

COMMUNICATION OF RESULTS ON RISK FACTORS STUDIES: CONFIDENCE INTERVALS

Sorana-Daniela Bolboaca¹, Lorentz Jäntschi² and Stefan Tigan¹

¹"Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania,
(sbolboaca@umfcluj.ro)

²Technical University of Cluj-Napoca, Romania (<http://lori.academicdirect.org>)

Starting from the hypothesis that confidence intervals and their widths are used in medical research as a criterion for both, trustworthiness and robustness of findings [1], the aim of our research was to determine whether the medical parameters communicated as results in abstracts of risk factors studies published in PubMed database and in Romania medical databases are actually accompanied by reporting of confidence intervals (CI). Therefore, we searched the PubMed and Romanian medical databases and identified screening studies on risk factors. The search strategy included three keywords (screening AND relative risk OR cohort studies) and was performed with the following limitations: data from 2003/02 to 2006/05, English OR Romanian, type of article (Clinical Trial, Editorial, Meta-Analysis, Randomized Controlled Trial, Review). The obtained results were analyzed and relative frequencies were determined with their 95% confidence intervals using the binomial distribution hypothesis using free software [2].

By searching the PubMed database we identified a total of 3191 articles. Almost four percent (n=110) of them were identified after inclusion the confidence intervals as key parameter of the search. Those 110 articles were published in seventy-two journals. When analyzing the medical parameters of the screening studies we found that 40% [95% confidence interval: 30.92, 49.99] of articles referred to relative risk, 29% [20.92, 38.17] to other types of rates, and 21.82% [14.55, 30.90] to the odds ratio. About 10% of studies did not specify the risk parameter at all.

Regarding the Romanian medical databases, from a total number of ninety-five journals, sixty-three of them (66.31% [55.80, 75.78]) were not available as an online version, eleven (11.22% [6.33, 19.99]) were accessible online after subscription, and five out of twenty-one online journals were not functioning. The applied search strategy identified sixty-five articles in eleven journals, from which only two (3.07% [1.56, 12.28]) communicated confidence intervals with their estimates of the respective medical parameters. Almost thirty-six percent [23.10, 47.67] did not refer to any medical parameter as endpoint; 4.61% [1.56, 12.28] referred the relative risk, and 60% [47.72, 72.28] other rates.

Looking at these results obtained by the above described search strategy, it can be stated that forty percent of articles referred the relative risk as parameter in PubMed compared to almost only five percent observed in Romanian medical databases. Furthermore, the percentage of publications that accompany the medical parameter with 95% confidence intervals is larger with PubMed than with Romanian journals. We conclude that the publication standards in Romanian medical journals must by arise in order to become aligned with the international trends and standards. Accompanying medical parameters that report results of screening studies with their associated 95% confidence intervals should allow physicians to interpret correctly the trustworthiness and robustness of the risk describing parameters. This is thought to be also of great interest of when communicating them with patients.

Research was partly supported through project ET/46/2006 by UEFISCSU Romania.

[1] Bender R, Berg G, Zeeb H. Tutorial: Using confidence curves in medical research. *Biom J.* 2005;47(2):237-47.
[2] BinomialDistribution. ©2005, Virtual Library of Free Software, AcademicDirect [cited March 2006]. Available from: URL: http://vl.academicdirect.org/applied_statistics/binomial_distribution/