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Original article

"Who helps the helpers?" A pilot survey of work-related stress, lifestyle and self-medication in Hospital Doctors in the United Kingdom

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Abstract

Doctors face a demanding working environment, which can contribute to burnout, emotional exhaustion, reduced efficacy, mental ill-health as well as drug and other dependencies. A fairly extensive, yet heterogeneous, body of literature is emerging on the impact of this on their health and resulting consequences to patients' quality of care. While existing evidence has focused on different "symptoms" (e.g. burnout vs depression), measures, specialities, seniority and gender. However, little attention has been paid to holistic and general lifestyle patterns, including coping strategies which may mitigate work-based harms.
***Aim*: Our pilot study aimed at exploring: (a) work load; (b) drug intake (including alcohol, self-prescribed medicine and enhancement drugs); (c) and physical activity and lifestyles among doctors working in a District General Hospital in the East of England.**
***Methods*: an anonymous survey questionnaire was designed and disseminated via internal mailing list.**
***Results*: 106 doctors from different specialties and all grades completed the questionnaire. Respondents reported high levels of work load, with 45.9% having considered leaving the profession, while 12.3% thought seriously about committing suicide at least once. The majority worked long hours (46-50 hours per week) and were physically inactive, the majority less than two hours per week, and 8.2% reporting taking no exercise. Some use of psychoactive substances was reported, including of nootropics, but overall reported consumption of alcohol and other drugs was lower than average.**
***Conclusions*: Results will inform a national-level study and non-pharmacological interventions to manage work-based stress, including the promotion of physical activity in hospital settings.**

KEY WORDS: doctors, burnout, emotional exhaustion, nootropics.

Introduction

'Burnout syndrome' is characterised by emotional exhaustion, reduced professional efficacy, mental ill-health and higher rates of drug and alcohol dependencies. Healthcare professionals, and physicians in particular, are exposed to high rates of the occupational stress, which precipitates this (1) compared with general populations (2-7). These negative health outcomes are generally and mainly attributable to high workloads, long working hours, shift work and a poor life-work balance (4, 8, 9).
Such burnout may be associated with other medical and psychopathological issues, such as inflammatory markers (10) increased risk of cardiovascular diseases (11), insomnia (12) and depression (13). A recent systematic review of the prevalence of psychiatric morbidity in doctors in the United Kingdom (UK) found that such morbidities ranged from 17 to 52% (14). The study also identified a variance in prevalence according to different specialities, with General Practitioners (GP) and anaesthetists being at particular risk (15). A number of 'coping strategies' were identified which may be problematic, including retiring early, taking work home, mixing less with friends and task avoidance.
When investigated, a continuum among stress related sufferance, burnout, affective disorders and suicidal ideation has often been identified. For example, several studies detected rates of depression (16) and emotional exhaustion, or 'burnout (7), far higher among medics. One in three junior doctors in the UK is stressed, and between 10 and 20% of doctors in the UK become depressed at some point in their career, contributing to higher risk of suicide than the general population (17, 18). Analogous results can be found in other studies in

Mexico, France, Norway, New Zealand (19-22).

Gender differences among doctors experiencing burnout have also been recorded. According to a Finnish study (23), in male specialists, the highest burnout indices were found in general practice and occupational health, psychiatry and child psychiatry, internal medicine, oncology, pulmonary diseases, dermatology and venereology; in female specialists they occurred in general practice and occupational health, radiology, internal medicine, neurology, pulmonary diseases, dermatology and venereology; last but not least suicidal intent tended to be more common in physicians than in the general population and more so in female (26%) than in male (22%) physicians

Though a number of studies have identified higher prevalence of depressive symptoms and suicide attempts and ideation (24), relatively little is known about the risks factors which affect vulnerability within this population of doctors. A study undertaken in the United States (US) among 31,636 suicide victims, found 203 were identified as physicians and a multivariable logistic regression found that having a known mental health disorder, or a job problem, not only significantly predicted suicide attempts, but also predicted becoming a physician. Physicians were also more likely than non-physicians to have antipsychotics, benzodiazepines and barbiturates present on toxicology testing, but not antidepressants (25).

The issue of self-medication still remains a controversial issue among clinicians, especially medical students (26, 27). Addictions to prescription medications are managed using a combination of secrecy, denial and intellectualisation (28) and may pose a threat to the wellbeing of not only the medic concerned, but to patient safety. Again, certain specialities, such as anaesthesiology (29), emergency medicine, and psychiatry, appeared to be particularly over-represented (30, 31). Studies indicate that fairly consistently over time, approximately 10-14% of physicians in the US develop a substance-use disorder (32-35). This exceeds the rate found among the general population (30).

So far, no large-scale prevalence studies have been carried out in the UK. Although the use of traditional drugs by doctors has been extensively documented internationally (36, 37) very little is known about their use of cognitive enhancers and other enhancement drugs. In 2013 Franke et al. published a study on the use of illicit and prescription drugs for cognitive or mood enhancing among surgeons, discovering a prevalence of 19.9%. Such a tendency was positively associated with the pressure to perform at work, and gross income (Franke et al. 2013). Doctors may be particularly at risk because of their knowledge of and accessibility to drugs, and tendency to self-medicate. In addition, as pointed out by Gerada, such "wounded healers" might particularly reluctant to seek help for any type of health concern (4).

From our earlier investigations into the use and diffusion of Novel Psychoactive Substances (NPS), we were able to identify an emerging trend of the non-medical use of a variety of prescription medicines and other substances to enhance performance among different populations (38-40). Oxford University, for example, conducted a survey among students in May 2016 to which 15.6% of respondents admitted taking Modafinil, or another cognitive enhancer without a prescription, prompting the university to run workshops on the risks associated with these. An informal poll of 1,400 *Nature* readers found one in five had used neuroenhancers, such as methylphenidate, modafinil or beta-blockers for non-medical reasons (41). There has been no research so far looking exclusively at the use of such nootropics in medics specifically, nor their knowledge of such substances. The rapid spread of these products on the Internet, often via illicit online pharmacies, has made the phenomenon even more widespread and common contributing to a new cohort of users (39, 42, 43). Here these are often advertised as a method of rapidly enhancing physical and cognitive functioning by raising energy levels, attention, concentration, and memory (44).

While addressing the above gaps, our pilot aimed at exploring more comprehensively the work-load and the stress-management techniques employed by doctors in response to such stressful situations, including the participation in hobbies, relaxation activities as well as other 'coping mechanisms', such as the use of nootropics and enhancers to boot their performance while working in hospital.

Methods

A comprehensive literature review on doctor's wellbeing informed the development of a pilot questionnaire (intended to inform the later national-level main study) examining hospital-based doctors' work-related stress, as well as their lifestyles and coping mechanisms. As a result of this, a survey questionnaire was designed. This explored various aspects of the doctors' lives, including: (a) work load cause by their clinical activity (b) drug intake (including alcohol, self-prescribed medicine and cognitive enhancers) (c) physical activity and lifestyle (hobbies, diet). This was made available online via Qualtrics (45). The questionnaire was articulated in four main sections (demographics, work-based stress, lifestyle, coping strategies (including the consumption of alcohol and other drugs). Questions were predominantly multiple choice and took approximately 15 minutes to complete. An invitation to participate in the study was distributed in a District Hospital in the South of England to a cohort of approximately 900 doctors of all grades and specialities (e.g. consultants, SAS doctors, trainees and locally employed doctors) via the mailing list of the Educational Centre. Data were collected anonymously between April and June 2018 and stored on a secure platform at the University of Hertfordshire.

The study was approved by the Health and Human Sciences Ethics Committee at the University of Hert-

fordshire HSK/SF/UH/00096, with additional permission obtained from the Hospital Medical Director. Responses were collected anonymously and participants could withdraw at any time.

Results

Demographics

The pilot survey was completed by 106 doctors (44 Male, 61 female, 1 who preferred not say) from a wide range of specialities including General Medicine 20%, Surgery 12.4%, Paediatrics 10.5%, Anaesthesia 8.6%, Radiology 4.8%, Emergency Medicine 3.8%, Obstetrics and Gynaecology 2.9%, and Intensive Care 1.9%, among others. The age ranged from 26 to 64 years old, with the majority of the participants being at the beginning of their medical career (mean age 35.3 ± 7.26). The response rate was low (8.4%).

Work-based stress

Responses indicated that these doctors do indeed experience high levels of work-related stress. The majority worked long hours; between 46-50 hours per week. This incidence of this response was vastly greater than any other time category, with a fairly even distribution of doctors either side of this (working fewer or greater hours). A total of 45.9% of respondents had considered giving up their job as a result of the stress they experienced, and worryingly, 12.3% affirmed they had thought seriously about committing suicide in their lifetime, which is anyway a low percentage considering the results emerged in other countries (46-49).

Physical activity, lifestyle and stress-management techniques

Levels of reported physical activity were poor to reasonable, with 8.2% reporting no average hours of exercise and the most common physical activity being 'walking'. Alarmingly the majority engaged in less than 2 hours of physical activity per week, far below World Health Organisation Recommendations on Physical Activity for Health, which recommend adults aged 18-64 years do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week (50).

The most frequently-cited strategies for relaxation were 'watching television' 'reading' and 'cinema'. While these may afford relaxation benefits to participants, it might be pertinent in the main study to distinguish between recreational and social activities, and those undertaken explicitly or primarily for purposes of relaxation from work-induced stress.

Consumption of alcohol and other drugs

Very low rates of cigarette smoking were observed (1.6%), and alcohol consumption was comparatively low, with the most common response at 19.7%, being 'never'. The next most popular answer was 1-2 times a week (14.8%).

The majority reported not taking any medication to help them to sleep in the previous month (68.9%) but 36.8% had taken a dietary supplement at some point to modify their weight or support their diet, with 10.5% reporting that they do so 'very frequently'.

Only one doctor declared use of cognitive enhancers, but reporting using these 'frequently'. Interestingly, 22.1% reported however, haven taken products to increase their attention. Of those who had, the majority reported doing so 'rarely', but information was not collected on what type of products these were. In the main study, a further breakdown of this question is required to understand which attention-aids people are ingesting, and whether these include controlled substances. Just over 4.1% of respondents reported 'very frequent' use of antidepressants. Reported use of psychoactive substances was very low overall. Cannabis was the most common (5.7%). Some use of benzodiazepines, sexual enhancers, synthetic opioids, cocaine, and amphetamines or other stimulants was also reported. These figures may not be accurate. Self-reported drug use is notoriously difficult to accurately collect, and despite all assurances of anonymity, fear of reprisals is likely to be high in such a professional environment. The response rate (8.4%) was also low, and there likely to have been some self-selection among those who chose to complete the survey.

Conclusion

Good patient care is at the core of our research, and in order to deliver this, doctors themselves need to protect and nurture their own health and well-being. Doctors occupy a unique cultural space in our collective psyche; as the 'treaters' of sickness and ill-health, it can seem almost paradoxical when they become sick themselves, and move into a patient role. This can present challenges and inhibit open discussion about health concerns, with some seeking to resolve their medical needs independently. Our study raises the profile of underlying issues such as unreasonable workloads and working conditions, and examines responses such as self-medication in the context of insufficient support for clinicians with mental health or substance use issues.

There is evidence that the use of enhancers in attempting to counteract fatigue and loss of concentration may lead to addiction and to overestimation of one's own capabilities, which can put patients at further risk (51). Conversely, unaddressed exhaustion and mental ill-health in doctors also poses huge risks to patients, suggesting the working conditions of doctors warrant urgent attention. Planned outcomes of the main study include therefore, the development of strategies to tackle work-based stress at individual and organizational levels, and making these available from the point of training onwards. By emphasizing the importance of doctors' wellbeing, this study will also contribute significantly to the health of their patients.

A larger study will be designed to determine the extent

to which lifestyle and workplace factors predict distress and wellbeing among doctors at the national level. This will help to determine to what extent stress can be predicted by demographic factors, lifestyle, workplace, and the how the use of enhancers moderate or mediate the relationship between distress, wellbeing and other factors. Attention will also be paid to the risks factors associated with suicide n. It is also anticipated that findings will inform the development of non-pharmacological interventions to manage work-based stress, including the promotion of physical activity within the researched settings.

Limitations

Participants would be easily identifiable should be raw data be compromised. Respondents were asked their full date of birth, as well as speciality. Within a medium-sized hospital such as this one, where participants were sought through their supervisors, it is recognised that this may have discouraged the revelation of behaviours considered 'problematic', and may have adapted their answers accordingly. A 2013 German study by Franke et al. illustrates this; 1145 questionnaires were returned for analysis from surgeons attending international conferences. Using an Anonymous Questionnaire (AQ), 8.9% reported having used a prescription or illicit drug exclusively for purposes for cognitive enhancement at least once in their lifetime (52). This rose however to 19.9% when Randomised Response Technique (RTT) was employed, which prevented the 'tracking back' of a response to a particular respondent. Similar differences were observed in the declaration of use of mood enhancement drugs (antidepressants) with a rise from 2.4% on the AQ, to 15,1% via RRT.

References

1. Maslach C, Schaufeli WB, Leiter MP. Job Burnout, Annual Review of Psychology. 2001;52:397-422.
2. Lu DW, Blomkalns A. So the Doctor Is Burned Out: What Does It Mean for Patient Care? Academic Emergency Medicine. 2019.
3. Jackson-Koku G, Grime P. Emotion regulation and burnout in doctors: a systematic review, Occupational Medicine. 2019;69(1):7, 9-21.
4. Gerada C. The wounded healer - why we need to rethink how we support doctors. BMJ. 2015;351.
5. Brooks SK, Chalder T, Gerada C. Doctors vulnerable to psychological distress and addictions: Treatment from the Practitioner Health Programme, J Ment Health. 2011 Apr;20(2):157-64.
6. Marshall EJ. Doctors' health and fitness to practise: treating addicted doctors, Occupational Medicine. 2008;58 (5):334-340.
7. Amoafo E, Hanbali N, Patel A, Singh P. What are the significant factors associated with burnout in doctors? Occupational Medicine. 2015;65(2):117-121.
8. Lheureux F, Truchot D, Borteyrou X. Suicidal tendency, physical health problems and addictive behaviors among general practitioners: their relationship with burnout. Work and Stress. 2016;30(2):173-192.
9. Su JA, Tsang HY, Wu JL. Mental health and quality of life among doctors, nurses and other hospital staff. Stress and Health. 2009;25(5).
10. Poantă L, Crăciun A, Dumitraşcu DL. Professional stress and inflammatory markers in physicians, Rom J Intern Med. 2010;48(1):57-63.
11. Melamed S, Shirom A, Toker S, Berliner S, Shapira I Bournout and risk of cardiovascular disease: evidence, possible causal paths, and promising research directions, Psychol Bull. 2006 May;132(3):327-53.
12. Vela-Bueno A, Moreno-Jiménez B, Rodríguez-Muñoz A, Olavarrieta-Bernardino S, Fernández-Mendoza J, De la Cruz-Troca JJ, Bixler EO, Vgontzas AN. Insomnia and sleep quality among primary care physicians with low and high burnout levels. J Psychosom Res. 2008 Apr;64(4):435-42.
13. Ahola K, Hakanen J. Job strain, burnout, and depressive symptoms: a prospective study among dentists. J Affect Disord. 2007 Dec;104(1-3):103-10.
14. Imo, U. Burnout and Psychiatric Morbidity among doctors in the UK: a systematic literature review of prevalence and associated factors, BJPsych Bulletin. 2017;41:197-204.
15. Arora M, Asha S, Chinnappa J, Diwan, AD. Review article: Burnout in emergency medicine physicians, Emergency Medicine Australasia. 2013 Dec;25(6):491-495.
16. Cohen D, Winstanley SJ, Greene G. Understanding doctors' attitudes towards self-disclosure of mental ill health, Occupational Medicine. 2016;66(5):383-389.
17. Petrie K, Crawford J, Baker ST, Randall J, McGorry P, Christensen H, Harvey S. mental disorders and suicidal ideation in physicians: a systematic review and meta-analysis The Lancet Psychiatry. 2019;6(3):190-191.
18. Lipkin M. When Suicide Happens in the Medical Community, J Gen Intern Med. 2019;34:317.
19. Toral-Villanueva R, Aguilar-Madrid G, Juárez-Pérez CA. Burnout and patient care in junior doctors in Mexico City, Occupational Medicine. 2009;59(1):8-13.
20. Lheureux F, Borteyrou X, Truchot D. Suicidal tendency, physical health problems and addictive behaviors among general practitioners: their relationship with burnout, Work and Stress. 2016 Apr;30(2):173-1.
21. Mahmood JLA, Støen Grotmol KA, Tesli MB, Vaglum PA, Tyssen RA. Contextual Factors and Mental Distress as Possible Predictors of Hazardous Drinking in Norwegian Medical Doctors: A 15-Year Longitudinal, Nationwide Study Eur Addict Res. 2017;23:19-27.
22. Kumar S. Burnout and Doctors: Prevalence, Prevention and Intervention. Healthcare. 2016;4:37.
23. Olkinuora M, Asp S, Juntunen J, Kauttu K, Strid L, Aarimaa M. Stress symptoms, burnout and suicidal thoughts in Finnish physicians, Social Psychiatry and Psychiatric Epidemiology. 1990 mar;25(2):81-86.
24. Hem E, Grønvold NT, GAasland OG, Ekeberg Ø. The prevalence of suicidal ideation and suicidal attempts among Norwegian physicians. Results from a cross-sectional survey of a nationwide sample. European Psychiatry. 2000;15(3):183-189.
25. Gold KJ, Sen A, Schwenk T. Details on suicide among US physicians: data from the National Violent Death Reporting System, General Hospital Psychiatry. 2013 Jan-Feb;35(1):45-49.
26. Lukovic JA, Miletic V, Pekmezovic T, Trajkovic G, Ratkovic N, Aleksic D, et al. Self-Medication Practices and Risk Factors for Self-Medication among Medical Students in Belgrade, Serbia. PLoS ONE. 2014;9(12):e114644.
27. Montgomery AJ, Bradley C, Rochfort A, Panagopoulou E. A review of self-medication in physicians and medical students,

Occupational Medicine. 2011;61(7):490-497.
28. Marshall EJ. Doctors' health and fitness to practise: Treating addicted doctors. Occupational Medicine. 2008;58:334-340.
29. Ward CF. Ward GC, Saidman LJ. Drug abuse in anaesthesia training programs: a survey—1970 through 1980. JAMA. 1983;250:922-5.
30. Berge KH, Marvin MD, Seppala MD, Agnes M, Schipper JD. Chemical Dependency and the Physician. Mayo Clinic Proceedings. 2011;84(7):625-631.
31. Bryson EO. Jeffrey H, Silverstein MD. Addiction and Substance Abuse in Anesthesiology, Anesthesiology. 2008;11(109):905-917.
32. Flaherty JH, Richman JA Substance use and addiction among medical students, residents, and physicians: recent advances in the treatment of addictive disorders. Psychiatr Clin N Am. 1993;16:189-95.
33. Herrington RE. The impaired physician: recognition, diagnosis, and treatment. Wis Med J.
1. 1979;78:21-3.
34. Farley WJ. Addiction and the anaesthesia resident. Can J Anaesth. 1992;39:R11-7.
35. Bissell L, Jones RW. The alcoholic physician: a survey. Am J Psychiatry. 1976;133:1142-6.
36. Vijendren A, Yung M, Sanchez J. Occupational health issues amongst UK doctors: a literature review, Occupational Medicine. 2015;65;7(1)519-528.
37. Wistrand J. When doctors are patients: a narrative study of help-seeking behaviour among addicted physicians, Medical Humanities. 2017;43:19-23.
38. Mooney R, Simonato P, Ruparelia R, Roman-Urrestarazu A, Martinotti G, Corazza O.
2. The use of supplements and performance and image enhancing drugs in fitness settings: A exploratory cross-sectional investigation in the United Kingdom. Hum Psychopharmacology. 2017 May;32(3).
39. Corazza O, Roman-Urrestarazu A. Handbook of Novel Psychoactive Substances: What Clinicians should know about NPS. Editors, Routledge. 2018.
40. Corazza O, Bersani FS, Brunoro R, Valeriani G, Martinotti G, Schifano F. The diffusion of performance and image-enhancing drugs (PIEDs) on the internet: the abuse of the cognitive enhancer piracetam. Subst Use Misuse. 2014 Dec;49(14):1849-56.
41. Maher B. Look Who's Doping, 9th April, Nature. 2008;452: 674-675.
42. Aldridge J, Décary-Hétu D. Hidden wholesale: The drug diffusing capacity of online drug cryptomarkets International Journal of Drug Policy. 2016;35:7-15.
43. Corazza O, Roman-Urrestarazu A. Novel Psychoactive Substances: Policy, Economics and Drug Regulations. Berlin: Springer. 2017.
44. Corazza O, Bersani FS, Brunoro R, Valeriani G, Martinotti G, Schifano F. The diffusion of performance and image-enhancing drugs (PIEDs) on the internet: the abuse of the cognitive enhancer piracetam. Substance use & misuse. 2014;49(14):1849-56.
45. Snow J, Mann M. Qualtrics survey software: handbook for research professionals. 2013.
46. Wall M, Schenck-Gustafsson K, Minucci D, Sendén MG, Løvseth LT, Fridner A. Suicidal ideation among surgeons in Italy and Sweden-a cross-sectional study. BMC psychology. 2014;2(1):53.
47. Fridner A, Belkic K, Marini M, Minucci D, Pavan L, Schenck-Gustafsson K. Survey on recent suicidal ideation among female university hospital physicians in Sweden and Italy (the HOUPE study): cross-sectional associations with work stressors Gender medicine. 2009;6(1):314-328.
48. Fridner A, Belkić K, Minucci D, Pavan L, Marini M, Pingel B, Schenck-Gustafsson K. Work environment and recent suicidal thoughts among male university hospital physicians in Sweden and Italy: the health and organization among university hospital physicians in Europe (HOUPE) study. Gender medicine. 2011;8(4):269-279.
49. Gustafsson Sendén M, Løvseth L, Schenck-Gustafsson K, Fridner A. What makes physicians go to work while sick: a comparative study of sickness presenteeism in four European countries (HOUPE). Swiss Medical Weekly. 2013; 143:33-34.
50. World Health Organisation (WHO) Global Recommendations on Physical Activity for Health. Switzerland, 2010.
51. Dewa C, Loong D, Bonato S, Thanh NX, Jacobs P. How does burnout affect physician productivity? A systematic literature review BMC Health Services Research. 2014;14:325.
52. Franke AG, Bagusat C. Dietz P, Hoffmann, I Simon P, Ulrich R, Lieb K. Use of illicit and prescription drugs for cognitive or mood enhancement among surgeons BMC Medicine. 2013;11:102.