Full journal publication of abstracts presented at the Nordic Congress of General Practice in 2009 and 2011

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**Full journal publication of abstracts presented at the Nordic Congress of General Practice in 2009 and 2011**

Frans Boch Waldorff, Kristine Petersen, Siri Vintner, Håkon Sandholdt, Volkert Siersma and John Sahl Andersen

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**ABSTRACT**

**Objective:** To determine the overall publication rates for abstracts presented at two consecutive Nordic Congresses of General Practice and to evaluate determinants for these publication rates.

**Design:** Prospective study.

**Setting:** MEDLINE (PubMed) and Google Scholar were searched for relevant publications from 1 January 2009 up until 31 August 2014.

**Methods:** Abstracts accepted for oral or poster presentation were identified from the original congress booklets from the Nordic Congresses of General Practice in 2009 and 2011. Based on PubMed and Google Scholar searches, we subsequently identified full journal publications within a 36-month follow-up from both congresses. In cases of doubt, the first author was contacted directly.

**Main outcome measures:** Full journal publication within 36 months after the congress.

**Results:** A total of 200 abstracts were analyzed. Of these, 85 (42.5%) were identified with a full publication within 36 months after the congress. More abstracts from the 2011 congress were published compared to the 2009 congress odds ratio (OR) 1.97, 95% confidence interval (CI) (1.10; 3.50). Abstracts accepted for oral presentation were more often published OR 1.94, 95% CI (1.08; 3.50) than accepted poster abstracts. In the multivariate analysis, a university affiliation for both first and last author increased the probability for publication OR 4.23, 95% CI (1.71; 10.42), as well as more than two authors. An optimal number, based on the highest OR, seems to be 3–4 authors with OR 2.43, 95% CI (1.07; 5.54). Qualitative studies were published at the same frequency as quantitative studies OR 1.36, 95% CI (0.57; 3.24).

**Conclusion:** Less than half of the abstracts accepted for oral or poster presentation at two consecutive Nordic Congresses of General Practice were published as full text articles within 36 months.

**KEY POINTS**

- Congress abstracts accepted for Nordic Congress of General Practice are not indexed in international search databases.
- Less than half of the abstracts accepted for oral or poster presentation at two consecutive Nordic Congresses of General Practice were published as full text articles within 36 months.
- Future congress committees could address this aspect in order to increase the visibility of and accessibility to research within the field of general practice.

**Introduction**

Research in general practice is important in order to improve overall health care [1] and is often initially presented at scientific family medicine congresses. The Nordic Federation of General Practice coordinates Nordic Congresses every second year [2]. Since 1979, these congresses have presented the latest within research, education and quality improvement. However, the congress abstracts are not indexed in international search databases; this is only done when a scientific article based on the abstract is published in a journal. Optimally, the vast majority of abstracts selected for presentation at the Nordic congresses should be published in peer reviewed journals within...
a short period after the congress presentation to impact subsequent research and influence clinical practice [3].

Publishing a scientific article is a time-consuming process and only some manuscripts end up being published in journals indexed in major search databases. Studies in other medical specialties have indicated that the publication rate of accepted congress abstracts in peer reviewed journals ranges from 44% to 63%, depending on methodology, specialty, author experience and results of the individual abstracts [4,5].

General practice is an area with increasing research activity [6]. Research regarding publication rates for abstracts presented at general practice congresses is sparse. Thus, we have only identified one recent American survey but no European surveys [7]. Consequently, the purpose of this study was to determine publication rates for abstracts presented at two consecutive Nordic Congresses of General Practice and to evaluate factors affecting publication rates.

**Methods**

**Material**

All abstracts accepted for poster or oral presentation at the 16th and 17th Nordic Congress of General Practices, held in 2009 and 2011, respectively, and published in the official congress booklet, were included in the analysis. Based on previous research, a follow-up of at least 36 months was considered suitable, in order to account for adequate time for the editorial process [4]. We excluded abstracts accepted for workshops and symposiums, because the scope and format of these were very heterogeneous. Further, abstracts published in peer-reviewed journals before or during the same month, where the congress took place, were considered to be published before the congress; these were excluded as well.

Abstracts were classified according to presentation format (poster or oral), research area (clinical or health care research) and research design (quantitative, qualitative, mixed or other). Furthermore, we recorded the name, affiliation and country of origin of first and last authors, publication language as well as research stage (planning, data collection and concluded data collection) (Table 1).

**Assessment of subsequent publication**

In order to assess publication rates, we searched Medline on the PubMed server and Google Scholar. The search was time limited from 1 January 2009 through 31 August 2014 in order to allow for a 36-month follow-up for both congresses. In order to avoid overlooking papers, we conducted several

Table 1. Characteristics and unadjusted logistic regression of accepted abstracts for the Nordic conferences 2009 and 2011 stratified by publication status.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Not published papers</th>
<th>Published papers</th>
<th>Total</th>
<th>p value</th>
<th>Odds ratio (95% CI)</th>
<th>p value</th>
<th>Relative importance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Congress year</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2009</td>
<td>58 (50.4)</td>
<td>29 (34.1)</td>
<td>87 (43.5)</td>
<td>.0214</td>
<td>1.97 (1.10; 3.50)</td>
<td>.0221</td>
<td>6.95</td>
</tr>
<tr>
<td>2011</td>
<td>57 (49.6)</td>
<td>56 (65.9)</td>
<td>113 (56.5)</td>
<td></td>
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<tr>
<td><strong>Presentation form</strong></td>
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</tr>
<tr>
<td>Poster</td>
<td>53 (46.1)</td>
<td>26 (30.6)</td>
<td>79 (39.5)</td>
<td>.0267</td>
<td>1.94 (1.08; 3.50)</td>
<td>.0276</td>
<td>4.44</td>
</tr>
<tr>
<td>Oral</td>
<td>62 (53.9)</td>
<td>59 (69.4)</td>
<td>121 (60.5)</td>
<td></td>
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</tr>
<tr>
<td><strong>Affiliation of first author</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Others</td>
<td>55 (47.8)</td>
<td>17 (20.0)</td>
<td>72 (36.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>60 (52.2)</td>
<td>68 (80.0)</td>
<td>128 (64.0)</td>
<td>&lt;.0001</td>
<td>3.67 (1.92; 6.99)</td>
<td>&lt;.0001</td>
<td></td>
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<tr>
<td><strong>Affiliation of last author</strong></td>
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</tr>
<tr>
<td>Others</td>
<td>58 (50.4)</td>
<td>15 (17.7)</td>
<td>73 (36.5)</td>
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<td></td>
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<tr>
<td>University</td>
<td>57 (49.6)</td>
<td>70 (82.4)</td>
<td>127 (63.5)</td>
<td>&lt;.0001</td>
<td>4.75 (2.44; 9.25)</td>
<td>&lt;.0001</td>
<td>25.35</td>
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<td><strong>Country of first author</strong></td>
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<tr>
<td>Rest of the world</td>
<td>12 (10.4)</td>
<td>2 (2.3)</td>
<td>14 (7.0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scandinavian</td>
<td>103 (89.6)</td>
<td>83 (97.7)</td>
<td>186 (93.0)</td>
<td>.0278a</td>
<td>4.83 (1.05; 22.20)</td>
<td>.0428</td>
<td>–</td>
</tr>
<tr>
<td><strong>Country of last author</strong></td>
<td></td>
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<tr>
<td>Rest of the world</td>
<td>6 (6.2)</td>
<td>2 (2.4)</td>
<td>8 (4.5)</td>
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<tr>
<td>Scandinavian</td>
<td>91 (93.8)</td>
<td>80 (97.6)</td>
<td>171 (95.5)</td>
<td>.2965a</td>
<td>2.64 (0.52; 14.44)</td>
<td>.2431</td>
<td>–</td>
</tr>
<tr>
<td><strong>Research area</strong></td>
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<tr>
<td>Health care</td>
<td>88 (76.5)</td>
<td>45 (52.9)</td>
<td>133 (66.5)</td>
<td></td>
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<tr>
<td>Clinical</td>
<td>27 (23.5)</td>
<td>40 (47.1)</td>
<td>67 (33.5)</td>
<td>.0005</td>
<td>2.90 (1.58; 5.31)</td>
<td>.0006</td>
<td>9.83</td>
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<tr>
<td><strong>Number of authors</strong></td>
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<tr>
<td>(1–2)</td>
<td>47 (40.9)</td>
<td>14 (16.5)</td>
<td>61 (30.5)</td>
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<td></td>
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<tr>
<td>(3–4)</td>
<td>41 (35.6)</td>
<td>43 (50.6)</td>
<td>84 (42.0)</td>
<td>.0008</td>
<td>3.52 (1.69; 7.34)</td>
<td>.0008</td>
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<tr>
<td>&lt;4</td>
<td>27 (23.4)</td>
<td>28 (32.9)</td>
<td>55 (27.5)</td>
<td>.001</td>
<td>3.48 (1.57; 7.73)</td>
<td>.0022</td>
<td>16.29</td>
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<td><strong>Research stage</strong></td>
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<td>Planning phase</td>
<td>19 (16.5)</td>
<td>2 (2.4)</td>
<td>21 (10.5)</td>
<td></td>
<td></td>
<td></td>
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<td>Data gathering phase</td>
<td>14 (21.2)</td>
<td>16 (18.8)</td>
<td>30 (15.0)</td>
<td>10.86</td>
<td>2.14 (5.51; 6.08)</td>
<td>.0040</td>
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<td>Concluded project</td>
<td>82 (71.3)</td>
<td>67 (78.8)</td>
<td>149 (74.5)</td>
<td>.0031a</td>
<td>7.76 (1.75; 34.52)</td>
<td>.0071</td>
<td>18.93</td>
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<tr>
<td><strong>Research method</strong></td>
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<tr>
<td>Quantitative</td>
<td>72 (62.6)</td>
<td>65 (76.5)</td>
<td>137 (68.5)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Qualitative</td>
<td>19 (16.5)</td>
<td>18 (21.2)</td>
<td>37 (18.5)</td>
<td>1.05</td>
<td>0.51 (2.17)</td>
<td>.8965</td>
<td></td>
</tr>
<tr>
<td>Mixed</td>
<td>9 (7.9)</td>
<td>1 (1.2)</td>
<td>10 (5.0)</td>
<td>.0123</td>
<td>0.02 (0.10; 0.49)</td>
<td>.0498</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>15 (13.0)</td>
<td>1 (1.2)</td>
<td>16 (8.0)</td>
<td>.0005a</td>
<td>0.07 (0.01; 0.58)</td>
<td>.0128</td>
<td>18.22</td>
</tr>
</tbody>
</table>

*Monte Carlo simulated p value.

Country of first and last author was removed from the multivariate analysis (low cell count).
searches in PubMed and Google Scholar starting on 1 September 2015 up until 1 March 2016.

In searching for the abstracts, we initially combined the last name and initial(s) of the first author. If no full text article was found, the last author’s family name and initial(s) was included. If a corresponding paper was still not identified, a broad keyword from the title was used in combination with the names of both authors, combined with the Boolean operator “OR”. We considered a presented abstract as being published if a corresponding abstract in title, study design, results and one author name was identified in our search. In cases of doubt, we tried to reach a consensus decision and/or contacted the first author or the institution directly.

When a full publication was confirmed, we recorded the journal’s title, and date of electronic publication.

Data were double entered in order to minimize data entry errors.

Analysis

Differences in characteristics between abstracts published within 3 years after the congress and abstracts that were not published within this time period were analyzed using chi-square tests; Monte Carlo simulation was used when the count in a category was low. The associations of the abstract characteristics with the published status after 3 years were assessed by the odds ratio (OR) of a category of this characteristic compared to a baseline characteristic. The comparative impact of the characteristics on publication probability was assessed by relative importance [8], that is, the mean increase in model fit attributable to the addition of a variable to the model. To avoid over adjustment, a multivariable logistic regression model included only the five most important characteristics. To assess the University affiliation variable in a multivariable setting, we combined the variables university affiliation of the first and last author into one with 3 levels (University affiliation, not university affiliated, mixed university affiliation).

Results

For the consecutive Nordic Congresses of General Practice held in 2009 and 2011, a total of 338 abstracts were identified from the congress booklets. In total, 200 abstracts accepted for oral or poster presentation in the two congresses were included in the analysis of which 85 (42.5%) were identified with a full publication within 36 months after the congress (Figure 1).

Characteristics of the included abstracts are presented in Table 1. In the univariate logistic regression model, abstracts from the congress in 2011 had a higher publication rate compared to the 2009 congress OR 1.97, 95% CI (1.10; 3.50), abstracts accepted for oral presentation were published more often OR 1.94, 95% CI (1.08; 3.50). Including abstracts that were already published before or during the congress increased the overall publication rate by from 42.5% to 50.6%.

Publication status of abstracts in a 36 months period from the two congresses is presented in Figure 2.

Figure 1. Flow of the study.
In the multivariate analysis, a university affiliation for both first and last author increased the probability for publication OR 4.23, 95% CI (1.71; 10.42), as well as more than two authors. An optimal number, based on the highest OR, seems to be 3–4 authors with OR 2.43, 95% CI (1.07; 5.54). Qualitative surveys were published at the same frequency as quantitative surveys OR 1.36, 95% CI (0.57; 3.24) (Table 2).

### Discussion

To our knowledge, this is the first study to survey the publication rates of abstracts accepted at Nordic Congresses of General Practice. The main result was that less than half of the included abstracts were published within a follow-up period of 36 months and that abstracts with at least one author with a university affiliation were more likely to publish their abstract as a full-text publication in a journal.

The publication rate increased from the 2009 to the 2011 congress (Figure 2). Even though this is an interesting result, we do not believe that this could predict future trajectories because we only examined abstracts presented at two congresses. The overall publication rates at the Nordic Congresses of General Practice seem to be in line with other specialties [5–7,9]. However, half of the accepted abstracts do not make it to a full text publication. Based on this survey, we are not able to assess the potential consequences of the high proportion of unpublished abstracts. This could be because of low research quality, but it may also mean that interesting thoughts and ideas for general practice will not be available to a broader public.

An increase in the proportion of published papers would increase the overall transparency of research in general practice and represent an important knowledge database for individuals interested in research in general practice. Our survey demonstrates a substantial time lag in publishing (Figure 2). This time lag is also identified in other surveys with other specialties and seems to be a generic problem [5,7]. Our primary outcome was full publication during a 36 months follow-up period. The follow-up period was based on recommendation from other papers within this field. It has been shown that extending the follow-up period to 5 years after presentation only increases in the overall publication rates marginally [3].

It was hardly a surprise that an author group including individuals with a university affiliation increased the probability of a full publication. This may indicate that the framing of the research project benefits from including researchers from a university affiliation.

Despite an increase in the proportion of qualitative research in medical journals over a 10-year period, the proportion remains low compared to quantitative research [10]. We found that the publication rate for qualitative research was comparable to that of quantitative research in a general practice setting. Previous research within the field have shown that some research methods, for example, RCT studies may have a higher chance of full journal publication than other type of quantitative surveys as well as studies with a “positive” result [4].

### Limitations

We used a manual search based on the name of the first author or the last author. This procedure may...
omitting papers in which the authors have changed or moved byline-position from the abstract to the subsequent publication. If we did not have a match on authors, we did a free text search based on broad keywords. Although in another setting, it has been demonstrated that the title changed in 40% from abstract to the publication [11]. Thus, the text search procedure could miss some papers as well. In order to address these obstacles, we had several consensus conferences and if we were still uncertain, we contacted the first author or the stated affiliation in order to clarify publication status. Other limitations include that our search strategy did not enable us to identify full publications in journal not indexed in the PubMed or Google Scholar (e.g. Embase) and also that we did not assess the quality of the individual abstract.

We excluded abstracts that were published before and during the congresses because we considered these abstracts as completed research projects in relation to subsequent publications. Including these abstracts increased the overall publication rate by from 42.5% to 50.6% which would not jeopardize the overall conclusion of our study. Further, we deleted workshops and symposiums due to the heterogeneous scope and format of these formats. However, some of the included abstracts may not be research or quality improvement projects and this could represent a potential bias.

Implications

Less than half of the accepted abstracts for oral and poster presentation at two consecutive Nordic Congresses of General Practice were published within 36 months. Future congress committees could address this aspect in order to increase the visibility of and accessibility to the abstracts within the field of general practice.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

References