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The publication rate of presented abstracts at a congress and determining its publication factor

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All procedures in this study involving human participants were performed in accordance with the 1964 Helsinki Declaration and its later amendments.

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Abstract

Background/Aim: Congresses, scientific fairs on an academic platform, are held in numerous disciplines all over the world and bring physicians together. Through these congresses, the physicians can follow the latest developments in their profession and present their work. Many researchers first present their work in a congress, then update their work in the light of the feedbacks and publish them in a peer-reviewed journal. Although many oral and poster presentations are made in scientific congresses, a small portion are finally published in a peer-reviewed journal. This may be because the effort spent in preparing an abstract is much less than that spent during the preparation of an entire manuscript. However, the publication of a presentation in a peer-reviewed journal is a gold standard factor showing the quality of research and that it is worthy of publication. More detailed congress abstract evaluation criteria and their proximity to the procedures involved during the journal acceptance stage will likely enhance the publication rate. The purpose of this study was to perform a detailed evaluation of presentations at congresses held by the European Society of Trauma and Emergency Surgery (ESTES) in 2013, 2014, 2015 and determine their rates of publication in peer-reviewed journals.

Methods: The booklets for three consecutive annual ESTES congresses (2013, 2014, 2015) containing presented papers were accessed online. All oral and poster presentations were analyzed, and published studies in peer-reviewed journals that are indexed in Google Scholar database until 2019 were identified. These published studies were then analyzed and used to determine the Publication Factor for Congress (PFC) for these congresses.

Results: The total number of presentations at ESTES congresses in 2013-2015 was 1746, of which 878 were oral (50.2%) and 868 (49.8%) were in poster form. 450 (25.7%) of these were subsequently published in peer-reviewed journals that are indexed in Google Scholar database. 148 of the published papers (32.9%) were based on poster presentations, and 302 (67.1%) were from oral presentations.

Conclusion: The publication rate of oral and poster presentations presented at the 2013-2015 ESTES congresses from the date of the congress to 2019 was 25.7%. Oral presentations were published more than poster presentations. It suggests that the papers with high publication potential have a high tendency to be presented as oral presentations by the authors. Determination of publication rates and publication factor for a congress at specific intervals may increase the motivation of authors at the participation and submission stages and strengthen the brand value.

Keywords: Congress, Publication factor, Trauma, Emergency, Publication

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Introduction

Congresses, scientific fairs on an academic platform, are held in numerous disciplines all over the world and bring physicians together. Through these congresses physicians can follow the latest developments in their profession, researchers share their experiences and present their work, and get to hear the experiences of other colleagues. This enables scientific findings to be used more widely in clinical practice. These organizations also lead up to novel studies and create new professional networks.

For reasons such as time and financial considerations, scientists cannot attend all these congresses. It is therefore more logical and practical for them to select from among these and attend only a few. Another problem for researchers is predatory conferences. In other words, they seek to be selective. It is increasingly difficult to determine which congress is the right address for sharing the work [1]. Since scientific organizations holding congresses have observed this reality in recent years, they started to demand descriptions that could be considered as the Publication Factor for Congress (PFC). Congress organizers attempt to give potential participants some idea about the quality of congresses by determining some parameters that will specify the PFC. They seek to emphasize parameters such as the identity of the speakers attending, and their H indices and their important studies. In addition, factors such as the number of congress participants and the number of research studies presented have also become important parameters in terms of the interest in and quality of a congress. Moreover, subsequent publication status of the studies presented at a congress is also indicative for the quality of the presentations submitted to it, and this ratio has become a significant parameter in determining the PFC. One systematic review showed that only 1/3 abstracts are subsequently published [2]. Congresses with a high publication rate may attract more participants. Although care is generally taken during the evaluation of submissions sent to scientific conferences, the extensive examination procedure required by several scientific journals is not available at congresses [3]. The fact that the presentations made at the congresses are now a condition for academic progress, as in our country, places important responsibilities on congress organizers and congress scientific committees.

The purpose of this study was to perform a detailed evaluation of presentations at congresses held by European Society of Trauma and Emergency Surgery (ESTES) in 2013, 2014 and 2015 and determine their rates of publication in peer-reviewed journals. The ESTES congress was chosen for this study because of its high international participation.

Materials and methods

The primary endpoint of this study was to determine the subsequent publication rates in peer-reviewed journals of oral and poster presentations at three ESTES congresses held in 2013, 2014 and 2015, together with the affecting factors. The secondary endpoint was to establish a PFC parameter.

Data collection

An average of 1500 surgeons and residents from different countries attend the annual ESTES congress. Up-to-date information is provided at these scientific assemblies in the form of oral and poster research presentations, panels, courses and lectures by invited speakers.

The booklets for three consecutive congresses (2013, 2014, and 2015) containing presented papers were accessed online (http://www.estesonline.org/past-congresses/). Oral and poster presentations appear in the online congress booklet including the study name, author names, and the country and city where the study was performed. Data obtained from the congress booklets were transferred to a computer database using Microsoft Excel (Microsoft Inc, Redmond, WA, USA) software. All presentations were analyzed and verbal and poster papers, author names and paper titles were recorded by years. After recording all presentations in these three ESTES congresses, the author scanned the author names and study titles of these presentations online on the Google Scholar database (https://scholar.google.com.tr/) in December 2019. Other popular databases such as Pubmed, and Web of Science was also scanned but most published articles were not detected in these databases. Since the database with the highest number of publications is the Google Scholar database, the data obtained from this platform were used in the study. When studies meeting the research criteria and published in peer-reviewed journals were identified, the journal name, year of publication, type of study, whether it was single- or multi-center, the country in which it was performed, index information for the publishing journal, the journal IF, and number of citations of the published paper since the time the record was made were investigated on Web of Science and recorded.

Statistical analysis

The Statistical Package for the Social Sciences software (SPSS, version 21, SPSS Inc, Chicago, IL, USA) was used for all statistical calculations. All data are presented as median with interquartile range values for continuous variables and as percentage values for categorical variables. The Kolmogorov-Smirnov test was used to identify the normal distribution of variables. The Chi-square test was used to compare categorical variables, whereas the Mann-Whitney U test and the Kruskal-Wallis test were used to compare continuous variables. Statistical significance was considered as $P<0.05$ using a confidence interval of 95%.

Results

The total number of presentations at these congresses in 2013-2015 was 1746, of which 878 were oral (50.2%) and 868 (49.8%) were in poster form. Four hundred fifty (25.7%) of these were subsequently published in peer-reviewed journals. One hundred forty-eight of the published papers (32.9%) were based on poster presentations, and 302 (67.1%) were from oral presentations (Table 1). Distributions of papers by years and publication rates are shown in Figure 1.

When subsequently published papers were classified in terms of study design, the most common were retrospective studies at a rate of 40.4% (n=182), followed by prospective studies at a rate of 32.4% (n=146), and experimental studies and case reports. Four hundred thirty-two published presentations (96%) were single-center, and 18 (4%) were multi-center. Ninety-six of the presentations (21.3%) were from the

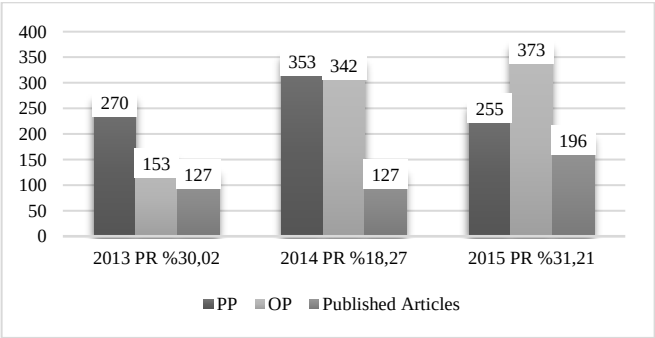
Netherlands, 76 (16.8%) were from Germany, and 48 (10.6%) were from the USA.

Table 1: Descriptive characteristics

	No.	%
Type of presentation		
Oral	302	67.1
Poster	148	32.9
Year of presentation		
2013	127	28.2
2014	127	28.2
2015	196	43.6
Type of study [a]		
Retrospective	182	40.4
Prospective	146	32.4
Experimental	48	10.6
Case report	41	9.1
Review	24	5.3
Multicenter	18	4.0
Meta-analysis	3	0.6
Study center		
Single-center	432	96.0
Multi-center	18	4.0
Country where the study was performed [b]		
The Netherlands	96	21.3
Germany	76	16.8
USA	48	10.6
Japan	23	5.1
France	20	4.4
United Kingdom	17	3.7
Turkey	13	2.8
Italy	10	2.2
Journal index		
SCI	94	20.9
SCI-E	236	52.4
Other	120	26.7
Journal IF (n=380) [c]		
<1	39	10.3
1-2	116	30.5
>2	225	59.2
Mean (SD) = 2.6 (0.2),		
Median (Min-Max) = 2.2(0.07-47.8)		
Number of citations (n=446) [d]		
0-9	276	61.3
10-19	99	22.0
>20	71	15.7
Mean (SD) = 12.3 (19.8), Median (Min-Max) = 6(0-164)		

[a] A study may be of more than one type and from more than one country. [b] Countries producing fewer than 10 studies are not shown in the table. [c] IF values of 70 journals cannot be found in database. [d] Citation information of 4 articles cannot be found

Figure 1: Percentages of abstracts published per year (OP – Oral presentation, PP – Poster presentation, PR – Publication rate)



Of the 450 articles published in 197 different internationally and nationally reviewed journals from various countries, 148 (40.8%) were clustered in 10 journals (Table 2). The largest number of papers was published in the journal 'Injury', (n= 51, 11.3%). Examination of the indices of the published presentations revealed that 52.4% were in Science Citation Index-Expanded (SCI-E), 20.9% were in Science Citation Index (SCI), and 26% were in other databases.

The mean IF of the journals in the time of publication of the presentations was 2.52 (2.79), and the median IF was 2.199 (min-max=0.07 - 47.8). When types of presentation were compared with the IFs of the publishing journals, oral presentations were published in journals with higher IFs than poster presentations (P=0.001, MWU). No statistically significant difference was determined between journals' IF and year of publication or number of centers in which a study was performed (P>0.05).

As this paper was being prepared, 15.8% (n = 71) of published presentations received 20 or more citations, 22% (n = 99) received 10-19 citations, and 61.3% (n = 276) received 0-9 citations. The 127 published abstracts in 2013 received a total of 1585 citations, with a mean value of 12.68 (20.91) (range 0 - 164). The 127 published abstracts in 2014 received 1751 citations, with a mean value of 14.01 (16.69) (range 0 – 111). The 196 published abstracts in 2015 received 2061 citations, with a mean value of 10.52 (20.097) (range 0 - 163). Citation rates of papers published from the presentations of 2015 congress were significantly lower than those presented in 2013 and 2014 (P<0.016 for both, Bonferroni adjustment).

Citation rates for publications derived from oral presentations in all years were higher than those from poster presentations (P<0.001 MWU), and multi-center publications attracted more citations that single-center publications (P=0.039 MWU).

The second endpoint was to develop a simple mathematical parameter as an indicator of the academic quality and scientific validity of a congress, called PFC. PFC values can be calculated by dividing the total PFC values in the years of publication of presentations published in journals through the study period by the total number of presentations submitted to the congress. The total PFC in 2013 was 279.317 for 423 presentations (270 oral presentations and 153 posters). The PFC was 0.660 in 2013, of 0.379 in 2014 with 695 presentations (353 oral presentations, 342 posters) (total PFC 263.507), and 0.665 in 2015 with 628 presentations (255 oral presentations, 373 posters) (total PFC 417.922) (Table 3).

Table 2: The 10 journals publishing the greatest numbers of presentations

Journal Name	Number and percentage of studies published (%)	IF (Impact Factor)	Journal index
1. Injury	51 (11.3%)	1.834	SCI-E
2. European Journal of Trauma and Emergency Surgery	35 (7.8%)	1.781	SCI-E
3. The Journal of Trauma and Acute Care Surgery	17 (3.8%)	3.377	SCI-E
4. World Journal of Surgery	14 (3.1%)	2.768	SCI-E
5. Scandinavian Journal of Trauma. Resuscitation and Emergency Medicine	13 (2.9%)	2.556	SCI-E
6. International Orthopaedics	12 (2.7%)	2.384	SCI-E
7. Journal of Orthopaedic Trauma	12 (2.7%)	1.826	SCI
8. World Journal of Emergency Surgery	12 (2.7%)	3.798	SCI-E
9. Archives of Orthopaedic and Trauma Surgery	11 (2.4%)	1.973	SCI-E
10. Plos One	7 (1.6%)	2.776	SCI-E

Table 3: Annual statistics for ESTES congresses

Parameter	2013	2014	2015
Publication Factor for Congress (PFC)	0.660	0.379	0.665
Mean PFC (SD)	2.56 (2.79) Min:0.230- Max:17.168	2.41(1.31) Min:0.070- Max:9.203	2.57 (3.768) Min:0.140- Max:47.831
Poster Presentation Number and mean (SD) PFC	28 1.76(1.474) Min:0.230- Max:6.630	36 2.05(1.187) Min:0.70-Max:4.840	84 1.92(0.696) Min:0.181- Max:3.198
Verbal Presentation Number and mean PFC	99 2.75(2.20) Min:0.330- Max:17.168	91 2.52(1.336) Min:0.108- Max:9.203	112 2.95 (4.66) Min:0.140- Max:47.831
Citation Number and Mean (SD)	1585 Mean:12.68(20.91) (Min 0-Max 164)	1751 Mean:14.01(16.69) (Min 0–Max 111)	2061 Mean:10.52(20.097) (Min 0–Max 163)
Publication Rate	30.02%	18.27%	31.21%

Discussion

Presentations at congresses are very important in terms of disseminating up-to-date research findings in all branches of medicine. The subsequent publication of these in peer-reviewed journals is a basic aim of research. Several studies have analyzed the publication rates of studies published at congresses in different branches. The branches with the highest publication rates in different studies are oncology (74%), orthopedics (64%) and anesthesia (50%) [4-6]. To date, 25.7% of presentations made at the three annual ESTES congresses held in 2013-2015 have been published in peer-reviewed journals. The publication of a presentation in a peer-reviewed journal is a gold standard factor showing the quality of research and that it is worthy of publication. More detailed the congress abstract screening committee evaluation criteria and their proximity to the procedures involved during the journal acceptance stage will likely enhance the publication rate. Factors such as the absence of explicit written acceptance criteria for a congress, a large number of presentations, and a short review time may cause many studies to be rejected by a journal even if they are accepted by the congress [7].

Problems such as the congress registration obligation, and author's transport, registration and accommodation costs can reduce authors' motivation to submit abstracts. One previous study of problems experienced during the abstract-to-manuscript stage revealed that the authors of abstracts submitted to the congresses and then got rejected are much more pessimistic regarding their work being published in peer-reviewed journals [8]. Another study cited insufficient time and low priority being attached to the abstract to manuscript stage as the main reasons for presentations not being published [9]. The effort expended in preparing an abstract is much less than that spent during the preparation of an entire manuscript. The conversion of abstracts into entire manuscripts is therefore a lengthy procedure, and author time limitations are the main reason for failure to be published [10]. Authors with academic affiliations have also been shown to be more successful at the publication stage [7].

Literature shows that a mean 50% of oral presentations and 35% of poster presentations are published [11]. However, other studies have determined no difference between oral and poster presentations [12-14]. It is generally believed that better designed presentations and those of greater scientific interest will be accepted as oral presentations by the congress committee, and that oral publications have a better chance of publication [15]. In the present study, too, oral posters were published at a higher rate than poster presentations. Oral presentations were also published in journals with higher IFs and attracted more citations. The principal reason for this may be that the authors who regard their papers as important in terms of effort and value will seek to submit these as oral presentations, while those regarded as less important may be submitted as poster presentations. The authors of oral presentations being exposed to direct questions, suggestions, and feedback from reviewers following submission may create an opportunity for them to revise and improve the manuscript, and this may also result in oral presentations having higher publication rates.

If a scientific publication attracts a large number of citations, this generally shows that it is regarded as high quality. A high number of citations also encourages the interest of other researchers in these publications and their contributions to the literature. The lowest mean citation number in this study was found in 2015, with 10.52 (20.097). The reason why this figure is lower than in the preceding two years, despite being quite high compared to the the rates previously reported in the literature, may be that less time had elapsed since publication compared to studies published earlier [16].

International databases show that papers which receive greater number of citations are published in journals with higher IFs. The presence of congress presentations in an international database is regarded as indicating that these are better prepared and of higher quality. Although the fact that national databases were not investigated in this study and that only the Google Scholar database was scanned might be regarded as a limitation, this is in fact a more suitable method for showing the quality of congresses.

Since they are more extensive, investigate large populations, and are more difficult to perform, multi-center studies are generally of greater scientific value than single-center research. Multi-center studies may therefore be published in journals with higher IFs and attract more citations. In this study, it was found that multi-center studies received more citation than single-center studies. Although the difference was statistically significant, the low number of multicenter studies may have prevented a more accurate comparison.

There is no universal PFC code for conference proceedings or conferences. IF is applicable for only journal rankings. However, there are a number of parameters by which conferences can be ranked, such as the Conference Proceeding Citation Index (http://wokinfo.com/products_tools/multidisciplinary/webofscience/cpci/), SCImago (through "H Index" measure) (http://www.scimagojr.com/journalsearch.php?q=conference&tip=jou), CORE Conference/Journal Ranking (http://core.edu.au/), Conference Proceedings Citation Index- Science (http://mjl.clarivate.com/scope/scope_cpci-s/) etc. Unfortunately, many of these ranking websites do not include medical sciences, and focus largely on computer science, electrical and electronic engineering, and communications. Of course, these web sites largely classify congresses on the basis of specific parameters and provide ranking lists for them. De Simone et al. used a mathematical calculation method to determine PFC values, although this was based on the proportions of lecturers' "mean H-index of lecturers normalized for the lecture topic" and "number of lectures on the topic at congress" [18]. Lecturers' H index values are not the sole factor bestowing high quality on a congress, and the quality of the presentations and future publication rates in peer-reviewed journals are also important parameters showing the scientific quality of congresses. Therefore, the IF value calculated in De Simone et al.'s study gives participants a prospective outcome, while the congress IF value calculated in the present study gives more of a retrospective outcome. The simultaneous evaluation of both parameters together will therefore elicit a more useful approach in selecting the best congress.

It may take up to three years for presentations to be published in peer-reviewed journals following their appearance

at congresses, and not all presentations from 2015 that would be eventually be published might have been determined by the time of this study, and some might not yet have been accepted by such journals. This may have resulted in both a lower number of published presentations and in a low citation count [7]. Although the publication rate was highest in 2015, there is a strong possibility that more studies will be published in the next 1-2 years.

Only the Google Scholar database was scanned in this study. The fact that other databases in addition to Google Scholar were not scanned may have led to other presentations recorded in other international or domestic databases being missed. Additionally, the congress booklets were scanned for a three-year period. Scanning over a longer period might have increased the chance of achieving a higher publication rate.

Although the rate of publication of ESTES congresses oral and poster presentations in peer reviewed journals in 2013, 2014 and 2015 was investigated in this study, it can be adapted to all congresses and become a universal evaluation parameter.

A publication rate of 25.7% was determined at the time of this study for ESTES congresses held between 2013-2015. Oral presentations were published more than poster presentations. It suggests that the papers with high publication potential have a high tendency to be presented as oral presentations by the authors. The mean IF of the journals in which papers were subsequently published was 2.52 (2.79), with a median value of 2.199 (min-max 0.07 - 47.8). This study investigated publication rates from the time of ESTES congresses in 2013, 2014 and 2015 to 2019, together with other factors impacting publication. Determination of congress publication rates or PFC at specific intervals may increase the motivation of the authors for participation and submission stages and strengthen the brand value.

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