RESEARCH ARTICLE

Quality of reporting acupuncture interventions for chronic obstructive pulmonary disease: Review of adherence to the STRICTA statement [version 1; peer review: awaiting peer review]

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Abstract

**Background:** The quality of reporting of acupuncture interventions is critical to ensure the applicability and reproducibility of acupuncture clinical trials. In the past, different publications have evaluated the quality of reporting of acupuncture interventions for different clinical situations, such as knee osteoarthritis, neurological diseases or cancer. However, this has not been done for acupuncture trials for chronic obstructive pulmonary disease (COPD).

**Objective:** To assess the quality of reporting of acupuncture interventions in trials for COPD.

**Methods:** A total of 11 English and Chinese databases were screened up until May 2019 for randomised or quasi-randomised control trials of acupuncture for COPD. The STRICTA checklist was used to determine the quality of the reporting of acupuncture interventions.

**Results:** A total of 28 trials were included in our review. Out of the 16 STRICTA checklist subitems analysed, only 3 were considered appropriately reported in more than 70% of the trials, while 7 were correctly reported in less than 40%.

**Conclusion:** The adherence to STRICTA guidelines of acupuncture trials for COPD is suboptimal, and future efforts need to be addressed to improve the quality of reporting.

**Keywords**

Quality of Reporting, Acupuncture, COPD

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Introduction
Recent systematic reviews have assessed acupuncture’s efficacy for chronic obstructive pulmonary disease (COPD)\(^1\)–\(^3\). These reviews have concluded that, even though acupuncture could have some benefits, the risk of bias of the included trials is too high to draw any strong conclusion. Risk of bias is certainly a critical aspect in randomised control trials; however, the quality of reporting is also a key point.

Complete and clear information regarding clinical trial methodology is not only essential to adequately assess health research but also for its applicability and reproducibility. This is especially important in complex interventions, such as acupuncture, that can be practiced in many different styles and variations. Aspects such as point selection, depth of the insertion, stimulation method and response sought, which may be very different between practitioners, could have an impact on the therapeutic effect\(^4\). Therefore, to be able to replicate an acupuncture intervention in clinical practice or reproduce it in another trial, it is necessary to fully describe how it is applied.

The STAndards for Reporting Interventions in Controlled Trials of Acupuncture (STRICTA) guidelines were created to improve the quality of reporting in acupuncture trials and facilitate transparency in published reports\(^5\). These guidelines were updated in 2010 as an extension of the CONsolidated Standards Of Reporting Trials (CONSORT) guidelines\(^6\) and consist of 6 key items and 17 subitems addressing aspects such as acupuncture rationale, needling details, treatment regime, other components of the treatment, practitioner background and details about the control or comparator.

Although there is evidence that STRICTA guidelines have helped to improve acupuncture’s reporting, there is still a lot of room for improvement\(^7\). This has also been seen in recent publications for some specific conditions such as neurological diseases\(^8\)–\(^10\) or cancer\(^11\), concluding that reporting is still suboptimal in these conditions. However, to our knowledge, there is currently no publications regarding the quality of reporting of acupuncture interventions in COPD trials.

Evaluating the adherence of acupuncture clinical trials for COPD to STRICTA guidelines is crucial to detect underreported subitems and therefore highlight current deficiencies. This will help to improve the reporting of future trials and facilitate their applicability in clinical practice and the reproducibility of future research.

The aim of this study is to comprehensively evaluate the adherence to STRICTA guidelines of trials using acupuncture for COPD.

Methods
Study selection
In this study, we used the results of our previous systematic review, which included randomised or quasi-randomised trials using filiform needle acupuncture for COPD\(^2\). Published studies were comprehensively searched in the following databases from their inception to May 2019: Cochrane Central Register of Controlled Trials (CENTRAL), Medline, Embase, CINAHL, AMED (Ovid), PEDro, PsycINFO, CNKI, VIP, Wanfang, and Sino-Med. Detailed descriptions of the inclusion criteria, information sources, search strategies and study selections are published elsewhere\(^2\) and the protocol is available at http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42014015074.

Data collection process
Reviewers (CFJ, MSM, MY and CHL) worked in pairs and independently extracted the data using a standardised data extraction form, and disagreements were solved by consensus.

For data collection and STRICTA assessment, a specific extraction table with instructions of how to assess each of the 16 STRICTA subitems was created by the authors (Extended data\(^7\)). This extraction table was tested with pilot data to ensure its usability.

Our aim was to assess the acupuncture interventions, and therefore, the 17th STRICTA subitem “precise description of the control or comparator” was not considered. However, we did include the 16th STRICTA subitem “rationale of the chosen comparator”, since it is critical to justify which component of the acupuncture treatment is being assessed.

Since some STRICTA subitems refer to multiple aspects (e.g., “names of points used” subitem refers not only to the name or location of points but also to if they are used unilaterally or bilaterally), besides considering items just as reported or not reported, we also considered partially reported items and recorded the reasons for there being. This was done to provide more detailed information regarding the aspects that should be improved in the reporting of future trials. Partial reporting was also considered when the authors reported information in other sections, such as the introduction or the discussion. Although some subitems were considered that could potentially be “not applicable” (NA) for some pragmatic designs, none of the trials required this.

Data analysis
A descriptive analysis was used to summarise the results using percentages and absolute numbers.

Results
Number of publications and characteristics
In our systematic review, we screened all 5030 unduplicated titles and abstracts retrieved, and obtained 166 full text articles. Finally, we included 28 trials using filiform needles for COPD (Figure 1). Of those, only 6 were published in English-language journals, 1 in a German-language journal and 21 in Chinese-language journals. Details regarding the study characteristics and inclusion process have been published elsewhere\(^2\).

Quality of reporting
Ratings for STRICTA domains are summarized in Figure 2. Details for each trial are shown in Table 1, including reasons for considering partial reporting.
Acupuncture rationale. Acupuncture rationale was considered adequately reported in 20 trials (71%) regarding acupuncture style, 18 trials (64%) regarding reasoning of the treatment and 24 trials (85%) regarding treatment variation. Trials classified with partial reporting mentioned acupuncture style (3 trials) and reasoning (4 trials) in the introduction section but not in the methods section.

Details of needling. Adequate reporting of needling details was very heterogenous along all 4 subdomains. Best reported subdomains were “needle retention time” (21 trials, 75%) and “needle stimulation” (19 trials, 67%). Worse reported items were “name of the points” (10 trials, 35%), “depth of insertion” (8 trials, 28%) and “needle type” (6 trials, 21%). Partial reporting was observed in great proportion in “name of acupuncture points” (16 trials, 57%) being the main reason not describing if points were used unilaterally or bilaterally. Regarding the 46% of the trials classified with a partial reporting in the “needle type” item, there was missing information about the needle manufacturer (32.1%, 9 trials), material (25%, 7 trials) and length and diameter (10.7%, 3 trials).

Treatment regime. While “frequency and duration of the treatment sessions” was considered adequately reported for all trials (100%), the “number of treatment sessions” was considered completely reported in none of them (0%). Although this might seem a contradiction, since the number of treatment sessions can be calculated from the treatment regime, in STRICTA, the number of treatment sessions does not only include the planned number of sessions but also the actual number of treatments received. This information was missing or considered not clear in all trials.

Other components of treatment. Other components of treatment were one of the poorer described items. “Details of other interventions administrated” was only reported in 8 trials (28%) and “settings and context of treatments”, which refers to “instructions to practitioners that might modify their normal
practice, for example, prescribing or proscribing explanations to patients about their diagnosis, were only reported in 2 trials (7.1%).

**Practitioner background.** This item was only addressed completely in 1 trial (3.5%), and only 2 more trials (7.1%) partially reported it without stating practitioner’s years of experience.

**Control or comparator.** The “rational of the chosen comparator” was only correctly described in 2 trials (7.1%), while in 2 more trials (7.1%), this was mentioned in the introduction but not in the methods section.

**Discussion**
We found important limitations in the quality of reporting of acupuncture interventions in trials for COPD, especially regarding “depth of insertion”, “needle type”, “number of treatment sessions”, “details of other interventions administered”, “setting and context of treatments”, “description of acupuncturist” and “rationale for the control or comparator”.

Recently, several similar studies have been published. Lu et al., and Hughes et al., used STRICTA to evaluate trials with cancer patients, and Wei et al. used STRICTA to evaluate trials with stroke patients. Although they all concluded that reporting should be improved, there were also some differences. While Hughes et al. found better reporting regarding details of needling and treatment regimen, other reviews found lower reporting on these subitems, especially regarding number of needles per session and depth of insertion. Poor reporting on “details of other interventions administered”, “description of acupuncturist” and “rationale for the control or comparator” subitems was found in all studies. The differences between studies could be due to several reasons.

First, Lu’s and Weis’s reviews, as well as our own, included Chinese-language trials, while Hugs’ study included only English-language trials. Trials published in English-language journals seem to have greater quality of reporting than those in Chinese-language journals, according to Lu’s review. However, Wei et al. found better reporting of the subitems “treatment reasoning” and “response sought” in Chinese journals and better reporting on “practitioner’s background” in English journals.

Second, since STRICTA does not clearly specify how items should be judged, authors might have used different criteria. For example, regarding the subitem “number of treatment sessions”, the STRICTA statement says that “the actual number of
## Table 1. Quality of reporting according to STRICTA guidelines.

<table>
<thead>
<tr>
<th>STRICTA Items</th>
<th>Reported, % (n)</th>
<th>Not reported, % (n)</th>
<th>Partially reported, % (n)</th>
<th>Reason, % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Acupuncture rationale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a) Style of acupuncture</td>
<td>71.4 (20)</td>
<td>14.2 (4)</td>
<td>14.2 (4)</td>
<td>Not reported in the correct section, 14.2 (4)</td>
</tr>
<tr>
<td>1b) Reasoning for treatment provided, based on historical context, literature sources, and/or consensus methods, with references where appropriate</td>
<td>64.2 (18)</td>
<td>21.4 (6)</td>
<td>14.2 (4)</td>
<td>Not reported in the correct section, 14.2 (4)</td>
</tr>
<tr>
<td>1c) Extent to which treatment was varied</td>
<td>82.1 (23)</td>
<td>17.8 (5)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>2) Details of needling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a) Number of needle insertions per subject per session</td>
<td>46.4 (13)</td>
<td>28.5 (8)</td>
<td>17.8 (5)</td>
<td>Do not mention the number of needles, 17.8 (5)</td>
</tr>
<tr>
<td>2b) Names</td>
<td>35.7 (10)</td>
<td>7.14 (2)</td>
<td>57.14 (16)</td>
<td>Do not mention uni or bilateral insertion, 53 (15) Not all point locations are described, 3.5 (1)</td>
</tr>
<tr>
<td>2c) Depth of insertion, based on a specified unit of measurement or on a particular tissue level</td>
<td>28.5 (8)</td>
<td>71.4 (20)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>2d) Responses sought</td>
<td>53.5 (15)</td>
<td>46.4 (13)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>2e) Needle stimulation</td>
<td>67.8 (19)</td>
<td>17.8 (5)</td>
<td>14.2 (4)</td>
<td>Manual stimulation is mentioned but the specify the method is not, 10.7 (3) Electrical stimulation is mentioned but not parameters used, 3.5 (1)</td>
</tr>
<tr>
<td>2f) Needle retention time</td>
<td>75.0 (21)</td>
<td>25.0 (7)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>2g) Needle type</td>
<td>21.4 (6)</td>
<td>28.5 (8)</td>
<td>50.0 (14)</td>
<td>Material is not reported, 25 (7) Manufacturer is not reported, 32.1 (9) Diameter and length are not reported, 10.7 (3)</td>
</tr>
<tr>
<td>3) Treatment regime</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a) Number of treatment sessions</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>100 (28)</td>
<td>The actual number of treatments received is not reported or not clear, 100 (28)</td>
</tr>
<tr>
<td>3b) Frequency and duration of treatment sessions</td>
<td>100 (28)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>4) Other components of treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a) Details of other interventions administered to the acupuncture group</td>
<td>28.5 (8)</td>
<td>57.1 (16)</td>
<td>14.2 (4)</td>
<td></td>
</tr>
<tr>
<td>4b) Setting and context of treatment, including instructions to practitioners, and information and explanations to patients</td>
<td>7.1 (2)</td>
<td>89.2 (25)</td>
<td>3.5 (1)</td>
<td></td>
</tr>
<tr>
<td>5) Practitioner background</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Description of participating acupuncturists</td>
<td>3.5 (1)</td>
<td>89.2 (25)</td>
<td>7.1 (2)</td>
<td>Years of experience not mentioned, 7.1 (2)</td>
</tr>
<tr>
<td>6) Control or comparator interventions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6a) Rationale for the control or comparator</td>
<td>7.1 (2)</td>
<td>85.7 (24)</td>
<td>7.1 (2)</td>
<td>Not reported in the correct section: 7.1 (2)</td>
</tr>
</tbody>
</table>

STRICTA, STandards for Reporting Interventions in Clinical Trials of Acupuncture.
treatments received by participants should be reported in the Results section not only the planned ones. Whereas in our review, we did not consider that this subset was fully reported unless this information was explicitly stated; others might have been more permissive. Also, the criteria to consider proper reporting on “other components of treatment” might vary widely between reviewers.

Third, sometimes information might have been reported in sections different from the ones they should appear in. While some authors might not have given much importance to this, we decided to take it into consideration.

Strengths and limitations
To our knowledge, this is the first study to assess the quality of reporting of acupuncture interventions for COPD. We included all acupuncture trials for COPD published until May 2019 with no language restriction, which is important since we only found 6 acupuncture trials published in English. Also, we did not only assess if STRICTA subitems were adequately reported or not but also analysed partial reporting and its reasons, which might be more helpful for authors to realise what specific information is currently missing.

Limitations of this study include that the STRICTA guidelines are not a rating scale; therefore, there are no clear indications of how to judge each subitem and when to consider it fully reported. To minimise this problem, each item was assessed by two reviewers independently, and a standardised extraction form was developed to unify reviewers’ criteria. Also, it would have been interesting to compare the quality of reporting depending on the language of publication, so we could explore differences in journal standards. However, due to the low number of non-Chinese-language publications found (1 in German and 6 in English), we decided not to do so. Finally, STRICTA guidelines are specific for the filiform needle acupuncture technique and are not suitable to assess other interventions. Therefore, we did not include trials using only moxibustion, acupressure or transcutaneous electrical nerve stimulation.

Conclusion
The quality of reporting of acupuncture interventions in COPD trials according to STRICTA guidelines is suboptimal. Greater attention needs to be paid to include all relevant information necessary to adequately assess the results of the trials by researchers and journals.

Data availability
Underlying data

Extended data

Data is available under a Creative Commons Attribution 4.0 International license (CC-BY 4.0).

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References

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