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**Title:** A 5-year review of quality of reporting of research using clinician surveys in high-ranked dermatology journals

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Dear Editor,

Surveys of clinicians play a pivotal role in dermatology research, including to determine expert opinion, identify areas of uncertainty in clinical practice, define research priorities, investigate feasibility and explore areas of clinical equipoise between treatment options. Despite the commonality of research involving surveys distributed to dermatologists, we previously identified the issue of poor-quality survey design and lack of sufficient validation of these questionnaires prior to distribution<sup>1</sup>. Furthermore, a review of postal surveys of healthcare professionals from 1996 to 2005 has shown declining response rates, introducing potential non-responder bias<sup>2</sup>. To support stronger methodological quality and reporting of clinician surveys, we developed a checklist for authors to use, based on our experience and published literature<sup>1,3,4</sup>. In order to quantify the current level of methodological rigour and reporting, we used this checklist as a scoring system and assessed quality of clinician surveys in five high impact dermatology journals (British Journal of Dermatology (BJD), Journal of the European Academy of Dermatology and Venereology (JEADV), Journal of the American Academy of Dermatology (JAAD), Journal of Investigative Dermatology (JID), and Journal of the American Medical Association Dermatology (JAMA Dermatology)), during a five year period.

A comprehensive search of PubMed (between 1<sup>st</sup> of January 2013 to 1<sup>st</sup> of January 2018) identified articles in which a clinician survey was used. The search strategy was limited to five journals using relevant key words and MESH terms (Supplement 1). Overall, 1609 references were identified, and results were imported to EndNote and screened by title and abstract by two independent reviewers (AW & JK). A total of 110 articles were then screened using full text, leaving 103 articles for final inclusion. A scoring system (scoring from 0 – 21) was designed based on our previously published checklist<sup>1</sup> to determine overall quality of reporting. Included articles were scored by two independent reviewers (AW & JK) with discrepancies resolved through discussion. Descriptive statistics were

calculated from data entered into Microsoft Excel, and statistical tests were run using SPSS Version 20.0<sup>5</sup>.

Of 103 full text articles reviewed, 22 were published in BJD, JAAD n=41, JEADV n=31, JAMA n=8 and JID n=1 (**Table 1**; supplementary data available upon request to corresponding author). Clinician surveys were used most commonly in the dermatological literature to assess current practice. The strongest areas of reporting included: defining a clear study aim (97.1%; n=100); declaring sources of conflicts of interest (96.1%; n=99) and declaring any funding sources (90.3%; n=93). Sufficient baseline demographics of respondents (counted as 3 pieces of demographic information; partial if 1-2) were collected in 49% (n=48), whilst a further 34.7% (n=34) were scored as partial collection. 14.7% (n=15/102) reported outcomes of a literature search for previously validated questionnaires, 10.1% (n=9/89) undertook prior validation of designed questionnaires and only 2% (n=2/102) tested reliability of their survey (for example by calculating a test-retest correlation). 20.6% (n=21/102) of articles piloted their questions prior to distribution. Total number of questions was reported in 61.2% (n=63), and the final set of questions was published in 22.3% (n=23). A calculated response rate was reported in 67.6% (n=69/102) with the mean response rate reported to be 41.7% (range 3-100%). Bias and limitations were discussed in 59.2% (n=61). With each criterion scored as one point for complete fulfilment, and partial fulfilment scored as 0.5, out of 21, excluding the single JID publication (due to insufficient article numbers to use as a comparison), mean article score was 9.8 / 21 (range 3 - 18.5). Whilst mean scores were slightly higher in BJD (10.6) and JAMA Dermatology (mean score 10.6) compared with JAAD (mean score 9.7) and JEADV (mean score 9.1), there was no significant difference between the journals for quality of reporting after controlling for article type (p=0.239).

**[Insert Table 1 Here]**

This study is a systematic analysis of methodological rigour and quality of reporting of research articles using clinician surveys in the dermatological literature. Limitations include the subjective nature of scoring of included articles, which was in part mitigated through using two independent reviewers. We only analysed quality of published articles; given the likelihood that not all clinician surveys are eventually published, the true quality of distributed questionnaires may be lower than reported here. Finally, our checklist of reporting criteria was not developed using a formal validation process, and therefore is more subjective than other reporting checklists.

Published clinician surveys across high impact dermatology journals demonstrate variable quality of reporting, which may be improved by use of a survey checklist at the design stage and to guide reporting and peer review. We would encourage stronger methodology and reporting of clinician surveys, and it may be helpful to develop a standardized checklist to guide researchers, editors and peer reviewers. Our hope is that future research using this important methodology will be of greater quality, potentially reducing research waste and inefficient use of clinician time, whilst overcoming the issues of response fatigue and non-responder bias.

**Table 1: Proportion of articles fulfilling, and reporting, criteria proposed for high quality reporting of clinician survey research**

<b><u>Criteria for Reporting</u></b>	<b><u>Percentage of Articles Reporting Criterion (n)</u></b>
Clear title indicating survey methodology	46.6% (n=48/103)
Conflicts of interest declared	96.1% (n=99/103)
Sources of funding declared	90.3% (n=93/103)
Clearly defined hypothesis	97.1% (n=100/103)
Method of survey delivery declared (electronic or paper)	84.5% (n=87)
Survey platform declared (if electronic method used)	45.0% (n=31/69)
Issue of duplicate responses addressed	8.7% (n=9/103)
Clear description of survey population	78.6% (n=81/103)
Baseline demographics of survey collected?	49.0% (n=48/98)
Baseline demographics reported in the table?	39.1% (n=34/87)
Time period during which survey conducted reported	Yes 68% (n=70/103)
Repeated contacts made to maximise response rate	27.6% (n=27)
Previous literature search conducted to assess whether previously validated questionnaires published	14.7% (n=15/102)
Prior validation of questionnaires conducted (not applicable if previously validated questionnaire used)	10.1% (n=9/89)
Survey reliability tested	Yes 2.0% (n=2/102)
Pilot test of questionnaires performed before full dissemination to check for errors	20.6% (n=21/102)
Final set of survey questions included in published article (including as appendix or supplement)	Yes 22.3% (n=23/103)
Total number of questions in survey reported	Reported in 61.2% (63/103) <ul style="list-style-type: none"> <li>• Range of questions: 3 – 56</li> <li>• Mean: 22 questions</li> </ul>
Format of questionnaire clear and concise	38.5% (n=10/26)
Use of 'don't know' or 'other' options in survey questionnaire	33.0% (n=34/103)
Use of free-text options in survey questionnaire	27.2% (n=28)
Calculation of response rate	67.6% (n=69/102) calculated a response rate <ul style="list-style-type: none"> <li>• Range: 3 – 100%</li> <li>• Mean: 41.7%</li> </ul>
All data collected was analysed and reported	25.2% (n=26/103)
Discussion of measures taken to ensure responding group representative or otherwise mentioned as limitation	18.8% (n=19/101) <ul style="list-style-type: none"> <li>• Mentioned as a limitation 21.8% (n=22)</li> </ul>
Sources of bias / limitations to methodology acknowledged	59.2% (n=61/103)
<b>Total Paper Reporting Score:</b>	<b>Mean: 9.8</b> <b>Range: 3 – 18.5</b>

## References

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