The impact of the 2003 Duty Hour Restriction mandate in the United States and the Working Time Directive in Europe on neurosurgery training has been immense.

Ever-developing changes to the working time of junior doctors by the European Working Time Directive, the junior doctor contract of 2019 and most recently the COVID-19 pandemic have impacted the professional identity of doctors. There has been little investigation into its influence on the multifaceted aspects of postgraduate medical training, which feeds into how trainees consider themselves professionally and the concept of professional identity or 'being a doctor'. A review of the medical, socio-political and educational literature reveals that the impact on the professional identity development of trainees is influenced by several perspectives from the trainee, trainer and the public. Gross reduction in working hours has no doubt decreased the raw volume of clinical experiences. However, to counteract this, smarter learning processes have evolved, including narrative reflection, supervised learning events, and a greater awareness of coaching and training among trainers [1].

A report reviews the current literature studying the implications of these regulations on the quality of neurosurgery training as well as on patient safety. In the majority of publications, limited working hours have resulted in increased postoperative complication rates and diminished in-training surgical experience. In Europe, the reduction in surgical experience had led to a decreased sense of confidence in operating independently by the end of training. This review demonstrates the importance of tailoring a specific framework for the individual needs of each residency program and recommends avoiding the application of universal regulations on all medical professions and training [2]

The introduction of the European Working Time directive 2003/88/EC has led to a reduction of the working hours with distinct impact on the clinical and surgical activity of neurosurgical residents in training.

A survey was performed among European neurosurgical residents between 06/2014 and 03/2015. Multiple logistic regression was used to assess the relationship between responder-specific variables (e.g., age, gender, country, postgraduate year (PGY)) and outcome (e.g., working time).

A total of 652 responses were collected, of which n = 532 responses were taken into consideration. In total, 17.5, 22.1, 29.5, 19.5, 5.9, and 5.5 % of European residents indicated to work <40, 40-50, 51-60, 61-70, 71-80, or >80 h/week, respectively. Residents from France and Turkey (OR 4.72, 95 % CI 1.29-17.17, p = 0.019) and Germany (OR 2.06, 95 % CI 1.15-3.67, p = 0.014) were more likely to work >60 h/week than residents from other European countries. In total, 29 % of European residents were satisfied with their current working time, 11.3 % indicated to prefer reduced working time. More than half (55 %) would prefer to work more hours/week if this would improve their clinical education. Residents that rated their operative exposure as insufficient were 2.3 times as likely as others to be willing to work more hours (OR 2.32, 95 % CI 1.47-3.70, p < 0.001). Less than every fifth European resident spends >50 % of his/her working time in the operating room. By contrast, 77.4 % indicate to devote >25 % of their daily working time to administrative work. For every advanced PGY, the likelihood to spend >50 % of the working time in the OR increases by 19 % (OR 1.19, 95 % CI 1.02-1.40, p = 0.024) and the likelihood to spend >50 % of the working time with administrative work decreases by 18 % (OR 0.84, 95 % CI 0.76-0.94, p = 0.002).

The results of this survey on >500 European neurosurgical residents clearly prove that less than 40 % conform with the 48-h week as claimed by the WTD2003/88/EC. Still, more than half of them would chose to work even more hours/week if their clinical education were to improve; probably due to subjective impression of insufficient training [3].

1)
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