

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Chen Y, Laybourne JP, Sandinha MT, de Alwis NM, Avery P, Steel DH. Medscape. Does bariatric surgery prevent progression of diabetic retinopathy? *Eye* 2017; **31**: 1131–1139.
- 2 Coleman KJ, Haneuse S, Johnson E, Bogart A, Fisher D, O'Connor PJ *et al*. Long-term microvascular disease outcomes in patients with type 2 diabetes after bariatric surgery: evidence for the legacy effect of surgery. *Diabetes Care* 2016; **39**: 1400–1407.
- 3 Merlotti C, Ceriani V, Morabito A, Pontiroli AE. Bariatric surgery and diabetic retinopathy: a systematic review and meta-analysis of controlled clinical studies. *Obes Rev* 2017; **18**: 309–316.

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Sir,
Research attitudes and perceived barriers to conducting research among ophthalmology trainees

High-quality research forms the basis of evidence-based medicine. A strong grasp of the fundamental principles of research is essential for all doctors of all grades. Studies have shown that research training embedded within clinical training programmes helps to promote trainees' critical thinking and analysis, improve quality of patient care and facilitate post-training academic output.¹

Unlike other surgical trainees, participation in research activities is not mandated—albeit highly recommended—within the ophthalmology training programmes in the UK. However research participation is often deterred by the lack of time and inadequate research skills.^{2,3} In 2017 we sent out a 26-item questionnaire-based survey to all the ophthalmology trainees in the North East of England to examine their research attitudes and perceived barriers to conducting research. Trainees were asked to rank the utility of RSTA—a dedicated session allocated for

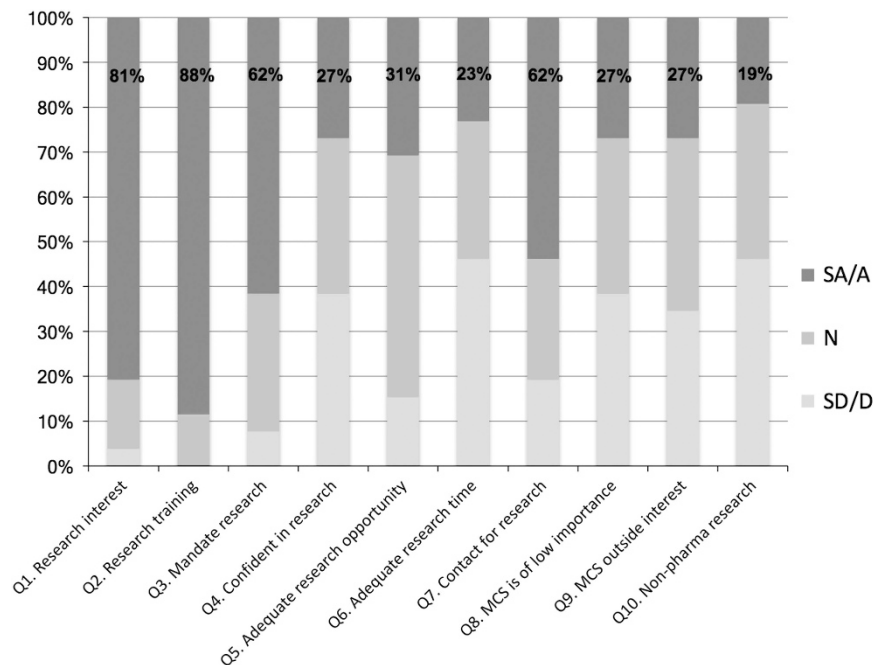


Figure 1 The summary of research attitudes of 26 ophthalmology trainees in the North East of England. SA—Strongly agree; A—Agree; N—Neutral; D—Disagree; SD—Strongly disagree; MCS—Multicentre study. Q1: I am interested in research. Q2: Research training is important for the trainees. Q3: Research should be mandated as part of the clinical training. Q4: I am confident in conducting research. Q5: I have been given enough opportunity to participate in research. Q6: I feel that I have enough time to participate in research. Q7: I know whom to speak to if I want to participate in research. Q8: I feel that participation in multicentre studies is of low importance because I am not included as a named co-author. Q9: I am interested in participating in multicentre studies but the research subject is not within my interest. Q10: I am only interested in non-pharmaceutical led research.

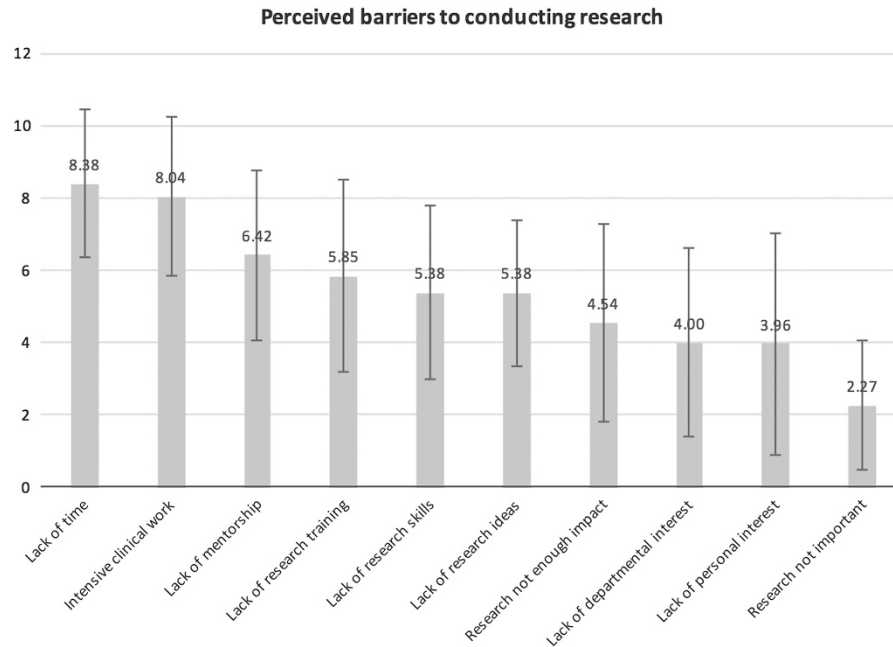


Figure 2 The summary of perceived barriers to conducting research amongst the ophthalmology trainees in the North East of England. The results are presented in mean (SD).

Research, Study, Teaching, and Audit (or Administrative) —against 6 activities (1 (least common activity) to 6 (most common activity)) and the barriers to conducting research against 10 barriers (1 (least common barrier) to 10 (most common barrier)).

A high response rate of 90% (26/29) was received. RSTAs (mean 1.6 (SD 0.5)) were most commonly utilised for administration (4.3 (SD 2.0)) followed by study (4.0 (SD 1.6)), clinical work (3.6 (SD 1.8)), audit (3.4 (SD 1.4)), research (2.6 (SD 1.8)) and teaching (2.4 (SD 1.2)). Positive research attitudes were observed amongst the trainees (Figure 1); the majority of the trainees strongly agreed/agreed (SA/A) that they are interested in research (81%) and that research training is important (88%). Lack of time (8.4), clinical training being too intensive (8.0) and lack of mentorship (6.4) were reported to be the three most common barriers to conducting research (Figure 2). Other reported barriers included the lack of funding and the 6-monthly migratory nature between hospitals during training.

Comments

We believe this represents the first study exploring the research attitudes and perceived barriers to research amongst the ophthalmology trainees in the UK. We observed a positive attitude towards research participation amongst the trainees. Our survey findings are consistent with several other studies where lack of time and lack of mentoring were reported as the common barriers to conducting research.²⁻⁴ We observed a low utility of RSTA for research; this might be attributed to the lack of confidence and opportunity in conducting/participating in

research (Figure 1), and the non-mandatory nature of research within the ophthalmology training programmes.

With the vast expansion of ophthalmic literature, having the competency to critically appraise the literature and practice robust evidence-based medicine are particularly important in the field of ophthalmology. In addition, there is a rising expectation for senior trainees and consultants in the UK to participate in NIHR portfolio adopted studies within the National Health Service (NHS) setting (<https://www.nihr.ac.uk/research-and-impact/nihr-clinical-research-network-portfolio/>). Recently we have reported the positive attitude towards the establishment of NETRiON (accepted for publication in *Eye—Ting et al*).⁵ We hope that this network could serve as an effective framework to address the research barriers described in this survey.

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Members of North East Trainee Research in Ophthalmology Network (NETRiON) are listed:

Members of NETRiON who had contributed to the data set (listed in alphabetical order): Tejaswi Bommireddy, Yan M Chen, Alan Cunningham, Karim El-Assal, Michael Grinton, Christin Henein, Elizabeth Hill, Deva Loganathan, David Lunt, Haifa Madi, Mark C Markham, Ibrahim Masri, Christopher Matthew, Michael McKenna, Ankur Mehta, Jia Y Ng, Yewande Olaoye, Kadambari Oswal, Romeela Rana-Rahman, Jaswant Sandhu, Audrey Shwe-Tin, Javid Suleman, Darren SJ Ting, Esther Ting, Maria Vrahimi, Gar Y Wong.

References

- 1 Macknin JB, Brown A, Marcus RE. Does research participation make a difference in residency training? *Clin Orthop Relat Res* 2014; **472**(1): 370–376.
- 2 Gill S, Levin A, Djurdjev O, Yoshida EM. Obstacles to residents' conducting research and predictors of publication. *Acad Med* 2001; **76**(5): 477.
- 3 Olausson A, Jennings PA, O'Reilly G, Mitra B, Cameron PA. Barriers to conducting research: a survey of trainees in emergency medicine. *Emerg Med Australas* 2017; **29**(2): 204–209.
- 4 Canadian Plastic Surgery Research Collaborative (CPSRC). Barriers and attitudes to research among residents in plastic and reconstructive surgery: A National Multicenter Cross-Sectional Study. *J Surg Educ* 2017; pii: S1931-7204(16)30319-1.
- 5 Ting DSJ, Vrahimi M, Varma D, Steel DHW; North East Trainee Research in Ophthalmology Network (NETRiON). Trainee-led research networks in ophthalmology: is this the way forward? *Eye* 2018; **32**: 168–175

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Sir,
**Emergency therapeutic penetrating keratoplasty in a
tertiary ophthalmic care facility**

Emergency penetrating keratoplasty has been associated with a lower rate of corneal graft survival, and a higher rate of immune reactions compared to scheduled normal risk keratoplasty.¹ High-risk penetrating keratoplasty has a success rate of 50% compared to 90% for a low-risk penetrating keratoplasty.² We wished to evaluate our experiences of emergency keratoplasty in a single tertiary ophthalmic care unit in West Scotland.

Table 1 Patient demographics

Patient	Age	Sex	Background	Previous corneal grafts	Indication	Systemic immunosuppression
<i>Trauma</i>						
1	61	M	Nil	0	Perforation	Nil
2	74	F	Nil	3	Perforation	Nil
<i>Immunological melt</i>						
3	34	F	Severe atopy	0	Perforation	Prednisolone, Tacrolimus
4	54	F	Steven-Johnson Syndrome	3	Perforation	Prenisolone, Mycophenolate
5	82	F	Sjogren's syndrome, Rheumatoid arthritis, Hypothyroidism	1	Perforation	Prednisolone
6	61	F	Sjogren's syndrome, Rheumatoid arthritis	3	Perforation	Prednisolone, Methotrexate
7	54	F	Sjogren's syndrome, Systemic Lupus Erythematosus	1	Perforation	Prednisolone, Azathioprine
<i>Infectious keratitis</i>						
8	70	M	Fuchs' endothelial dystrophy	1	Infectious keratitis	Nil
9	57	M	Alcohol abuse, Self neglect	0	Perforation	Nil
10	32	M	Severe atopy, Eczema	1	Infectious keratitis	Prednisolone
11	72	M	Rheumatoid arteritis, Herpetic keratitis	1	Perforation	Prednisolone
12	73	M	Previous herpetic keratitis	1	Perforation	Prednisolone, Azathioprine
3	34	F	Severe atopy	0	Perforation	Prednisolone, Tacrolimus
13	65	F	Sjogren's syndrome, Rheumatoid arthritis	1	Perforation	Prednisolone
14	61	F	Monthly Soft contact lens wearer	0	Infectious keratitis	Prednisolone