

# The accuracy of references in paediatric journals

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## Abstract

**We analysed the reference error rate of four paediatric journals. The overall rate was 29.7%. Individual rates were as follows: *Acta Paediatr* 36%, *Arch Dis Child* 22%, *J Pediatr* 29%, *Pediatrics* 32%; the rate of major errors was 1%, 1%, 2%, and 4%, respectively.**

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Keywords: accuracy; reference; journal

Accurate references in research studies are essential for the transmission of scientific knowledge, so it is imperative that they should be written properly to make searching easy. Furthermore the quality and credibility of the study, the authors, and the journal itself are increased.<sup>1,2</sup> Studies on the frequency of reference errors in medical, non-paediatric, journals have been published previously; we believe this is the first study assessing paediatric journals.

## Methods

We analysed 12 regular issues for the year 1999 (supplements excluded), of the following journals: *Acta Paediatrica* (*Acta Paediatr*), *Archives of Disease in Childhood* (*Arch Dis Child*), *Journal of Pediatrics* (*J Pediatr*), and *Pediatrics*. All references in the bibliography of each article were numbered consecutively and a sample of 100 references of each journal was selected using a table of random numbers. We excluded non-indexed references and in these cases we chose the immediately preceding or subsequent reference.

We examined each reference and compared them with the original for accuracy, using the following six elements: author(s); study title; name and abbreviation of journal; year; volume; and initial and final pages. Errors were classified as: major—those that make immediate access to the reference particularly difficult, as a result of errors in the publishing year, volume, initial page, or name of the journal; or minor—such as wrong abbreviation for the journal, incorrect title, an author's name missing, wrong citation of the final page, or spelling

mistakes in any of the above elements.<sup>1–3</sup> We used descriptive statistics and compared the frequency of errors with the  $\chi^2$  test.

## Results

Table 1 shows the overall error frequency of errors for the four journals analysed was 119/400 (29.7%), of which we considered 8/400 as major (2%), and 111/400 (27.7%) as minor. Analysis of each journal was as follows: *Acta Paediatr* 36%, *Arch Dis Child* 22%, *J Pediatr* 29%, *Pediatrics* 32%, with a major error frequency of 1%, 1%, 2%, and 4%, respectively. The difference between *Acta Paediatr* and *Arch Dis Child*, both in the overall rate of errors (36 v 22%) and in the frequency of minor errors (35 v 21%) was significant ( $p < 0.05$ ). Considering the eight major errors found, two were a wrongly quoted publishing year, three a wrong volume number, and three an error in the initial page. Among the minor mistakes, the most common was in the name or the authors' initials (62%), followed by the article's title (35.6%). There was a single error in 83 cases (20.7%); 24 references had two errors (6%), and 12 (3%) had three or more mistakes. The highest number of errors found was six for a single reference.

## Discussion

The overall error rate is one of the lowest reported, and is similar to a study published in a general medicine journal where the authors evaluated five leading journals, finding a mean value of 26.5% and a range of 4.1–40.3%.<sup>4</sup> Our rate is significantly different from the highest rate reported—60.7% in three gynaecological/obstetrics journals.<sup>1</sup> Regarding major errors, the rate was one of the two lowest reported, with an identical result to that published in an analysis of two Asian journals.<sup>3</sup> Major mistakes are the most important as they make access to the reference difficult.<sup>1–3</sup> Minor errors might be considered as a sign of disrespect or lack of courtesy to the author or authors, and may impact negatively on their academic records by excluding the name(s) from the citation index.<sup>5</sup>

Strategies proposed to lower errors are: (a) direct consultation with the original work or obtaining this work from a computerised database, rather than copying them from another citation; (b) writing the title and name of the authors in the language of their native country; (c) limiting the number of references<sup>5,6</sup>; and (d) submitting the first page of each of the referenced articles with the manuscript. Furthermore, editorial boards should make publishing requirements more stringent, because there is an association between the journal impact index and the number of errors.<sup>5</sup>

1 Roach VJ, Lau TK, Ngan Kee WD. The quality of citations in major international obstetrics and gynecology journals. *Am J Obstet Gynecol* 1997;177:973–5.

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Table 1 Errors found in paediatric journal references

	<i>Acta Paediatr</i>	<i>Arch Dis Child</i>	<i>J Pediatr</i>	<i>Pediatrics</i>	Total
Number of references	100	100	100	100	400
Total number of errors	36	22	29	32	119
Type of error					
Minor	35	21	27	28	111
Major	1	1	2	4	8
Volume	1	0	0	2	3
Year	0	0	1	1	2
Initial page	0	1	1	1	3
Number of errors/reference					
One	30	14	15	24	83
Two	3	6	9	6	24
Three or more	3	2	5	2	12

- 2 McLellan MF, Case LD, Barnett MC. Trust, but verify. The accuracy of references in four anesthesia journals. *Anesthesiology* 1992;77:185-8.
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- 6 Schulmeister L. Quotation and reference accuracy of three nursing journals. *Image J Nurs Sch* 1998;30:143-6.

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