Publication rates and quality assessment of abstracts presented at National Education Congresses and Symposia between 2010 and 2014

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Abstract

The conversion of a study to publishing in international peer-reviewed journals demonstrates both the study's quality and the congress's scientific level. The paper quality scales have been shown to be effective in converting a work presented as a paper into a publication. Abstracts presented at national medical education congresses and symposiums between 2010 and 2014, when the 5-year period required for publication had expired, were reviewed. The papers were assessed using the Medical Education Research Study Quality Instrument (MERSQI) scale. In international and national peer-reviewed journals, 11.3% (n=51) of all articles were published. The publication rate was 26.6% for oral presentations and 8.1% for poster presentations. Oral presentations had a statistically higher publication rate than poster presentations (p=0.000). Of the reports, 85.9% included single-group cross-sectional studies, 7.5% included pre-post test design studies, and 5.7% included a comparison group. 0.6% were randomized trials. 84.1% of the studies were conducted in a single institution and 15.8% of them included objective data. In 93.9% of the studies, satisfaction, perception, or opinion outcomes were provided, while knowledge-skill results were examined in 5.7%. For all reports, the lowest MERSQI score was 5 and the highest was 15.5. The mean MERSQI score for poster presentations was 7.61±2.6, for oral presentations it was 8.28±2.46, and for all articles, it was 7.73±2.59. The oral presentations had higher MERSQI mean ratings (p=0.032) than poster presentations. The MERSQI mean score of the published papers was 10.07±2.74, and the MERSQI mean score of the unpublished papers was 7.43±2.41 (p=0.000).

Introduction

Scientific meetings provide a venue for physicians, researchers, and other practitioners to discuss the most recent scientific developments in various fields (Javidan et al., 2019). The results of the studies are presented as oral or poster presentations at various scientific meetings. Acceptance and subsequent submission of abstracts of these papers does not ensure that they will be published. Any abstract presented at a congress must be published as a full text after passing through the meticulous filters of peer-reviewed journals to be considered valid, reliable, and beneficial in clinical practice (Balasubramanian et al., 2006). The publication of the study in international peer-reviewed journals is a prestigious criterion that both reflects the general quality of the research in question and reveals the scientific level of the congress (Autorino et al., 2007).

It is observed that the publication rates of the poster and oral presentations presented in conferences conducted in various fields in Turkey and abroad vary between 13% and 66% (Scherer et al., 1994; Byerly et al., 2000; Bhandari et al., 2002; Autorino et al., 2007; Schatz et al., 2008; Patel et al., 2011; Ozyurt and Kapanoğlu, 2012; Mutlu et al., 2015; Şahin Ersoy et al., 2015; Ersoy, 2016; Gürses et al., 2017; Javidan et al., 2019). The majority of these studies have only examined the publication of the papers presented at the congress in the relevant field as full-text articles (Walsh et al., 2013). From that, detailed research has been conducted, such as examining inconsistencies between the abstract and the article and evaluating the factors affecting conversion to publication (Reed et al., 2007; Cook and Reed, 2015; Mutlu et al., 2015, Javidan et al., 2019). Abstracts - research examining inconsistencies in articles provides an opportunity to look into ethically questionable behavior (Reed et al., 2008; Gürses and Öztürk, 2017). Similarly, with the paper quality scales developed, the effect of factors such as the study design and whether or not project support was effective in the transformation of a work presented as a paper into publication could be evaluated (Reed et al., 2007; Cook and Reed, 2015; Sawatsky et al., 2015).

The percentage of publishing of papers given at scientific conferences was reported as 44.5% in a Cochrane meta-analysis (Scherer et al., 2007). Furthermore, between 89.2% and 98.71% of these research are reported to be published as full-text publications within 5 years following their presentation at a scientific meeting (Patel et al., 2011; Gürses et al., 2017). Although there are publications on this topic in several scientific and clinical medical scientific fields in our country, no publications in the field of medical education have been found so far. The purpose of this study was to determine the rate of full-text publication for abstracts presented at National Medical Education Congresses and Symposia, as well as to investigate the factors that may be associated with the possibility of publication for abstracts presented at National Medical Education Congresses and Symposia.

Materials And Methods

Determination of the Sample

It was tried to obtain the proceedings of the National Medical Education Congresses and Symposia for the abstracts to be evaluated. The abstract books of the National Medical Education Congresses conducted in 2000, 2001, 2006, and 2008 could not be accessible on the pages of the congresses held since 2000, per the official website of the Association for the Advancement of Medical Education (TEGED). The books of the congresses held in 2010 and after, where congress proceedings can be accessed regularly, were recorded. Similarly, the National Medical Education Symposium proceedings, which were held every two years in 2011 and beyond, were published on the same website.

The study was carried out between October and December 2019. It was suggested that it is sufficient to examine the 5 years after the congress to evaluate whether a paper presented in congresses has converted into a full-text publication (Patel et al., 2011; Gürses et al., 2017). As a result, conferences and symposia performed between 2015 and 2019 were excluded from the study. The abstracts of the studies presented at the National Medical Education Congresses held in 2010, 2012, and 2014 and the National Medical Education Symposia held in 2011 and 2013 were included in the study.

Rates of Publication Evaluation

It was evaluated whether the abstracts were published as full-text articles. For this purpose, possible publications were screened by searching PubMed (2022) and Google Scholar (2022) for the entire paper title or English or Turkish keywords selected from the title and surnames of the authors separately or in combinations (Yalcinkaya and Bagatur, 2013). It was decided by the evaluation of 2 researchers whether the identified article belongs to the abstract or not.
Abstract Quality Evaluation

The Medical Education Research Study Quality Instrument (MERSQI), which is designed to determine the quality of medical education research, has been used to evaluate all of the abstracts included in the study (experimental, quasi-experimental, and observational studies) (Reed et al., 2007). Before the study, the author who used the scale received training on how to utilize MERSQI. With a minimum score of 5 and a maximum score of 18 points, the MERSQI featured a total of 10 questions, each with a maximum score of 3, indicating six areas of study quality (study design, sampling, type of data (subjective or objective), validity of evaluation instrument, data analysis, and results). The design of that study, the sampling, whether it was single-centered or multi-centered, the rate of participants, whether the type of data was subjective or objective, the validity of evaluation instrument, the content of the study, its relationship with other variables, the suitability of the data analysis technique, whether it was detailed/detailed, and whether it included an evaluation of the results were included in these ten items. MERSQI items were scored on ordinal scales, and the overall MERSQI score was determined by adding the scores.

Statistical analysis

The descriptive data of the MERSQI total and subsection scores calculated after the evaluation of the presentations are given using the arithmetic mean ± standard deviation. The conformity of the variables to the normal distribution was examined with visuals (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk tests). The student's t-test was used to compare the scores in terms of publication status and being oral or poster since there are bivariate categories. One-way ANOVA test was used to compare the total scores by year. In order to find the source of the difference, Tukey test was used in post hoc analysis, and the Bonferroni correction was made. Cronbach's alpha internal consistency analysis of the scale was performed in the reliability evaluation. The IBM Statistical Package for the Social Sciences, version 25 was used to perform statistical analyses (SPSS Inc; Chicago, IL, USA). The data were given in the 95% confidence interval, and the type-1 error level was used as 0.05 in the analysis of statistical significance.

Results

The National Medical Education Congress accepted 89 abstracts in 2010, 113 abstracts in 2012, and 135 abstracts in 2014 (Figure 1). A total of 449 abstracts were examined, with 71 of them accepted in the National Medical Education Symposia in 2011 and 41 in 2013. The total number of oral and poster presentations was 79 (17.5%) and 370 (82.4%), respectively (Figure 2). Years were scanned up until June 2019, when the 5-year period required for publishing expired. In international and national peer-reviewed journals, 11.3% (n=51) of all articles were published. The publication rate was 26.6% for oral presentations and 8.1% for poster presentations. In 2010, 6 (24%) of 25 oral presentations, 2 (3%) of 64 poster presentations; In 2011, 2 (11%) of 17 oral presentations, 2 (3%) of 54 poster presentations; In 2012, 6 out of 10 oral presentations (60%), 9 out of 103 poster presentations (8%); In 2013, 4 (33%) of 12 oral presentations, 4 (13%) of 29 poster presentations; In 2014, 3 (20%) of 15 oral presentations and 13 (10%) of 120 poster presentations were published (Table 3). Oral presentations had a statistically higher publication rate than poster presentations (p=.000). Between 2010 and 2014, the publishing rates were 8.9%, 5.6%, 13.2%, 19.5 %, and 11.8 %, respectively. The conference with the highest acceptance rate (135 papers) was held in 2014, and the meeting with the highest publication rate (19.5%) was held in 2013. The Cronbach alpha coefficient of the 10-item MERSQI scale was 0.85. Of the reports, 85.9% included single-group cross-sectional studies, 7.5% included pre-post-test design studies, and 5.7% included a comparison group. 0.6% were randomized trials. 84.1% of the studies were conducted in a single institution and 15.8% of them included objective data. In 93.9 % of the studies, satisfaction, perception, or opinion outcomes were provided, while knowledge-skill results were examined in 5.7%. MERSQI mean-field scores; 0.91 for data analysis, 1.30 for type of data, 0.77 for sampling, 0.29 for validity evidence, and 1.11 for study design. For all reports, the lowest MERSQI score was 5 and the highest was 15.5. The mean MERSQI score for poster presentations was 7.61±2.6, for oral presentations it was 8.28±2.46, and for all articles, it was 7.73±2.59. Regarding the MERSQI subscales, oral reports had higher MERSQI scores than poster reports in data analysis (p=.024) and assessment tool validity (p=.031). The oral presentations had higher MERSQI mean ratings (p=.032) than poster presentations (Table 1 and Figure 3).

The MERSQI average scores of the papers in 2010-2014 tended to increase by years, with 6.63, 7.84, 7.86, 8.83, 7.96 respectively. However, this increase was not statistically significant. The MERSQI mean score of the published papers was 10.07±2.74, and the MERSQI mean score of the unpublished papers was 7.43±2.41 (p=.000). The studies that were published on the MERSQI subscales had greater type of data (p=.000), sampling (p=.000), the validity of evaluation instrument (p=.000), and data analysis (p=.000) than those that were not published (Table 2 and Figure 4). The MERSQI average of the published oral presentations was 9.33, while that of the poster presentations was 10.61. There was no statistically significant difference between them (p=.101).

Discussion

The introduction, development, and implementation of novel educational models in medical education might be aided by papers accepted for presentation at National Medical Education Congresses and Symposia. Our study is the first study in its field that examines the quality evaluation of research from the abstracts presented at scientific meetings in the field of medical education and reveals the publication rates. Between 2010 and 2014, 11.3% of abstracts presented at the National Medical Education Congress and Symposium were accepted in national and international peer-reviewed journals. Since no previous research in this field has been conducted in the field of medical education in our country (Walsh et al., 2011). This rate is between 1.5% and 25.2% in our country (Kabay et al., 2005; Mutlu et al., 2015). While the published rates in our study are similar to the publication rates in congresses held in our country, they are lower than the publication rates abroad both in the field of medical education and in other specialties. To assess
methodological quality in medical education research, the Medical Education Research Study Quality Instrument (MERSQI) was created. For rating the quality of medical education research summaries, MERSQI demonstrated good inter-rater and inter-rater reliability (Reed et al., 2007; Sawatsky et al., 2015). It is reported that two independent experts are highly correlated with the median quality rating (Reed et al., 2007).

Reed et al. (2007) used MERSQI to demonstrate that the quality of medical education articles predicted publication in peer-reviewed journals. The majority of the studies in this analysis were single-group cross-sectional (54%) or pre-post design (32%) studies. The results of 78% of the research were reported as satisfaction or opinion, and 56% of the investigations were conducted in a single institution. Just 36% of participants also said that there was evidence of validity for assessment tools (Reed et al., 2008).

Two-thirds of the studies utilized single-group cross-sectional or single-group-only posttest designs in another study. A comparison group was included in 17.7% of the studies, and 2.9% were randomized trials. A third of the studies were multi-institutional, and 45.7% of them contained objective data. Few studies measured behavioral (29.5%) or health care (2.4%) outcomes (Reed et al., 2007). With a rate of 85.9%, single-group cross-sectional studies were the most common in our analysis. Studies utilizing a pre-post test design came in second with 7.5 percent. 5.7% had a control group, while 0.6 percent were randomized trials. The majority of the research (84.1%) was done at a single institution, and 15.8% contained objective data. While 93.9 percent of the studies reported satisfaction, perception, or opinion results, only 5.7% evaluated knowledge-skill results.

Mean MERSQI scores ranged from 9.05 to 9.95 in the quality evaluation of studies (Reed et al., 2007; Reed et al., 2008; Sawatsky et al., 2015; Smith and Learman 2017). The lowest MERSQI score in our study was 5 and the highest was 15.5, with an average MERSQI score of 7.73, which was lower than previous studies in the literature.

It is expected that paying more attention to quality measures including sampling, validity of evaluation instrument, and data analysis may enhance the possibility of medical education abstracts being published. Abstracts having a MERSQI score of 10 or higher have been demonstrated to be more likely to be published (Sawatsky et al., 2015).

While the MERSQI mean score of the unpublished papers in our study was 7.43 ± 2.41, the MERSQI mean score of the published papers was 10.07 ± 2.74. The MERSQI mean score of published papers was higher (p = .000) (Table 2 and Fig. 4).

In the research, the rates of publication for oral presentations were higher than for poster presentations (Donegan et al., 2010; Patel et al., 2011; Post et al., 2013; Walsh et al., 2013). According to the literature, the publishing rate of oral presentations in our study was 26.6%, while the publication rate of poster presentations was 8.1 percent. Oral presentations were more likely to be published than poster presentations (p = .000). This might be because better-designed and higher-quality studies with higher scientific value get accepted as oral presentations at congresses. In terms of MERSQI subscales, oral presentations outperformed poster presentations in data analysis (p = .024) and validity of evaluation instrument (p = .031). MERSQI mean scores were found to be higher in presentations than in poster presentations (p = .032).

There is no difference in methodological quality between oral and poster presentations, according to reports (Smith et al., 2017). MERSQI average for published oral presentations was 9.33, and 10.61 for poster presentations. There was no statistically significant difference between them (p = .101). Considering the MERSQI field scores, the mean-field scores are (2.58) for data analysis, (1.91) for type of data and (1.90) for sampling; for validity evidence (0.69) and for study design (1.28). Mean-field scores were highest for data analysis (2.58) and lowest for validity evidence (0.69) (Reed et al., 2007). In our study, the MERSQI mean-field scores for data analysis were 0.91, 1.30 for type of data, 0.77 for sampling, 0.29 for validity evidence, and 1.11 for study design. Lower scores were obtained in all domains when compared to the Cook et al. (2005) experiment. The type of data seemed to have the highest mean field-score (1.30) and the validity evidence had the lowest (0.29).

**Conclusion**

Publication rates are higher for papers with high methodological quality. Summary evaluations before congresses and symposiums can be made on the basis of existing quality scales. In the medium and long term, this type of evaluation can increase the publication rates. Acceptance of high-quality papers at congresses will improve the conference's scientific level. Quality assessment can be routinely performed as a general summary assessment practice.

**Declarations**

**Conflict of interests:** The authors report no competing interest in this paper.

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**Ethical Statement and consent to participate**

NOT APPLICABLE

**Consent to publish**

NOT APPLICABLE

**Funding**
NOT APPLICABLE

Conflict of Interest

NOT APPLICABLE

Acknowledgement

The authors report no competing interest in this paper.

Author Contribution

Elif Sarı and Gkionoul Nteli Chatzioglou wrote the main manuscript text, Çiğdem Yılmaz Aydın and Ferhat San, prepared figures and the tables, Taşkin Tokat and İlke Ali Gürses reviewed the manuscript.

Availability of Data and Material

Data are available from the Corresponding author upon reasonable request.

References


Tables

**TABLE 1.** The mean and the standard deviation of MERSQI and subscales scores for poster and oral presentations between 2010-2014, p<0.05 was considered statistically significant.

<table>
<thead>
<tr>
<th>MERSQI item</th>
<th>Oral presentation</th>
<th>Poster presentation</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design</td>
<td>1.1329 (.29644)</td>
<td>1.1068 (.30592)</td>
<td>.488</td>
</tr>
<tr>
<td>No. of institutions studied</td>
<td>.7120 (.40448)</td>
<td>.6081 (.27877)</td>
<td>.032</td>
</tr>
<tr>
<td>Response rate</td>
<td>.8987 (.46257)</td>
<td>.9324 (.48504)</td>
<td>.572</td>
</tr>
<tr>
<td>Type of data</td>
<td>1.4051 (.80891)</td>
<td>1.2973 (.71245)</td>
<td>.275</td>
</tr>
<tr>
<td>Internal structure</td>
<td>.3418 (.47733)</td>
<td>.1608 (.36693)</td>
<td>.002</td>
</tr>
<tr>
<td>Content</td>
<td>.5759 (.48759)</td>
<td>.5473 (.49775)</td>
<td>.641</td>
</tr>
<tr>
<td>Relationships to the other variables</td>
<td>.1646 (37315)</td>
<td>.1405 (.34802)</td>
<td>.583</td>
</tr>
<tr>
<td>Appropriateness of data analysis</td>
<td>.6835 (.46806)</td>
<td>.5122 (.49985)</td>
<td>.005</td>
</tr>
<tr>
<td>Complexity of analysis</td>
<td>1.3418 (.47733)</td>
<td>1.2784 (.44881)</td>
<td>.281</td>
</tr>
<tr>
<td>Outcomes</td>
<td>1.0253 (.13631)</td>
<td>1.0324 (.12331)</td>
<td>.648</td>
</tr>
<tr>
<td>Sampling</td>
<td>1.6108 (.66113)</td>
<td>1.5405 (.56283)</td>
<td>.382</td>
</tr>
<tr>
<td>Validity of evaluation instrument</td>
<td>1.0823 (.96220)</td>
<td>.8486 (.88960)</td>
<td>.031</td>
</tr>
<tr>
<td>Data analysis</td>
<td>2.0253 (.81610)</td>
<td>1.7905 (.84907)</td>
<td>.024</td>
</tr>
<tr>
<td>Total score</td>
<td>8.2816 (.246591)</td>
<td>7.6162 (.260862)</td>
<td>.038</td>
</tr>
</tbody>
</table>

**TABLE 2.** The mean and the standard deviation of MERSQI and subscales scores for published and non-published poster and oral presentations between 2010-2014, p<0.05 was considered statistically significant.
TABLE 3. The number of oral and poster presentations between 2010-2014 and the rates of publication.

<table>
<thead>
<tr>
<th>Year</th>
<th>Oral presentation</th>
<th>Poster presentation</th>
<th>Oral and poster presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Presentations</td>
<td>Number of publications</td>
<td>Rate of publications (%)</td>
</tr>
<tr>
<td>2010</td>
<td>25</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>2011</td>
<td>17</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>2012</td>
<td>10</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>2013</td>
<td>12</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>2014</td>
<td>15</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

Figures

![Graph showing MERSQI Total Score Average from 2010 to 2014.](image)
Figure 1

Between 2010 and 2014, the MERSQI Total Score Average of published and non-published abstracts of poster and oral presentations at National Education Congresses and Symposia.

Figure 2

MERSQI total average score of oral and poster presentations presented at National Education Congresses and Symposia between 2010-2014.

Figure 3

The average scores of MERSQI - subscales scores for poster and oral presentations.
The average scores of MERSQI-sub scales scores for published and non-published poster and oral presentations.