondents had been trained on donning and doffing PPE and felt comfortable doing it. This compares favorably to results from a Kuwaiti survey of neurosurgery residents, where only over half of respondents had received this training [18]. Almost 80% of respondents felt somewhat or well prepared to treat COVID19 patients and felt safe in their workplace. This contrasts to a large survey carried out in the UK where only one third of respondents felt supported at their Trust [19]. The UK survey also reported that 52% of respondents felt that “sufficient local training was not provided to the frontline staff.” This contrasts with findings in our survey where 87% of NCHDs had been trained on donning and doffing PPE, 94% had been given information on responding to possible cases, and 91% indicated that their hospital had a protocol for these patients. Our responses also highlight that interns might require more support and training as a lower percentage (61%) of interns felt prepared to treat a patient with COVID19, and a lower percentage (72%) had been trained on donning and doffing PPE.

While respondents did have access to most items of PPE, N95/FFP2 masks were less readily available. Only 51% of respondents had easy access to N95 masks as compared to 94% for gloves and 90% for gowns. A survey looking at preparedness in European emergency departments for the COVID19 pandemic found that N95 masks were the piece of equipment most likely to be in short supply [20]. At the time of this survey in Ireland, in the spring of 2020, N95 masks were nationally deemed necessary only for aerosol generating procedures, and surgical masks were considered sufficient for most clinical activities [21].

Our responses also highlight significant concerns doctors in training had regarding the pandemic. A high proportion

of doctors were fearful that their hospitals would run out of PPE. These fears are supported by a survey looking at European emergency departments through the pediatric emergency medicine research networks for Europe (REPEN) and the UK and Ireland (PERUKI) which found up to 62% of centers experienced shortage in one or more PPE items [20]. Despite the preparations instigated, a significant proportion of respondents were worried that their hospital would struggle with the expected surge of COVID19 patients. This concern was more widespread among registrar and SPRs (48%) as compared to interns (38%) and SHO's (33%). Availability of PPE and the risks posed to healthcare staff were among the fears voiced by respondents in their comments. These concerns could be a result of the reported experiences of other countries impacted by COVID19 before Ireland, such as Italy and Spain [3, 4]. Our survey also highlights the personal concerns of doctors in training related to COVID19, including its potential impact upon family and personal health, its impact on social life, and overall stress and uncertainty. Concerns regarding the danger from COVID19 on personal and family health have also been noted in a survey carried out among healthcare workers in Wuhan [22].

A significant finding from our survey was that a majority of respondents had moderate stress as gauged by the PSS prior to any COVID19 surge. We have consent to pursue a follow-up survey to gauge the stress of doctors in training after the predicted surge of COVID19 patients. The impact of this pandemic on mental health of the general population has been documented previously in the literature [23]. Similar surveys carried out elsewhere have highlighted the significant stress doctors in training have faced during this crisis. A study among French urology trainees reported medium to high levels of stress among more than half of respondents [12]. A German survey of stress among healthcare workers during COVID19 found a similar percentage reporting severe depression and anxiety symptoms [10]. Symptoms of anxiety were also noted previously in surveys carried out among healthcare workers during the severe acute respiratory syndrome (SARS) epidemic and the A/H1N1 influenza pandemic [24, 25]. Our findings can be explained by the unprecedented nature of the pandemic, working under extreme stressful conditions as well as the prospect of making difficult ethical and moral decisions in caring for critical patients [26]. Many junior doctors around the world have been redeployed to frontline services including early initiation of medical students to hospitals [27]. This may be adding to their stress due to working outside their area of expertise. Concerns have also been noted regarding impact on training, which could be an additional factor impacting junior doctors' level of stress. A survey of urology residents in Italy indicates that up to 81% reported severe reduction or complete suppression of training exposure from clinical activities [28].

Limitations of this study include the self-reported nature of this and all questionnaire studies. There was selection bias with those who chose to complete the questionnaire and those who did not. Those that were more concerned about the COVID19 pandemic might be more inclined to complete a survey of this nature, whereas those who already feel confident and well supported may not feel the need to express their security and confidence. There was only a small window in which to obtain the questions as Ireland and the UK faced into the uncertainty of what the COVID19 pandemic might have in store and in particular after hearing of often overwhelming experiences from other countries such as Italy and Spain. Thus, it was not possible to continue to distribute the questionnaire to obtain further numbers for this study as they would not have correctly reflected the general stress and uncertainty that existed in hospitals prior to the surge.

This survey is the first known effort to gauge the concerns of doctors in training in Ireland with regard to the COVID19 pandemic. Our study joins the effort to document the impact COVID19 has had on the wellbeing of junior doctors around the world [29]. Our study uses an objective tool to assess the level of stress of doctors in training in the weeks leading up to the expected COVID19 surge. This is in keeping with the use of similar tools to assess stress and burnout among doctors in various studies in the literature [30]. Our study indicates that in the professional opinion of doctors in training, Ireland performed well in its initial response to the pandemic and was well prepared for it. The study findings highlight the need for health systems to appropriately address anxiety and mental health distress among NCHDs during the COVID19 pandemic, supported by international literature. The WHO addressed this as part of a document addressing mental health and psychosocial considerations during the COVID19 outbreak which contained distinct recommendations for healthcare workers and their managers while facing this stressful time [31]. These include recommendations to use helpful coping strategies to ensure rest and respite between shifts. It addresses public avoidance of HCW due to stigma or fear and advises staying connected with loved ones digitally. It encourages work breaks, worker rotations from higher-stress to lower-stress functions, and to partner inexperienced workers with their more experienced colleagues. In Ireland, the Health Services Executive has also published online resources addressing healthcare workers' mental wellbeing [32]. These represent important first steps in helping support doctors in training during this and future pandemics.

Declarations

Ethics approval The study received ethical approval under the Clinical Research Ethics Committee of the Cork Teaching Hospitals, University College Cork, Lancaster Hall, 6 Little Hanover Street, Cork and all

activities undertaken during the survey were in accordance with its ethical standards.

Conflict of interest The authors of this paper declare they have no conflict of interest.

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