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## Correspondence

### A bibliometric analysis of publication trends in UK plastic surgery

Dear Sir,

#### Introduction

Publication is seen as the pinnacle of academia and is actively encouraged from an early stage in a junior doctor's career. It forms the bedrock of evidence-based practice, allowing clinicians and researchers to share experiences which may lead to an improvement in patient outcomes. High quality research with robust methodology is a significant undertaking and is increasingly being used as a measure of competency for higher surgical training and fellowship applications. With training programmes putting greater emphasis on publications, research opportunities have become increasingly competitive in recent years with 17% of the total portfolio score for plastic surgery in the United Kingdom (UK) reserved for publications.<sup>1,2</sup>

There is international variation in the contribution to plastic surgery literature, with the UK being the largest contributor per capita according to a worldwide bibliometric analysis.<sup>3</sup> This is the most up to date bibliometric analysis describing differences in publication trends in high impact plastic surgery journals across training deaneries in the UK. This data also sought to compare output from training deaneries whilst considering the number of consultants within the deanery.

#### Methods

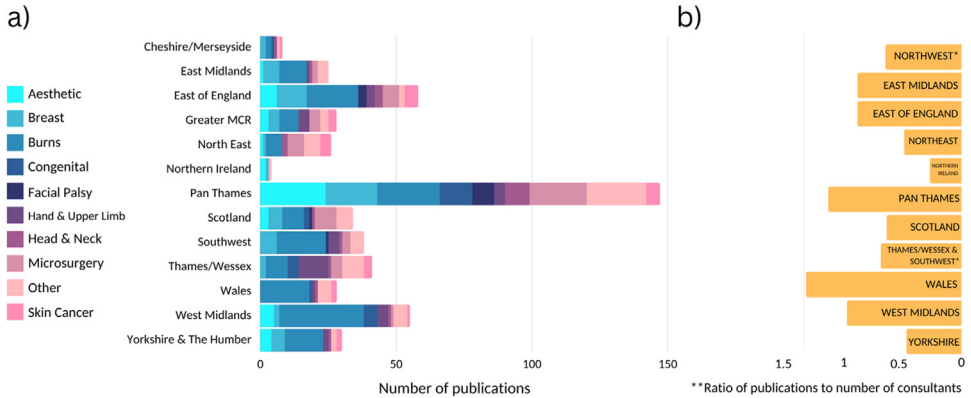
A search phrase on SCOPUS was constructed to identify all articles from ten high-impact plastic surgery journals from 2016 to 2021 where the UK was listed as country of affiliation. The articles were hand-searched to identify the theme, first author and affiliated deanery at the time of publication. Letters, editorials, short surveys, erratums, notes and conference papers were excluded. Publications where the affiliation of the first author was a non-UK or a private institution were excluded. The number of consultants for each region was extracted from the British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS) website and a ratio of the number of publications to the number of substantive consultants was calculated for each deanery.<sup>4</sup>

#### Journals included

Journal of Plastic, Reconstructive and Aesthetic Surgery; Annals of Plastic Surgery; Plastic and Reconstructive Surgery; Clinics in Plastic Surgery; Facial Plastic Surgery; Aesthetic Plastic Surgery; Burns; Journal of Reconstructive Microsurgery; Journal of Burn Care and Research; JAMA Facial Plastic Surgery (2016–2019); Facial Plastic Surgery and Aesthetic Medicine (2020–2021).

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**Figure 1.** (a) Breakdown of the theme of publication per deanery between 2016 and 2021. (b) Ratio of publications to number of consultants by deanery.

\*\*Data combined for these regions based on the availability of consultant data.

\*\*Consultant data obtained from BAPRAS.

**Results**

There are currently 13 plastic surgery training deaneries in the UK as outlined in Figure 1. The above search returned 1431 articles. After exclusions, there were 516 articles included for analysis. Rates of publication varied between deaneries with the largest proportion coming from the Pan Thames and East of England deaneries, representing 28.5% and 11.2% of the UK literature respectively (see Table 1). The smallest proportion was authored in Northern Ireland (0.8%). Burns represented the most prominent theme in UK literature at 31.8% of the articles included. The total number of publications across deaneries increased annually, with exception of 2019 (Table 1). After accounting for the number of consultants within the deanery, the regions with the highest number of publications (per number of substantive consultants) were Wales followed by Pan Thames (see Figure 1).

**Table 1**  
Number of plastic surgery publications per deanery from 2016 to 2021.

| Deanery  | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Total |
|--|------|------|------|------|------|------|-------|
| Cheshire & Merseyside                          | 2    | 1    | 2    | 0    | 1    | 2    | 8     |
| East Midlands                                  | 6    | 6    | 3    | 2    | 2    | 6    | 25    |
| East of England                                | 8    | 8    | 10   | 7    | 9    | 16   | 58    |
| Greater Manchester, Lancashire & South Cumbria | 3    | 5    | 8    | 3    | 5    | 4    | 28    |
| North East                                     | 1    | 3    | 1    | 4    | 6    | 5    | 20    |
| Northern Ireland                               | 1    | 0    | 0    | 2    | 1    | 0    | 4     |
| Pan Thames                                     | 20   | 30   | 23   | 14   | 18   | 42   | 147   |
| Scotland                                       | 7    | 2    | 7    | 5    | 4    | 9    | 34    |
| South West                                     | 4    | 7    | 9    | 8    | 5    | 5    | 38    |
| Thames/Wessex                                  | 6    | 3    | 4    | 7    | 12   | 9    | 41    |
| Wales  | 2    | 5    | 5    | 2    | 5    | 9    | 28    |
| West Midlands                                  | 6    | 11   | 8    | 6    | 16   | 8    | 55    |
| Yorkshire & The Humber                         | 3    | 1    | 4    | 5    | 3    | 14   | 30    |
| Total <sup>a</sup>                             | 69   | 82   | 84   | 65   | 87   | 129  | 516   |

<sup>a</sup> Journals: Journal of Plastic, Reconstructive and Aesthetic Surgery (JPRAS); Annals of Plastic Surgery; Plastic and Reconstructive Surgery (PRS); Clinics in Plastic Surgery; Facial Plastic Surgery; Aesthetic Plastic Surgery; Burns; Journal of Reconstructive Microsurgery; Journal of Burn Care and Research; JAMA Facial Plastic Surgery (2016–2019); Facial Plastic Surgery and Aesthetic Medicine (2020–2021).

## Discussion

This data represents the most recent bibliometric analysis of plastic surgery literature in the UK. Our results show a discrepancy in publication rates between different deaneries in the country with the Pan Thames region producing almost three times as many publications as the East of England deanery, which came second. Whilst this is somewhat expected given the number of units in the region, it remains one of the highest even after accounting for the number of substantive consultants, having only been surpassed by the Welsh deanery (see [Figure 1](#)). This suggests that research is actively encouraged in this region and could be facilitated by the fact that training in the Welsh deanery is based on a hub and spoke model allowing trainees who are primarily based in one large unit to collect data from several regional hospitals. It is important, however, to make the distinction between scientific and clinical research. Purely scientific research is virtually always affiliated with a university and logically, one can expect those areas with a larger number of academic institutions to have a higher output of research. This may in part explain the larger drive to publish in London, for example, where one of five London colleges or universities were listed in the authors' affiliations for nearly a third (32.7%) of publications. Furthermore, the Scar Free Foundation, which has overseen research for over 20 years, is affiliated with the University of Birmingham and the University of Bristol and features as an affiliation in 16.4% and 13.2% of publications, respectively.<sup>5</sup> In Scotland and Wales, translational research primarily takes place in collaboration with a single unit, the Canniesburn Unit in Glasgow and the Reconstructive Surgery & Regenerative Medicine Research Group in Swansea, which is an affiliation in 29.4% and 32.1% of publications from these deaneries, respectively.

The pandemic saw a decline in the number of publications produced in the UK, before rebounding in 2020–2021 ([Table 1](#)). Whilst burns surgeons account for only 12% of the plastic surgery consultant body in the UK, the subspecialty remains the focus of the largest proportion of research (31.8%).<sup>4</sup> Large grants by the British Burn Association and the Scar Free Foundation for Burns encourages units and trainees within them to become involved, which may explain this gap.<sup>6</sup> Burns research can range from basic science and translational research to large multi-centre studies exploring optimal reconstructive methods.<sup>7</sup> This is in contrast with other subspecialties such as microsurgery where research is predominantly clinical. Despite a larger proportion of microsurgeons in the UK (26%), only 10.1% of research focuses on this area.<sup>4</sup> Several of the subspecialties such as head and neck and skin cancer are also covered by other surgical specialities such as otolaryngology and oral and maxillofacial surgery which may prompt fewer publications on these topics by plastic surgeons.

Aesthetics was the subject of a significant proportion of publications in the Pan-Thames region (16.3%) and was relatively under-represented in other parts of the country. Cosmetic surgery accounts for a quarter of all private healthcare spending in the UK, with the greatest spending per capita taking place in London and the south east.<sup>8,9</sup> Interestingly, despite a steady decline in the proportion of plastic surgeons undertaking aesthetic surgery, the proportion of publications across the UK on aesthetic surgery increased from 2.9% in 2016 to 14.0% in 2021.<sup>4</sup>

## Conclusion

The UK remains one of the largest contributors to plastic surgery literature in the world. There remains significant variability across its regions with regards to the rate of publication as well the themes within plastic surgery.

## Declaration of Competing Interest

No competing interests declared.

## Funding

None.

## Ethical approval

Not applicable.

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Khalid Khalil\*<sup>1</sup>

*Cheshire & Merseyside Deanery, Whiston Hospital, Prescot, United Kingdom*

Thushanth Sooriyaamoorthy<sup>1</sup>

*East of England Deanery, Lister Hospital, Stevenage, United Kingdom*

\*Corresponding author.

*E-mail address: [Khalid.khalil@nhs.net](mailto:Khalid.khalil@nhs.net) (K. Khalil)*

<sup>1</sup> Joint first authors.