Students’ contribution to the New Zealand Medical Journal: a 14-year review
Ibrahim S Al-Busaidi, Sultan Z Al-Shaqsi

Abstract

Aims Little is known about students’ contribution to mainstream New Zealand (NZ) medical literature. This study aimed to analyse the pattern of students’ contributions to the New Zealand Medical Journal (NZMJ).

Methods A retrospective review of all articles authored or co-authored by students, and published in the NZMJ from November 1999 to December 2013. Author and article related information were collected and analysed.

Results There were 288 issues and 4205 articles published between November 1999 and December 2013. Students authored or co-authored 376 (8.9%) articles during this time period. There is an increased trend in the number of articles published during the study period in that students published three times more in 2013 when compared to 2000. Senior medical students and postgraduate students contributed the most with 41.2% and 40.3% of the total student publications respectively. Original articles constituted the most common type of students' publications (67.6%).

Conclusion Students contributed substantially to mainstream published NZ medical literature. Students’ contribution continues to increase and this reflects the increased participation in research activities. Academic institutions should harness this potential and encourage students to publish their research findings.

Students have made substantial intellectual contributions to the medical literature.1 Furthermore, students have been instrumental in major medical advances such as the discovery of insulin, heparin and the sinoatrial node of the heart.2 Such discoveries are constant reminders that students, regardless of their level of study, have the potential to significantly contribute to the medical knowledge. Institutions strive to support and guide student research efforts. Many universities incorporate research components in their courses in order to equip students with essential tools to conduct scientific research.3,4

Publishing scientific articles is part of any knowledge communication and dissemination of research. The number of peer-reviewed scientific publications are used as a proxy measure of the quality and quantity of research activities in many research-based funding programs.5 New Zealand (NZ) medical schools encourage student-led medical research and provide specific programs that combine research with clinical training such as Bachelor of Medical Sciences (Honours), summer studentships, and in some cases doctorate level degrees. In addition, many professional medical colleges require candidates to have conducted scientific research and bonus points are allocated for publications.

Internationally, there has been an increased recognition of a need to provide students of health sciences background with a medium to share their scientific work in mainstream medical journals.5 For this reason, several journals have introduced student sections such as the British Medical Journal (BMJ) which has launched a student-specific journal known as Journal of Postgraduate Medicine.6 Furthermore, other journals were specifically conceived to act as a platform for students to publish their research work and ideas, and include Student British Medical Journal, Australian Medical Student Journal, and New Zealand Medical Student Journal (NZMSJ). The NZMSJ is a biannual student-led journal that publishes student academic writings. There are 18 issues published so far.7

There is little known about the extent of students’ contribution to mainstream medical literature in NZ. Therefore, this study aimed to assess the pattern of students’ contribution to the NZ medical literature.
by examining articles published in the New Zealand Medical Journal (NZMJ). The NZMJ is a peer-reviewed medical forum for scientific publication. It is the official journal of the New Zealand Medical Association, and is indexed in PubMed. It publishes 20 issues annually with a focus on New Zealand healthcare.

**Methods**

This study was a retrospective review of all articles published in the NZMJ from November 1999 to December 2013. The issue of 12 November 1999 (Volume 112, Issue 1099) is the oldest archived issue available online on the NZMJ website. A total of 288 issues are available online from November 1999 (Volume 112, Issue 1099) to December 2013 (Volume 126, Issue 1387), and were reviewed in this study. The tables of contents and author information/affiliations sections of each issue were assessed to identify possible students among authors. Articles with student contributors were assessed and several variables collected.

This included article-related information such as year, month, issue and type of publication. Further data pertaining to student authors such as reported level of university study, order of authorship and institutional affiliation were also collected. The data was entered into a pre-designed Statistical Package for Social Sciences (SPSS) datasheet. The results are presented in a descriptive format (frequencies and percentages) and calculated for all variables collected. All statistical analyses were performed using the Statistical Package for Social Sciences software (version 19, release 19.0.0, copyright SPSS Inc. 1989–2010).

**Results**

From November 1999 to December 2013, 288 issues of the NZMJ were published containing 4205 articles (which include editorials, letters, clinical correspondence [medical images, case reports] as well as reviews, viewpoints, and original articles; see Table 2) of which 376 articles (8.9%) featured a student among the authors.

Table 1 below shows the characteristics of articles reviewed. Medical students in their early years of training (second- and third-year students) featured in 27.7% of published articles. Furthermore, clinical medical students contributed 41.2% of total student articles. Postgraduate students contributed a similar proportion to those of clinical medical students (40.3%). Other undergraduate health sciences students featured in 7 articles only.

Of all the 376 articles, students were the first author in 65.2%, and New Zealand-based students contributed around 90% of articles (Table 1).

### Table 1. Characteristics of students’ contribution in the NZMJ between Nov 1999 and Dec 2013

<table>
<thead>
<tr>
<th>Variables</th>
<th>Characteristics</th>
<th>N (%)</th>
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<tbody>
<tr>
<td><strong>Stage of study</strong></td>
<td>Preclinical medical course (second and third year medical students)</td>
<td>104 (27.7)</td>
</tr>
<tr>
<td></td>
<td>Clinical medical course (fourth, fifth and trainee intern year medical students)</td>
<td>151 (40.2)</td>
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<tr>
<td></td>
<td>Other undergraduate health sciences professional and restricted-entry programmes (for e.g.: medical laboratory science, physiotherapy, pharmacy, and dentistry, dental technology etc)</td>
<td>7 (1.9)</td>
</tr>
<tr>
<td></td>
<td>Postgraduate programme (for e.g. masters, PhDs and other postgraduate degrees)</td>
<td>114 (30.3)</td>
</tr>
<tr>
<td><strong>Order of authorship</strong></td>
<td>First author</td>
<td>245 (65.2)</td>
</tr>
<tr>
<td></td>
<td>Co-author</td>
<td>128 (34.8)</td>
</tr>
<tr>
<td><strong>Institutional affiliation</strong></td>
<td>NZ-based institution</td>
<td>338 (89.9)</td>
</tr>
<tr>
<td></td>
<td>Overseas-based institution</td>
<td>38 (10.1)</td>
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Table 2. Type of publication contributed by students in the NZMJ from Nov 1999 to Dec 2013

<table>
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<th>Type of publication</th>
<th>N (%)</th>
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<tbody>
<tr>
<td>Original article</td>
<td>254 (67.6)</td>
</tr>
<tr>
<td>Review</td>
<td>8 (2.1)</td>
</tr>
<tr>
<td>Clinical correspondence*</td>
<td>25 (6.6)</td>
</tr>
<tr>
<td>Letter</td>
<td>46 (12.2)</td>
</tr>
<tr>
<td>Viewpoint</td>
<td>30 (8.0)</td>
</tr>
<tr>
<td>Case note/Case report</td>
<td>5 (1.3)</td>
</tr>
<tr>
<td>Medical image</td>
<td>1 (0.3)</td>
</tr>
<tr>
<td>Editorial</td>
<td>7 (1.9)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>376</td>
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*This section includes medical images and case reports; before the introduction of this section (in the late 2000s) medical images and case reports were in separate sections “Medical images” and “Case reports”.

As outlined in Table 2, original articles constituted the main form (67.6%) of student publication in the NZMJ in the last 14 years. Letters are the second most common form (12.2%) followed by viewpoint articles (8.0%).

Figure 1. The number of students’ publications in the NZMJ each year (1999–2013)

![Graph showing the number of student publications in the NZMJ from 1999 to 2013. The highest number of publications was in 2012 (42 publications).]

Figure 1 shows the trend of students’ publications in the NZMJ between 1999 and 2013. There is a gradual increase in the number of student-authored or co-authored articles during the study period. The highest number of student publications was in 2012 (42 publications).
Figure 2. Numbers of students' publications published by month of NZMJ edition (1999–2013)

Figure 2 depicts students' publications in the NZMJ during the months of the year for the study period (1999–2013). Students' publications—on average—featured significantly more in the June and November issues than other issues during the year (P value<0.05).

**Discussion**

This study attempted to estimate students’ contribution to scientific publications in the NZMJ in the last 14 years. Students have contributed to a significant 8.9% of the total publications in different types during the study period. The trend of publications continues to increase annually. In 2013, the number of students' publications was three times that of 2000. This increasing in trend could reflect students’ interest in medical research and its value in the overall learning experience. Moreover, it could also indicate an increased emphasis by academic institutions in encouraging students to be more involved in research in order to develop sound understanding of critical thinking skills.

A survey from Auckland University estimated that 25% of medical students have had exposure to medical research mainly in the form of summer studentship (70%). Our study found that June and November issues have higher student contribution than other issues. This could reflect the academic year timing in that research conducted during summer and first semester of the academic year gets published at the end of the first semester (June) and research conducted during second semester gets published in November. However, it is difficult to assess the monthly variation without controlling for submission and acceptance rates of the NZMJ during such months.

The results of our review are similar to those from other countries. A cross-sectional survey of 515 British medical students reported that 149 articles produced by 72 students were submitted to scientific journals and meetings. The main motivation for publication being “career progression”.

Another study from the Netherlands reviewed the output of six medical schools and found that 14.7% of their 2793 graduates in years 2006 and 2007 have published at least one scientific article in an indexed journal.

A similar study from Germany conducted by Cursiefen and Althubas found that at least 28% of their total academic institution's publications featured a student as an author or a co-author. Furthermore, Salmi and colleagues reviewed the publications of final-year students from 36 French medical
universities found that 17% of final-year research projects conducted by students resulted in a PubMed indexed journal publication.\textsuperscript{12}

Moreover, a study from a Peruvian medical school found 17.6% of their university publications were contributed by students.\textsuperscript{13} Therefore, such studies clearly demonstrate that students are capable of conducting publishable research and there is an increased emphasis in students’ participation in research. Nevertheless, the quality of published students’ research has not been investigated.

There are several strengths to our study. To our knowledge, this is the first study that attempted to estimate the contribution of students in mainstream medical literature in NZ. Furthermore, the number of issues included are inclusive of a large volume of current literature. However, there are potential limitations to this study.

Firstly, this study included only one main journal. There are a few other journals, such as *Journal of Primary Health Care* in which students could have published and were not captured in this study. Another limitation is that it is possible that students who conduct significant research in their final years of study but publish after graduation are not identified as student authors because they would have different job description or title. Therefore, the results in this study might be an underestimate of student-authored or co-authored publications. Unfortunately, this study was not able to control for the number of enrolled students over the study period as a factor for the observed increase in annual students publication.

There is a multitude of published literature about methods of enhancing research and scientific writing among medical students. Mabvuure\textsuperscript{14} and McLean et al\textsuperscript{15} reported 12 essential tips for medical educators to consider in order to promote academic writing and research among medical students. Therefore, it will be useful to incorporate such suggestions into the current research models of medical curriculum in New Zealand. Such frameworks will equip medical students with important skills required in many professional careers.

Finally, it might be an incentive to students if the *NZMJ* dictates a section in which student-led research is published. This will highlight the value and contribution of student-led research in the medical literature in New Zealand.

**Conclusions**

This paper presents, to our knowledge, the first attempt to estimate the contribution of students to a mainstream medical journal in New Zealand, the *NZMJ*. Clearly, students are capable and have the potential to publish quality research. Further measures to harness and encourage such potential are required. Future research to better assess students’ contribution to the medical literature is imperative.

**Competing interests:** Nil.

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**References**


