

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	A woman's place is in theatre: women's perceptions and experiences of working in surgery from the Association of Surgeons of Great Britain and Ireland Women in Surgery working group.
AUTHORS	Bellini, Maria Irene; Graham, Yitka; Hayes, Catherine; Zakeri, Roxanna; Parks, Rowan; Papalois, Vassilios

VERSION 1 – REVIEW

REVIEWER	Jenny X. Chen Harvard Medical School Department of Otolaryngology Boston, MA, USA
REVIEW RETURNED	15-Jun-2018

GENERAL COMMENTS	Although survey studies have been overdone, this is an important topic to cover and the authors do this in a heroically organized fashion, including not only descriptive statistics for any quantitative data but also thematic analysis, which is commendable. The primary feedback I have is for a more thorough discussion of the limitations of the survey design itself which is susceptible to multiple types of bias - namely, those who experienced gender inequalities might have been more likely to answer (selection bias), or those who were replying may have had recall bias based on the nature of the questions. The discussion could also make more of an effort to reference in more detail prior research on this topic and place this study in the context of others.
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REVIEWER	Jane Henderson Nuffield Department of Population Health University of Oxford, UK
REVIEW RETURNED	26-Aug-2018

GENERAL COMMENTS	BMJ Open – A woman's place is in theatre: women's perceptions and experiences of working in surgery from the ASGBI Women in Surgery working group Thank you for the opportunity to review this interesting manuscript. It is an important topic and the manuscript is well written. I have only a few comments: 'ASGBI' in title and abstract needs to be given in full. P4 – Introduction, 2nd sentence – 'needed' – please justify why this is needed. P5 – Introduction, last sentence doesn't quite make sense. P5-6 Methods – The lack of demographic information limits transferability. Could the authors at least provide some information about the demographics of the ASGBI Facebook sampling frame and how representative they are of women working in surgery generally? How many women are currently working in surgery in
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	<p>the UK? There is also a lack of clarity regarding the quantitative analysis. From Tables I-VII it seems that these were free-text responses. If this is the case, were they grouped for analysis? If not, how were these response options arrived at? Moreover, if the answer options were from free-text responses, does this constitute quantitative analysis?</p> <p>P6 – Results – I'm not sure the authors can claim a 42% response rate given the uncertain influence of the Twitter platform. At least it should be clarified. Please add a sub-heading 'Quantitative analysis' before the 3rd sentence.</p> <p>Tables – Please move 'Respondent skipped question', 'Don't know', 'Not sure', 'Nothing', to the end of the lists. Similarly in Table 1 'No barriers' should be the penultimate point. In Table III, last row, are the responses below 'Other' within that category? If so, inset these responses or bold Other. Table VI duplication between rows 1 and 4.</p> <p>P11, 1st sentence 'Much of a culture...' – Please add a reference.</p> <p>P17, end of 1st para – mentoring more beneficial in non-surgical specialties. This is an interesting point and worth exploring further.</p> <p>P17-18 – better outcomes from female surgeons. This is an important and controversial point. Please give more information about the quality of the studies.</p> <p>P18 Limitations – 42% response rate cannot be considered 'high'. Representativeness (or transferability in qualitative research) is further hindered by the probability that women who had encountered discrimination were more likely to respond to the online survey. Further, being an online survey, it was not possible to probe to gain a greater understanding of the comments. Literature cited should include the work of Trevor Lambert and Michael Goldacre on doctors' careers (see references below). Additional references</p> <p>1: Lambert TW, Smith F, Goldacre MJ. Combining parenthood with a medical career: questionnaire survey of the UK medical graduates of 2002 covering some influences and experiences. <i>BMJ Open</i>. 2017 Aug 23;7(8):e016822. doi: 10.1136/bmjopen-2017-016822.</p> <p>2: Lambert T, Surman G, Goldacre M. UK doctors and equal opportunities in the NHS: national questionnaire surveys of views on gender, ethnicity and disability. <i>J R Soc Med</i>. 2014 Oct;107(10):398-408. doi: 10.1177/0141076814541848.</p> <p>3: Goldacre MJ, Laxton L, Harrison EM, Richards JM, Lambert TW, Parks RW. Early career choices and successful career progression in surgery in the UK: prospective cohort studies. <i>BMC Surg</i>. 2010 Nov 2;10:32. doi: 10.1186/1471-2482-10-32.</p> <p>4: Taylor KS, Lambert TW, Goldacre MJ. Career progression and destinations, comparing men and women in the NHS: postal questionnaire surveys. <i>BMJ</i>. 2009 Jun 3;338:b1735. doi: 10.1136/bmj.b1735.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Jenny X. Chen

Institution and Country: Harvard Medical School, Department of Otolaryngology, Boston, MA, USA

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

Although survey studies have been overdone, this is an important topic to cover and the authors do this in a heroically organized fashion, including not only descriptive statistics for any quantitative data but also thematic analysis, which is commendable. The primary feedback I have is for a more thorough discussion of the limitations of the survey design itself which is susceptible to multiple types of bias - namely, those who experienced gender inequalities might have been more likely to answer (selection bias), or those who were replying may have had recall bias based on the nature of the questions.

Thank you, limitations were more in details explained in the "Strengths and Limitations" section at the beginning of the manuscript and in the Limitations at the end.

The discussion could also make more of an effort to reference in more detail prior research on this topic and place this study in the context of others.

References added:

1. Taylor KS, Lambert TW, Goldacre MJ. Career progression and destinations, comparing men and women in the NHS: postal questionnaire surveys. *BMJ*. 2009 Jun 3;338:b1735. doi: 10.1136/bmj.b1735. Added: to deeper understand the nature of these hidden barriers (2)
2. Goldacre MJ, Laxton L, Harrison EM, Richards JM, Lambert TW, Parks RW. Early career choices and successful career progression in surgery in the UK: prospective cohort studies. *BMC Surg*. 2010 Nov 2;10:32. doi: 10.1186/1471-2482-10-32. Added: as do some of their teachers (5)
3. Lambert TW, Smith F, Goldacre MJ. Combining parenthood with a medical career: questionnaire survey of the UK medical graduates of 2002 covering some influences and experiences. *BMJ Open*. 2017 Aug 23;7(8):e016822. doi: 10.1136/bmjopen-2017-016822. (17)
4. Harris CA, Blencowe N, Telem D *Ann Surg*. Response: "Gender Fair Language Matters?" 2018 Jan 3. doi: 10.1097/SLA.0000000000002655. (22)
5. Lambert T, Surman G, Goldacre M. UK doctors and equal opportunities in the NHS: national questionnaire surveys of views on gender, ethnicity and disability. *J R Soc Med*. 2014 Oct;107(10):398-408. doi: 10.1177/0141076814541848. (25)

Reviewer: 2

Reviewer Name: Jane Henderson

Institution and Country: Nuffield Department of Population Health, University of Oxford, UK

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

BMJ Open – A woman's place is in theatre: women's perceptions and experiences of working in surgery from the ASGBI Women in Surgery working group

Thank you for the opportunity to review this interesting manuscript. It is an important topic and the manuscript is well written.

Thank you

I have only a few comments:

'ASBGI' in title and abstract needs to be given in full.

Corrected.

P4 – Introduction, 2nd sentence – 'needed' – please justify why this is needed.

Added: To understand more in depth the nature of these hidden barriers.

P5 – Introduction, last sentence doesn't quite make sense.

Clarified: Acknowledging these issues is the first of many steps to addressing their implication to help moving beyond tokenism in the co-construction of relevant, impactful and evidence-based action

P5-6 Methods – The lack of demographic information limits transferability. Could the authors at least provide some information about the demographics of the ASGBI Facebook sampling frame and how representative they are of women working in surgery generally?

Added: The facebook group is mainly composed by women (90%), aged between 25-34 years (39%) and 35-44 years (30%). The main country is the UK (70%), with also contribution from India, Pakistan, USA, Europe and Africa.

How many women are currently working in surgery in the UK?

Please kindly see first paragraph of the introduction: Despite annual intakes of medical school cohorts evidencing a 55% female contingent, only 28% of these women eventually pursue a career in surgery via higher surgical training in the UK.

There is also a lack of clarity regarding the quantitative analysis. From Tables I-VII it seems that these were free-text responses. If this is the case, were they grouped for analysis?

The answers were grouped but this is descriptive statistics, not strictly quantitative analysis.

If not, how were these response options arrived at? Moreover, if the answer options were from free-text responses, does this constitute quantitative analysis?

The overarching methodology was qualitative. We used descriptive statistics as mentioned in the text

P6 – Results – I'm not sure the authors can claim a 42% response rate given the uncertain influence of the Twitter platform. At least it should be clarified.

In the results section it is specified: It was not possible to determine how the Twitter platform influenced response rate, and also in the abstract: (42% response rate based on the Facebook group members)

Please add a sub-heading 'Quantitative analysis' before the 3rd sentence.

Done

Tables – Please move 'Respondent skipped question', 'Don't know', 'Not sure', 'Nothing', to the end of the lists. Similarly in Table 1 'No barriers' should be the penultimate point.

Done

In Table III, last row, are the responses below 'Other' within that category? If so, inset these responses or bold Other.

Done

Table VI duplication between rows 1 and 4.

Corrected

P11, 1st sentence 'Much of a culture...' – Please add a reference.

Moved to discussion: Since much of a culture is underpinned and shaped by the language used, we advocate for a cultural identification of women becoming surgeons (22). Harris CA¹, Blencowe N, Telem

D Ann Surg. Response: "Gender Fair Language Matters?" 2018 Jan 3. doi: 10.1097/SLA.0000000000002655.

P17, end of 1st para – mentoring more beneficial in non-surgical specialties. This is an interesting point and worth exploring further.

Explained as following: The lack of female role models in surgical leadership and consultancy positions contribute to the perpetration of the white male stereotypical gender role, and those who do not fulfil these characteristics, may believe they cannot make in this environment. To address this structural problem, a more diverse senior team could prevent discrimination against women in surgery favouring their hiring and promotion.

P17-18 – better outcomes from female surgeons. This is an important and controversial point. Please give more information about the quality of the studies.

Added as following:

More in details, the selection of the surgical procedures followed these criteria: inclusion of all surgical subspecialties with female surgeons and either frequently performed in Ontario or having an increased likelihood of complications. The patients were matched on a 1:1 basis, using a hard match comprising procedural fee code, surgeon volume, surgeon age, hospital identifier, patient age, patient sex, and patient comorbidities.

P18 Limitations – 42% response rate cannot be considered 'high'. Representativeness (or transferability in qualitative research) is further hindered by the probability that women who had encountered discrimination were more likely to respond to the online survey. Further, being an online survey, it was not possible to probe to gain a greater understanding of the comments.

Limitations more in details explained as suggested in the "Strengths and Limitations" section at the beginning of the manuscript and in the Limitations at the end.

Literature cited should include the work of Trevor Lambert and Michael Goldacre on doctors' careers (see references below).

Additional references

1: Lambert TW, Smith F, Goldacre MJ. Combining parenthood with a medical career:

questionnaire survey of the UK medical graduates of 2002 covering some influences and experiences. *BMJ Open*. 2017 Aug 23;7(8):e016822. doi: 10.1136/bmjopen-2017-016822. The general perception is that family-friendliness may be hard to reconcile with the working requirements of the surgical specialty, often involving patient treatment of unknown length or at unsocial times of day or night. There is a challenge to manage work in these areas and to improve family-friendliness without compromising patient care (17)

2: Lambert T, Surman G, Goldacre M. UK doctors and equal opportunities in the NHS: national questionnaire surveys of views on gender, ethnicity and disability. *J R Soc Med*. 2014 Oct;107(10):398-408. doi: 10.1177/0141076814541848. (25)

3: Goldacre MJ, Laxton L, Harrison EM, Richards JM, Lambert TW, Parks RW. Early career choices and successful career progression in surgery in the UK: prospective cohort studies. *BMC Surg*. 2010 Nov 2;10:32. doi: 10.1186/1471-2482-10-32. Added: as do some of their teachers (5)

4: Taylor KS, Lambert TW, Goldacre MJ. Career progression and destinations, comparing men and women in the NHS: postal questionnaire surveys. *BMJ*. 2009 Jun 3;338:b1735. doi: 10.1136/bmj.b1735. Added: to deeper understand the nature of these hidden barriers (2)

VERSION 2 – REVIEW

REVIEWER	Jane Henderson University of Oxford, UK
REVIEW RETURNED	16-Oct-2018

GENERAL COMMENTS	<p>It is still not clear how the categories of response in Table i-vii were arrived at.</p> <p>Table IV-VII please put 'Not sure' and 'Respondent did not answer' at end of lists.</p> <p>p18 lines 5-10 beginning 'More in details,...' a) This does not make sense; b) When I suggested adding more detail about female surgeons having better outcomes, I wasn't meaning you should summarise the study, merely indicate whether it was robust and explore possible explanations.</p> <p>p12-15 - Thematic analysis - It is usual to have rather more interpretation of the material. As it currently stands, it is almost exclusively quotes.</p> <p>p19 Limitations - Last sentence of 1st paragraph needs rephrasing. '...with a selection bias' '..may have had recall bias' don't make sense.</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 2

Reviewer Name: Jane Henderson

Institution and Country: University of Oxford, UK

Please state any competing interests or state 'None declared': None declared

Please leave your comments for the authors below

It is still not clear how the categories of response in Table i-vii were arrived at.

The answers were grouped identifying patterns (themes) within the responses. Please see in the methods: a qualitative approach was taken using constant comparative analysis of the participants' comments, to identify patterns (themes) within the responses. This was guided by the principles of thematic analysis (12), using a six step process of data familiarisation, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report.

Table IV-VII please put 'Not sure' and 'Respondent did not answer' at end of lists.

Moved

p18 lines 5-10 beginning 'More in details,...' a) This does not make sense; b) When I suggested adding more detail about female surgeons having better outcomes, I wasn't meaning you should summarise the study, merely indicate whether it was robust and explore possible explanations.

Previously said: "Women excel in some areas more typically difficult for their male counterparts, including communication, collaboration, and patient centeredness".

Also added the following: The authors' possible explanation includes that the barriers women face in the surgical environment act as a higher bar to achieve a consultant or leadership role when compared to their male counterparts.

p12-15 - Thematic analysis - It is usual to have rather more interpretation of the material. As it currently stands, it is almost exclusively quotes.

At the beginning of the thematic analysis it is specified what was the interpretation of the material: "The participants appeared to make efforts to fit into the environment, adapting a variety of stances to do this. The constraints were conceptualised as conflicting personal and career decisions, underrepresentation, a relative rigidity in surgical career structures, and the process of discrimination, both active and nuanced (self and others), that exists in current surgical practice. These themes are supported by in-vivo quotes."

p19 Limitations - Last sentence of 1st paragraph needs rephrasing. '...with a selection bias' '..may have had recall bias' don't make sense.

Rephrased: Furthermore, those who experienced gender inequalities might have been more likely to answer, or those who were replying may have had recall bias based on the nature of the questions.