



## *Evaluation of Quality of Paper Reporting Online and Face-to-Face Family Medicine Congresses: A Cross-Sectional Study*

### **Online ve Yüz Yüze Yapılan Aile Hekimliği Kongrelerinin Bildiri Raporlama Kalitesinin Değerlendirilmesi: Kesitsel Bir Çalışma**

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#### **Abstract**

**Objective:** Our study aimed to evaluate the paper reporting quality of the 18th National Family Medicine Congress, which was held face-to-face before the COVID-19 pandemic, and the 19th National Family Medicine Congress, which was the first online congress during the pandemic, according to the STROBE criteria.

**Methods:** Our study is cross-sectional analytical. Oral and poster abstracts accepted and included in the congress abstract book were included in the study. A total of 266 abstracts were reviewed. STROBE score was created out of 11 points in total by giving a "1" point if the abstract included the feature in each item and a "0" if it did not. The STROBE scores were compared by evaluating the abstracts separately by two different reviewers. Descriptive statistics, Chi-square test, Student's t-test, Pearson correlation, and Mann-Whitney U test were used. The statistical significance level was taken as  $p < 0.05$ .

**Results:** Although the rate of verbal presentations was higher in the online congress, there was no significant difference between the congresses regarding the types of papers. In 93.2% of the papers, sampling was not done, or it was not stated that it was done. All of the 18 papers stated to be sample calculations were verbal. When all papers were included, the mean STROBE scores of verbal papers were statistically significantly higher than the scores of poster papers in both reviewers. When the presentation scores according to the congresses were examined, no significant difference was found between the 18th and 19th National Family Medicine Congresses in the same groups.

**Conclusion:** The online congress format did not affect the reporting quality of the papers. Both congresses have good reporting quality but have the potential for improvement.

**Keywords:** Congress, research report, online systems, reporting quality

#### **Özet**

**Amaç:** Bu çalışmada, COVID-19 pandemisi öncesinde yüz yüze gerçekleştirilen 18. Ulusal Aile Hekimliği Kongresi ve pandemi sırasında ilk çevrimiçi kongre olan 19. Ulusal Aile Hekimliği Kongresi'nde sunulan bildirilerin STROBE kriterlerine göre raporlama kalitesini karşılaştırmak amaçlanmıştır.

**Yöntem:** Çalışmamız kesitsel analitik bir çalışmadır. Kongre özet kitabında yer alan sözlü ve poster özetler çalışmaya dahil edildi. Toplam 266 özet incelendi. STROBE puanı, özet her maddede özelliği içeriyorsa "1", içermiyorsa "0" verilerek toplam 11 puan üzerinden oluşturuldu. Özetler iki farklı hakem tarafından ayrı ayrı değerlendirilerek STROBE puanları karşılaştırıldı. Tanımlayıcı istatistikler, Ki-kare testi, Student t-testi, pearson korelasyon ve Mann-Whitney U testi kullanıldı. İstatistiksel anlamlılık düzeyi  $p < 0,05$  olarak alınmıştır.

**Bulgular:** Online kongrede sözlü bildiri oranı daha yüksek olmasına rağmen bildiri türleri açısından kongreler arasında anlamlı fark yoktu. Makalelerin %93,2'sinde örnekleme yapılmamış veya yapıldığı belirtilmemiştir. Örneklem hesabı yapıldığı belirtilen 18 makalenin tamamı sözlü idi. Tüm makaleler dahil edildiğinde, her iki hakemde de sözlü bildirilerin ortalama STROBE puanları, poster bildirilerin ortalama puanlarından istatistiksel olarak anlamlı derecede yüksekti. Kongrelere göre sunum puanları incelendiğinde aynı gruplarda 18. ve 19. Ulusal Aile Hekimliği Kongreleri arasında anlamlı fark bulunmadı.

**Sonuç:** Online kongre formatı bildirilerin raporlama kalitesini etkilememiştir. Her iki kongre raporlama kalitesi de iyi olmakla birlikte iyileştirme potansiyeline sahiptir.

**Anahtar Kelimeler:** Kongre, araştırma raporu, online sistemler, raporlama kalitesi

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## INTRODUCTION

Scientific congresses provide an essential platform to share and discuss the latest research in a particular discipline. Two important methods of sharing medical information in these places are verbal and poster presentations. These papers are often included as summaries in the Congress book. Although these abstracts are subject to peer review, one of the essential criteria for the quality of the paper is whether it is published in reviewed journals or not.

When the literature is examined, the publication rate of congress papers in reviewed journals is below 50 percent.<sup>1</sup> Publication rates in internationally indexed journals are much lower.<sup>2,3</sup> This raises a question mark about the quality of the papers. In recent years, various studies have been carried out to improve the quality of paper reporting. The first of these is the 17-criteria form of CONSORT (Consolidated Standards of Reporting Trials), which was developed in 1996 to improve the reporting quality of randomized controlled trials and revised in 2008 for abstracts.<sup>4,5</sup> Similarly, in 2007, there was a revised 11-point STROBE Checklist: conference abstracts (Strengthening the Reporting of Observational Studies) criteria for evaluating abstracts.<sup>6</sup> These criteria are an international initiative to strengthen the reporting of epidemiological observational studies. STROBE is a collaborative network of epidemiologists, methodologists, statisticians, researchers, and journal editors. The generated checklist provides a checklist for observational research designs such as cohort, case-control, and cross-sectional studies. This checklist provides readers with sufficient information about the planning and conduct of the research, the meaning of its findings, and conclusions.<sup>6</sup> Reporting following these criteria improves the quality of the study and allows for a more accurate interpretation of the results. These criteria help researchers report their work standardized and help readers better understand it.

Unfortunately, the COVID-19 pandemic has led to the cancellation of many events, such as academic meetings, conferences, and congresses worldwide. However, with the development of technology, it has become possible to organize online meetings, and many organizations have taken steps in this direction. The increasing importance of online congresses due to the pandemic is critical regarding information sharing and professional development. Online congresses allow participants worldwide to come together and simultaneously reduce organization costs. However, online congresses also have some drawbacks, such as reducing live interaction, restricting networking opportunities, and the fact that some participants cannot attend some sessions due to time differences. Although various studies report the advantages of online and face-to-face congresses, as far as we can see, no study has been found in the literature about whether there is a difference between the reporting quality of the presentations in these two congress types.

The National Family Medicine Congress has been organized annually since 1993 to bring together professionals working in family medicine to discuss and share the latest research and contribute to updating and developing family medicine practices. The National Family Medicine Congress was held online for the first time in 2020 due to the pandemic (19. National Family Medicine Congress).

Our study aimed to evaluate the paper reporting quality of the 18th National Family Medicine Congress held face-to-face before the COVID-19 pandemic and the 19th National Family Medicine Congress, the first online congress during the pandemic, according to the STROBE Checklist: conference abstracts criteria.

## MATERIAL AND METHODS

### Study design

Our study is cross-sectional analytical. Verbal and poster abstracts accepted in the 18th National Family Medicine Congress organized by the Turkish Association of Family Physicians and held face-to-face and in the 19th National Family Medicine Congresses held online and included in the congress abstracts book were included in the study. (The 18th national family medicine congresses were held face-to-face in Ankara from 31 October to 2 November 2019. The 19th national family medicine congress was held online between 29 October - 1 November 2020.)

In this context, a total of 266 abstracts, 172 of which were verbal and 94 posters, were analyzed (Table 1).

**Table 1.** Number of verbal and poster presentations included in the study by year

Congress Name	Verbal presentation	Poster presentation	Sum
18th National Family Medicine Congress	93	62	155
19th National Family Medicine Congress	79	32	111
Sum	172	94	266

## Evaluation of abstracts

No study that could be experimental was found in the abstracts. Therefore, instead of consort or timmer, STROBE, which is one of the main methods used to evaluate the reporting quality of observational studies, was used. The STROBE Checklist: conference abstracts evaluation system, published in 2007 and consisting of 11 items, was used.<sup>6</sup> STROBE score was created out of 11 points in total by giving a "1" point if the abstract contains the feature in each item and a "0" point if it does not. Most statements in the checklist were singular (such as Contact details for the corresponding author or Description of the study design); however, if the item contains more than one condition (such as Description of setting, follow-up dates or dates at which the outcome events occurred or at which the outcomes were present, as well as any points or ranges on other time scales for the outcomes) "1" point is given if all of them are provided, "0" points are given if some or all are not provided.

To prevent possible bias, the information of the institution and researchers studied was removed from the abstracts selected by a third person other than the researchers. Abstracts in the sample were scored independently by two researchers.

Ethics committee approval was obtained from the clinical research ethics committee of Erzincan Binali Yıldırım University with the number 2023-07/7.

## Data analysis

All data were analyzed using the IBM SPSS Statistics 23 (SPSS, Chicago, IL) package program. Categorical variables were presented as numbers and percentages. The conformity of the data to the normal distribution was evaluated with the Kolmogorov-Smirnov test. Normally distributed data were expressed as mean  $\pm$  standard deviation.

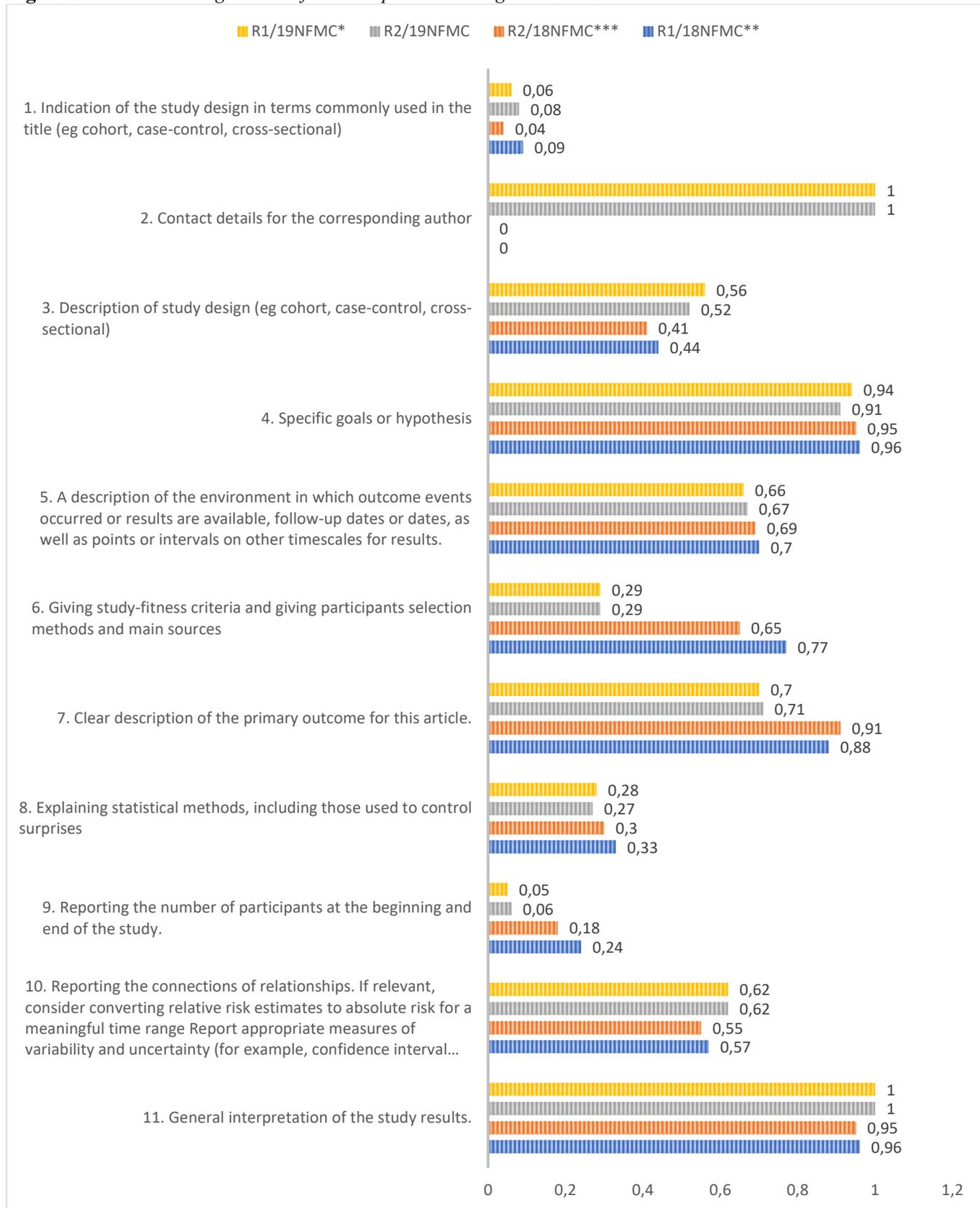
In this study, descriptive statistics to show the basic characteristics of the data, the Chi-square test to test whether there is dependence between categorical variables, the Student's t-test or Mann-Whitney U test to compare the means of two independent groups, the strength of the linear relationship between two continuous variables and Pearson correlation test was used to measure direction. The statistical significance level was taken as  $p < 0.05$ .

## RESULTS

A total of 266 abstracts were reviewed. There was no statistically significant difference between the reviewers regarding reviewer scores ( $p=0.346$ ,  $r=-0,051$  for verbal presentations and  $p=0.439$ ,  $r=0,057$  for poster presentations).

The averages of the reviewers' scores according to the STROBE Checklist: conference abstracts criteria for the verbal and poster presentations in both congresses are given in Figure 1 and Figure 2 (Figure 1, Figure 2). The item with the highest score in verbal reports was item 11, with a score of  $0.97 \pm 0.16$  (11. General interpretation of study results). This was followed by Item 4 with a score of  $0.94 \pm 0.240$  (4. Specific goals or hypothesis). The least scored item was Item 1, with a score of  $0.07 \pm 0.250$  (indicating the study design with commonly used terms -cohort, case-control, cross-sectional- in the title).

**Figure 1.** Item-item average scores of verbal reports according to STROBE criteria

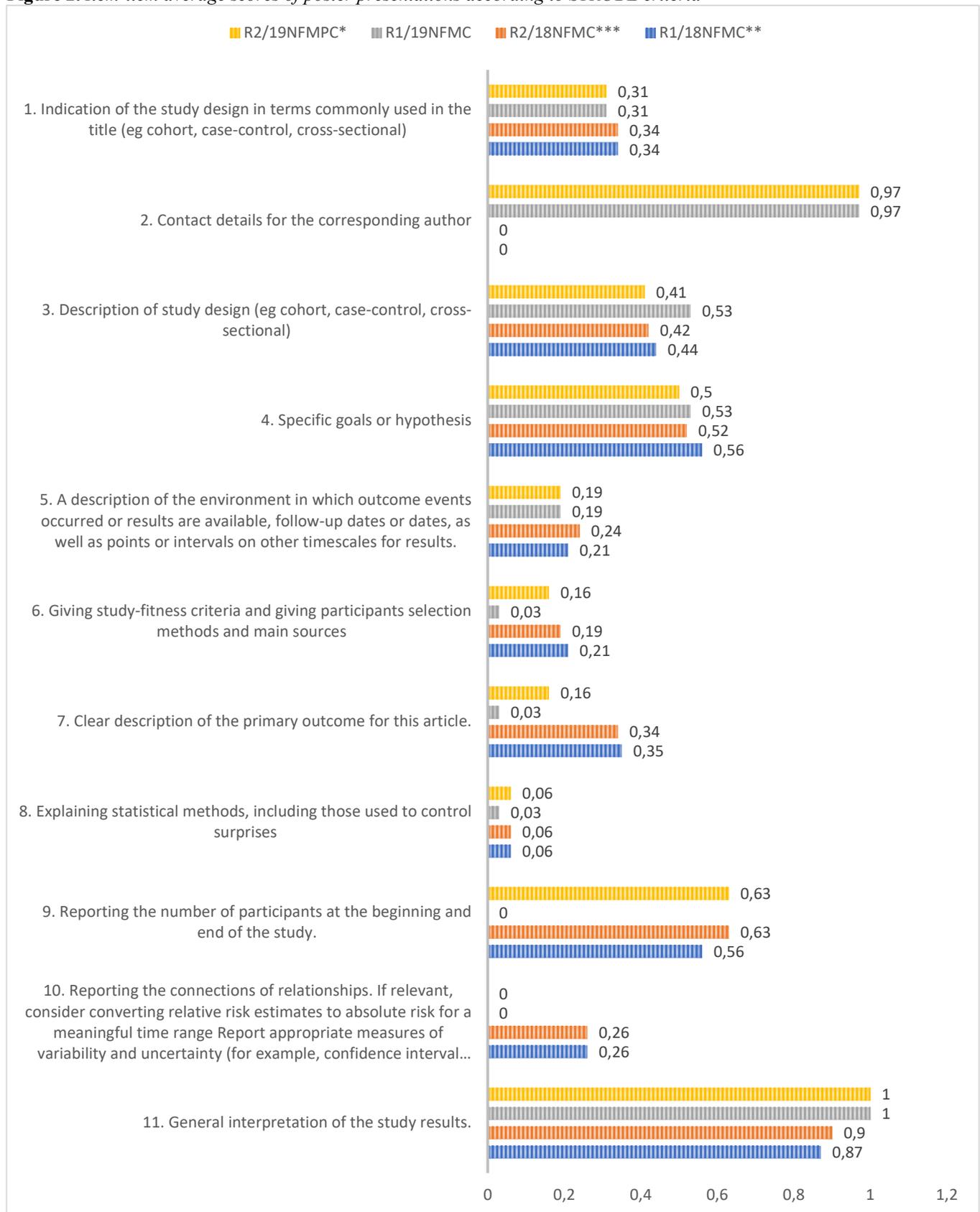


\*NFMC: National Family Medicine Congress

\*\*R1: Reviewer 1

\*\*\*R2: Reviewer 2

**Figure 2.** Item-item average scores of poster presentations according to STROBE criteria



\*NFMC: National Family Medicine Congress

\*\*R1: Reviewer 1

\*\*\*R2: Reviewer 2

In the poster presentations, the items with the highest scores were again the 11th and 4th items ( $0.93\pm 0.263$  and  $0.53\pm 0.500$ , respectively). The least scored item was Item 8, with a score of  $0.06\pm 0.235$  (8. Describe statistical methods, including those used to control for confounding).

Of the 155 papers presented at the 18th National Family Medicine Congress and included in the booklet, 60% (n=93) were verbal presentations, and 40% (n=62) were poster presentations. At the 19th National Family Medicine Congress, these rates were 71.1% (n=79) and 28.9% (n=32), respectively. Although the rate of verbal presentations was higher in the online congress, there was no significant difference between the congresses regarding the types of papers ( $p=0.060$ ).

The mean number of authors of the papers was  $3 \pm 1.64$  ( $3.05\pm 1.77$  for verbal presentations,  $2.90\pm 1.37$  for poster presentations). In 93.2% (n=248) of the papers, sampling was not done, or it was not stated that it was done. All the 18 papers stated to be sample calculations were verbal.

When all papers were included, a significant difference was found between the mean STROBE Checklist: conference abstracts score of verbal and poster presentations in both reviewers (Table 2) ( $p<0.001$ ). Presentation scores according to the congresses demonstrated no significant difference between the 18th and 19th National Family Medicine Congresses in the same groups (Table 3).

**Table 2.** Comparison of scores of verbal and poster presentations according to referees

Umpire	Paper type	Average $\pm$ Std. Deviation	Min	Max	p
Referee 1	Verbal presentation	6,03 $\pm$ 1,73	1	10	<0,001
	Poster presentation	3,80 $\pm$ 1,99	0	8	
Referee 2	Verbal presentation	5,86 $\pm$ 1,69	1	9	<0,001
	Poster presentation	4,02 $\pm$ 1,95	0	8	

**Table 3.** Comparison of paper scores according to congresses

Referee	Convention	Paper type	Points	p
Referee 1	18. NFMC	Verbal	5,94 $\pm$ 1,66	0,867
	19. NFMC		6,15 $\pm$ 1,80	
	18. NFMC	Poster	3,87 $\pm$ 2,11	0,949
	19. NFMC		3,66 $\pm$ 1,75	
Referee 2	18. NFMC	Verbal	5,63 $\pm$ 1,62	0,275
	19. NFMC		6,13 $\pm$ 1,74	
	18. NFMC	Poster	3,90 $\pm$ 2,06	0,809
	19. NFMC		4,25 $\pm$ 1,74	

\*NFMC: National Family Medicine Congress

## DISCUSSION

Our results showed that the online congress format of the COVID-19 pandemic did not affect the reporting quality of the papers. However, both congresses have the potential to improve reporting quality. Chief among these improvements are items such as writing a more detailed method section and stating the study's design to help the reader better understand it.

Our results show that the reporting quality of the papers presented in both congresses is generally medium-low. The number of papers that meet the STROBE Checklist: conference abstracts criteria is minimal. These results are consistent with previous studies and may explain the low publication rate of congress papers in peer-reviewed journals.<sup>7,8</sup> Furthermore, these results highlight the importance of paper reporting quality. Although the quality of reporting does not directly indicate the quality of the study, when the literature is examined, it is seen that studies with better methodology are more accepted.<sup>9</sup> Therefore, increasing the compliance of the articles with the criteria will indirectly increase their quality.

In our study, regardless of the congress, the score of verbal presentations was significantly higher than poster presentations in both reviewers. This difference may be because authors often send their more trusted works as verbal presentations, and congress committees generally accept papers of higher scientific value as verbal presentations. When the literature is examined, it is seen that similar results are obtained. In general, it is seen that

verbal presentations are written more appropriately than poster presentations and that the publication rates are higher in reviewed journals.<sup>7,8,10,11</sup>

Item 11 had the highest score in verbal presentations (11. General interpretation of study results). This was followed by Item 4 (4. Specific objectives or hypothesis). The item with the lowest score was Item 1 (Describing the study design in commonly used terms in Title 1). In a study by Yoon et al., in which the abstracts presented at the 2005 and 2008 World Congress for the Prevention of Sports Injuries were examined, the items with the highest score were similarly related to the result and purpose part.<sup>9</sup> Only 10.4% of the papers got points from the title. These results reveal that the conclusion and purpose parts are better fulfilled in reporting observational studies, but the title part needs to be considered sufficiently. The title part of the verbal presentations in the congresses we examined was neglected. The headline is the part that gives the reader the first impression. The title should convey the main idea and method of the study to the reader. According to the STROBE criteria, the title should state the type of study (cohort, case-control, or cross-sectional), characteristics of the participants (age, gender, disease status), and critical variables or hypotheses of the study. In this way, the reader can more easily understand and evaluate the study's purpose, method, and results.

In the poster presentations, the items with the highest scores were the 11th and 4th items, and the lowest was the 8th item (8th, explaining the statistical methods, including those used to control surprises). The fact that the items with the highest scores in both verbal and poster presentations are the 11th and 4th items may indicate that these items attract the readers' attention and are given more importance by the researchers as they summarize the main findings and aims of the study. The fact that the explanation of statistical methods is the least rated item in poster presentations may be related to the fact that poster presentations are more visual and short presentation style. In poster presentations, it is crucial to convey the main points and findings of the study to the reader easily and attractively. Therefore, while the title is more critical in poster papers, the statistical methods part is less detailed or can be skipped. However, the statistical methods part is also essential for the quality and accuracy of the study. Therefore, statistical methods should be explained according to the STROBE Checklist: conference abstracts criteria in poster presentations.

#### **Limitations of the Study**

Our study has some limitations. First, only two congresses were included in the study. It may be considered to increase the number of included face-to-face and online congresses. Secondly, although the names of the paper owners are concealed by a third party, in some cases, the title, content, material, and method of the papers can give a great idea about the paper's owner. For this reason, it cannot be said that possible bias has been avoided by one hundred percent. However, no statistically significant difference was found between the reviewers regarding reviewer STROBE Checklist: conference abstract scores. This result shows that the reviewers involved in the evaluation process make evaluations by using a similar criterion and adhering to the same criteria while scoring. This may mean the reviewers' evaluations can be more objective and reliable. Third, the study was conducted only for the National Family Medicine Congress. Different results may be obtained in different congresses.

#### **Strengths of the Study**

Although there are similar studies in the literature about the presentation of STROBE Checklist: conference abstracts scoring, as far as we can see, no similar study has been found in the literature comparing online and face-to-face congresses. Similarly, no similar study was found in family medicine congresses. Our study is a study that can contribute to the literature in this respect.

#### **CONCLUSION**

As a result, scientific congresses are essential platforms that increase interdisciplinary communication and information sharing. Improving the quality of paper reporting allows the studies to be understood correctly and the results to be interpreted more accurately. On the other hand, a methodologically relevant article is more likely to be published in scientific journals. For this reason, the compliance of the papers presented in congresses with specific criteria and their publication in peer-reviewed journals should be encouraged. In addition, it should be remembered that online congresses are essential tools for information sharing and professional development. However, disadvantages such as live interaction and reduced networking opportunities should also be considered.

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