Sheffield Hallam University | Centre for Regional Economic and Social Research

Have healthcare workers suffered the most during the COVID-19 pandemic? A study of the burnout effects on wellbeing

Dr Shimaa Elkomy
Senior Research Fellow
University of Surrey
What Works Centre for Wellbeing

Background

Working conditions are widely seen as a critical social determinant for workers' health and wellbeing (Marmot et al., 2008).

Attaining desirable working conditions has been the objective for many worldwide initiatives -for example the European Mental Health Action Plan 2013-2020 and the UK Employment Strategy.

These government schemes highlight not just the importance of meeting labour shortage and skill mismatch but also introducing interventions in the workplace to improving mental health and wellbeing for workers (WHO, 2020).

Ageing population, global health crisis, austerity measurements that were first introduced by governments amid the financial crisis in 2008 and re-introduced amid the Ukrainian war and the consequent increase of cost-of-living crisis are all drivers of unprecedent pressure on the healthcare sector worldwide (WHO, 2022).

The UK on specific face particular supply-side challenge with the repercussions of the BREXIT being resonated in the shortage of skilled healthcare professionals, higher turn-over of European heath workers and the difficulty in retaining long tenured workers given the low-pay scheme and other governance challenges at the organisational level.

Background

Against this background, increasing attention has to be devoted to empirically examine the link between link between working conditions for healthcare workers and wellbeing and mental health other common psychiatric problems, such as depression and anxiety (Barnay, 2016 ; Harvey et al., 2017).

While most issues in the delivery of healthcare relate to retention and job satisfaction for healthcare workers, these challenges were magnified during the COVID-19 pandemic. Healthcare workers have experienced significant blow to their wellbeing and mental health related their work conditions on top of their anxiety and stress about the higher risk work environment and on fear of contracting the virus and passing it on to their family members.

They face higher workloads and other forms of exhaustion related to the new pandemic situation triggering many ambiguities in their roles and the medical care decisions. It is a natural and interesting enquiry to investigate whether the increased workload during the pandemic for healthcare workers lead to burnout of human resources. Healthcare workers are not the only occupational group under stressful working environment in which uncalculated decisions and errors has fatal consequences, as pilots for example. However, the long working hours, lengthy shifts and overnight work are intrinsic for this job.

Background

This paper examines the effects of healthcare workers' burnout on their wellbeing using COVID-19 pandemic data from the Opinions and Lifestyle Survey COVID-19 module and .

This study is relevant to show the effect of working conditions and the level of burnout on wellbeing of healthcare works and how to introduce policy interventions to deal with burnout and improve mental health of healthcare workers. To capture potential burn-out, we build a framework for work-related burnout

Unlike other studies who might adopt some burnout indicators based on the share of healthcare workers reporting for example work-related stress or felt unwell while being in duty work, we capture more detailed dimensions of work-related burnout as discussed in previous literature.

Background

Using Opinions and Lifestyle Survey: Covid-19 module, the study examines the effect of mental health (PE_Mental Health) and work difficulties (PE_Work) during the pandemic on satisfaction, worthwhileness, happiness, and anxiety for a sample of healthcare workers as opposed by the rest of the population in a survey of 110,000 respondents for 44 waves from April 2020 up until March 2021.

Our analysis adopts four measures of work-related burnout from the Copenhagen Burnout Inventory including lack of energy (WRB_Energy), sleep (WRB_Sleep), rest (WRB_Rest) and exercise (WRB_Excercise). We show that healthcare workers' wellbeing has been affected more than any population group by the COVID-19 pandemic. Lack of energy and sleep have the largest adverse effects on wellbeing. For those reporting worse-off mental health, exercise has the most pronounced effects.

Burnout is framed as an encompassing and sustainable sense of fatigue (Maslach et al., 2001). While, tiredness is deemed temporary, burnout results from exhaustion that persist for long time as it is associated with certain lifestyle and work conditions despite attempts for adequate rest.

Recent literature have discussed the relationship between the state of extreme tiredness and impaired health, confined cognitive functions and increased mortality (Hockey, 2011; Connor et al., 2020) and deteriorated wellbeing state (Collin et al., 2019; Murphy, 2022).

Literature Review

Previous literature established evidence of the association between long working hours and deteriorated wellbeing and mental health problems (Leonard et al.1998; Deloitte, 2017; Karhula et al., 2017). These studies established a framework based on Copenhagen Burnout Inventory measures relating exhaustion to long working hours. This is based on four main relevant antecedents which are **reduced hours of sleep, short rest periods, low energy levels and reduced time for other activities** (Caruso et al., 2006; Boivin and Boudreau, 2014; Tucker et al., 2015; Thun et al., 2014).

While the relationship of these four elements and wellbeing is less disputable, literature of exhaustion discuss that these factors are not mutually exclusive and they reinforce and affect each other (Kim et al., 2013; Garfield; 2019; Beltagy et al., 2018).

Some studies discuss that the change from predictable working environment to ambiguous and uncertain setting is associated with significantly higher perception of workload, life dissatisfaction and unhappiness (Olson and Tetrick, 1988; Williams et al., 2001; Aasland et al., 1997; Maslach et al., 2001; Mirvis et al., 1999).

In the health sector, it has been shown that situations that trigger more uncertainty and less grip over work processes and daily operations for healthcare workers are significantly attributable to extreme sense of exhaustion and burnout (Reynolds, 1997). It has also been pointed out that organisational support may be an important factor for mitigating work environment stressors (Olson and Tetrick, 1988).

Sleep

Sleep deprivation is widely common for healthcare workers (Goldstein and Walker, 2014; Olsen et al., 2016). The effect of lack of sleep on deterred physiological and cognitive abilities and restrained moderation of emotions and memories, in particular for healthcare works, has been widely discussed in the psychology literature (Parry et al., 2018; Sanches et al., 2015).

Clinical studies show evidence that lack of sleep can increase the risk of obesity, cardiovascular diseases and diabetes (Cedernaes et al., 2015). Some studies brought into the picture the social dimension of the effect of sleep deprivation associated with difficulty to sustain healthy social relations with family and friends, and even more serious mental health problems as depression (Boivin and Boudreau, 2014; Kronholm et al., 2009; Goldstein and Walker, 2014).

While previous studies of sleep deprivation do not have a consensus of the number of hours that qualifies for adequate sleep, we use the perception of the healthcare workers themselves about the number of hours of sleep they get usually. Our main group of interest would be those answering that they either are often or always have lack of sleep.

Rest

Another factor in the frame of burnout that links increased workload to adverse wellbeing outcomes is the frequency of long shifts and night work which results in short daily rest periods and quick return (Beltagy et al., 2018; Van der Hulst, 2003).

Pencavel (2015) attributes long working hours to the deprivation of workers from the opportunity to have recovery from exhaustion and spending time with members of family and friends. The latter study reports a loss of output of around 10 percent from depriving a worker a day of rest on Sunday. Other literature associated the frequency of lack of rest with impaired metabolic functions and body weight control due to the disturbance in hunger-signalling hormones (Hack and Mullington, 2005; Xie et al., 2013).

There is huge literature that examines the effect of irregular work conditions, measured as the daily rest period, on the mental and physical health or workers (Eldevik et al., 2013; Sallinen et al., 2003). Iked a et al., (2017) show that short rest periods and long working hours is associated with extreme fatigue in a sample of 90 employees observed for one month while Tsuchiya et al., (2017) reported significant psychological distress for workers who have daily rest period less than 12 hours.

Energy

Some empirical research suggests that a clear evidence of work burnout and exhaustion is feeling drained with little energy to resume any boosting activities (Tucker et al., 2015; Costa, 2003; Ikeda et al., 2017).

Reduced levels of energy is also important wellbeing aspect that is driven by sedentary habits, insufficient physical activity , excessive food intake and in some cases obesity (Garaulet et al., 2011; Van Cauter and Knutson, 2008).

Some studies report positive wellbeing effects for enhanced levels of energy due to social and physical activities during weekend (Tucker et al., 2015; Fritz and Sonnentag, 2005; Kim et al., 2013).

Exercise

One way long working hours is associated with adverse wellbeing effects is reducing the time for other activities that allows state of physical and mental recovery from exhaustion. These activities might help bring back the balance between workload and aspects of normal life.

One of these activities that has been associated with improved wellbeing outcomes especially at the pandemic time is exercising.

It is widely argued that the draining working conditions and lifestyle of healthcare workers is limiting their choice for activities that might boost their wellbeing as exercise (Leonard et al.1998).

Method

We examine differences in mental health effects on wellbeing for healthcare workers using data for 4538 respondents from healthcare sector under UK Standard Industrial Classification of Economic Activities (SIC) code 86 for hospital activities. We use all COVID-19 waves available which include information about personal wellbeing and pandemic-related mental health.

For healthcare workers subsample, the analysis adopts four indicators of the Copenhagen Burnout Inventory (CBI) measure for burnout. We use data related to four aspects of Work-related burnout (WRB) including lack of energy (WRB_Energy), sleep (WRB_Sleep), rest (WRB_Rest) and exercise (WRB_Excercise). Answers to these questions are categorical ranging from 1 to reflect no problem with any of these WRB indicators to 4 to reflect that the respondent is always suffering from one of these WRB indicators. These questions are coded as unity if often or always suffering with lack of energy, sleep, rest and exercise and 0 otherwise.

As a measure of wellbeing, we use four indicators using evaluative, eudemonic and affective experiences . These measures ask people to evaluate how satisfied they are with their life overall, asking whether they feel they have meaning and purpose in their life, and asks about their happiness and anxiety during a particular period. These measures of personal wellbeing ask people to assess each of these aspects of their lives on a Likert scale of 0 to 10, where 0 is “not at all” and 10 is “completely”. PE_Mental Health indicates those respondents who report worse-off mental health due to the pandemic.

Results

Table 1. Descriptive statistics for wellbeing and mental health variables (balanced sample with full information on wellbeing)

Variable	Full Sample					Healthcare Sample				
	Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max
Satisfied	110,177	6.89	1.94	0	10	4,538	6.71	1.79	0	10
Worthwhile	110,177	6.97	2.13	0	10	4,538	6.79	2.02	0	10
Happy	110,177	7.40	1.94	0	10	4,538	7.67	1.69	0	10
Anxious	110,177	3.89	2.93	0	10	4,538	4.07	2.82	0	10
PE_Mental Health	94,421	0.14	0.35	0	1	3,992	0.16	0.37	0	1
WRB_Energy	52,215	0.65	0.48	0	1	2,143	0.73	0.44	0	1
WRB_Sleep	52,215	0.58	0.49	0	1	2,142	0.64	0.48	0	1
WRB_Rest	52,203	0.13	0.33	0	1	2,143	0.12	0.33	0	1
WRB_Excercise	107,974	0.31	0.46	0	1	4,441	0.35	0.48	0	1
Age	110,177	54.75	18.05	16	106	4,538	44.38	12.70	16	87
Smoking	110,177	0.11	0.31	0	1	4,538	0.09	0.28	0	1
Household size	110,177	2.16	1.08	1	9	4,538	2.43	1.19	1	9
House Ownership	107,774	0.81	0.40	0	1	4,468	0.78	0.41	0	1
Female	110,177	0.52	0.50	0	1	4,538	0.79	0.41	0	1
Single	110,177	0.19	0.39	0	1	4,538	0.33	0.47	0	1
No higher degree	109,779	0.41	0.49	0	1	4,519	0.38	0.49	0	1
Health status	110,173	0.11	0.31	0	1	4,537	0.02	0.14	0	1
Disability	110,177	2.06	0.85	1	5	4,538	1.85	0.76	1	5
Unemployed	110,177	0.27	0.44	0	1	4,538	0.18	0.39	0	1
Income	110,177	24.17	8.78	1	38	4,538	27.94	6.45	2	38

Results

Table 2. Differences in Mental Health Effects on Wellbeing of Healthcare Workers during the Pandemic

Our OLS estimation show that healthcare workers' wellbeing has been affected more than any population group by the COVID-19 pandemic. The empirical findings report largest negative wellbeing effects for those reporting worse-off mental health. The findings show that healthcare workers have experienced significantly lower satisfaction and happiness.

To be able to understand whether this effect is pandemic-related, we need to integrate pre-pandemic waves.

	(1) Satisfied	(2) Worthwhile	(3) Happy	(4) Anxious
Age	0.02***	0.02***	0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
Female	-0.08***	0.09***	-0.10***	0.68***
	(0.01)	(0.01)	(0.01)	(0.02)
No higher degree	0.24***	0.17***	0.15***	0.06*
	(0.02)	(0.02)	(0.02)	(0.03)
Income	0.00***	0.01***	-0.00*	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Single	-0.36***	-0.36***	-0.29***	-0.07***
	(0.01)	(0.01)	(0.02)	(0.02)
Parent	-0.14***	0.07***	-0.16***	0.14***
	(0.02)	(0.02)	(0.02)	(0.03)
Household size	0.07***	0.08***	0.07***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
House Ownership	0.08***	0.05***	0.00	-0.04*
	(0.02)	(0.02)	(0.02)	(0.02)
Smoking	-0.21***	-0.18***	-0.17***	-0.01
	(0.02)	(0.02)	(0.02)	(0.03)
Health status	-0.53***	-0.56***	-0.58***	0.51***
	(0.01)	(0.01)	(0.01)	(0.01)
Disability	-0.13***	-0.18***	-0.17***	0.36***
	(0.02)	(0.02)	(0.02)	(0.02)
Healthcare workers	-0.13***	0.21***	-0.14***	0.13***
	(0.03)	(0.03)	(0.03)	(0.05)
Ethnicity_Mixed	0.01	0.02	0.09	0.10
	(0.05)	(0.06)	(0.06)	(0.08)
Ethnicity_Asian	-0.06	-0.03	0.07	0.26***
	(0.04)	(0.04)	(0.04)	(0.06)
Ethnicity_Black	-0.17***	0.13**	0.08	0.03
	(0.07)	(0.06)	(0.07)	(0.10)
Ethnicity_Chinese	0.03	0.10	0.06	0.15
	(0.06)	(0.06)	(0.07)	(0.10)
R2	0.21	0.20	0.21	0.13
No. of obs.	93865.00	93455.00	94640.00	94425.00
Time-specific effects	Yes	Yes	Yes	Yes
Region-specific effects	Yes	Yes	Yes	Yes
F statistic	358.11	301.94	346.29	257.42
p-value	0.00	0.00	0.00	0.00

Results

Lack of energy and sleep have the largest adverse effects on wellbeing, namely levels of satisfaction and happiness. For those reporting worse-off mental health, exercise has the most pronounced effects on satisfaction.

Table 3. Lack of Energy, Sleep, Rest and Exercise Effects on Wellbeing

	(1) Satisfied	(2) Happy	(3) Satisfied	(4) Happy	(5) Satisfied	(6) Happy	(7) Satisfied	(8) Happy
PE_Mental Health	-1.07***	-1.43***	-1.37***	-1.16***	-1.32***	-1.36***	-1.40***	-1.52***
	(0.32)	(0.36)	(0.27)	(0.23)	(0.13)	(0.14)	(0.11)	(0.34)
WRB_Energy	-0.74***	-1.07***						
	(0.09)	(0.09)						
PE_Mental Health * WRB_Energy	-0.08	0.14						
	(0.34)	(0.38)						
WRB_Sleep			-0.59***	-0.84***				
			(0.08)	(0.09)				
PE_Mental Health * WRB_Sleep			0.27	-0.15				
			(0.30)	(0.27)				
WRB_Rest					-0.56***	-0.76***		
					(0.16)	(0.18)		
PE_Mental Health * WRB_Rest					0.51*	0.07		
					(0.27)	(0.29)		
WRB_Excercise							-0.39***	-0.31*
							(0.06)	(0.16)
PE_Mental Health * WRB_Excercise							0.37**	0.87
							(0.16)	(0.57)
R2	0.20	0.22	0.20	0.21	0.18	0.19	0.17	0.04
No. of obs.	2100.00	2115.00	2099.00	2114.00	2100.00	2115.00	3943.00	3943.00
Time-specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F statistic	11.87	15.63	11.02	13.52	9.79	11.19	12.55	9.01
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robustness Checks

Detecting the causal impact of work-related burnout on mental health and wellbeing is empirically challenging.

First, we have to deal with selection bias. Mental health may limit the choice of individuals and limit them to specific jobs. Previous empirical studies report that health conditions including the state of mental health might affect job choice from the first beginning through the avoidance of possibly work-related hazards and risky occupational exposure (Dumas et al., 2013).

For example, Picciotto et al. (2013) aimed to identify the source of selection bias that occurs in previous studies when less healthy workers are more likely to reduce their workplace exposures and they report that bias could be avoided when controlling for health-related variables on the pathway from health status to job choice or termination. This induces a selection effect of individuals into a certain occupation.

Second, many confounding factors are mostly expected to be correlated with both the type of occupation and mental health including person-specific factors for example education levels, gender and other genetic characteristics that affect choice for certain jobs (Barnay, 2016). Also, the consequence of deteriorated mental health might force them to change or quite their jobs. Therefore, reverse causality is a major econometric concern in this context (Ravesteijn et al., 2018).

Robustness Checks

To deal with these concerns, I use data from seven waves (2016–2022) of Understanding Society (US), a population survey for adults above the age of 16 and resident in households in the UK. It is a longitudinal dataset that traces household across time. We measure depressive symptoms using the General Health Questionnaire index (GHQ), which rates general mental health problems and psychological conditions and has been validated for the UK and worldwide (Goldberg et al., 1997). Participant's occupation is measured by the International Standard Classification of Occupations classification (ISCO) at 4-digits level.

To examine working conditions that are specific to the healthcare sector vis-à-vis the rest of occupations we link each participant ISCO entry to several indicators for work conditions measured at the ISCO level from the 10th (2021) waves of the European Working Conditions Survey (EWCS).

This empirical strategy enables us to introduce external source of variation and to deal with potential endogeneity arising when mental health and working conditions come from the same source (Barnay, 2016). The use of EWCS provide several detailed dimensions for working conditions including at the healthcare sector, for example working time quality flexibility, physical environment, skills and job prospects.

Conclusions and Discussion

Healthcare workers across health systems and disciplines are facing significant stressors, burdens, and mental health challenges as a result of their work.

The COVID-19 pandemic has acutely reminded us of the important and invaluable work that healthcare professionals do on a daily basis in challenging circumstances, and has exposed the limitations of the healthcare system in the UK.

Before the memory of the pandemic response starts to fade, appropriate evidence-based measures and interventions must be put in place and actioned to protect the mental health and wellbeing of the healthcare workforce—not only during public health crises, but on a day-to-day basis.

Healthcare workers should be respected for the vital work they do to keep populations healthy, meaning we have a duty to find ways to meet their psychological needs and improve their welfare.

Empathy, transparency, open disclosure, and effective and supportive communication will solidify the partnership and collaboration between healthcare leaders, healthcare providers and patients as well as other stakeholders. This will then in turn provide the foundation of a healthcare system that revolves around the improvement of experiences and wellbeing outcomes of all involved.

Policy makers need to fully realise the crucial importance and value of investing in the mental health and wellbeing of the healthcare workforce, on individual, organizational, and societal level.