

Identifying Useful Terms to Retrieve Survival Data Meta-Analyses Publications for Bibliographic Databases Search Strategies

Daniel Corneliu LEUCUȚA*, Andrei ACHIMAȘ CADARIU

„Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca, Department of Medical Informatics and Biostatistics, 6 Louis Pasteur, 400349 Cluj-Napoca, Romania.
E-mail: dleucuta@umfcluj.ro.

* Author to whom correspondence should be addressed; Tel.: +4-0264-431697; Fax: +4-0264-593847.

Abstract: *Introduction:* Quality research and quality evidence based medicine practice has an important pillar in a solid bibliographic documentation. Quality bibliographic documentation makes use of search strategies to retrieve articles from search engines of bibliographic databases. The AIM of this study was the identification of useful search terms to be used in search strategies that try to find meta-analyses of survival data. *Materials and methods:* A qualitative study based on text analysis was undertaken to identify useful terms for search strategies in abstracts of scientific papers. Survival analysis meta-analyses publication type studies, published between 1996 and 2005, were searched in Medline bibliographic database through Pubmed web interface. Each abstract was analysed and each important terms were noted down if they were considered to be useful in the creation of search strategies for analysis of survival data, or meta-analyses. *Results:* Pubmed search yielded 773 results. From these search results 401 (52%) fulfilled inclusion criteria. The terms that were identified as useful in search strategies for meta-analyses of survival data are presented in the paper.

Keywords: Survival analysis; Meta-analysis; Search strategy terms.

Introduction

Quality research and quality evidence based medicine practice has an important pillar in a solid bibliographic documentation.

Quality bibliographic documentation makes use of search strategies to retrieve articles from search engines of bibliographic databases. The search strategies can use terms from the thesaurus of bibliographic databases (e.g. MeSH in Medline [1]), or words or expressions that can't be found in thesauruses (also named full text search). Complex search strategies make use of both search strategies in order to increase the sensitivity and/or specificity.

Search terms for full text search can be identified through qualitative assessment of papers of studies for specific fields of interest.

There are papers that quantitatively analyze the situation in numbers. Those papers compute the sensitivity, specificity, accuracy and precision of these terms uses. Part of the current literature focus on the identification of search capabilities of search strategies to identify mainly certain type of medicine search fields such as causation studies [2], prognostic studies [3], trials (in specific fields of medicine and with particular focus on the trial type: controlled trials [4], randomized trials [5], randomized controlled trials [6]), diagnostic studies [7, 8], clinical prediction rules [9], or focus to identify clinically sound articles [2, 10]. The studies that assess analytically this search indicators use a selection of papers in several journals that are hand assessed and then applying unique search terms and search terms combinations to identify those terms that have best search capabilities [2, 3]. The gold standard in this type of assessment is the hand search evaluation [11].

In the bibliographic documentation for this study papers focusing on identifying search strategies for survival analysis weren't find.

Survival analysis is an important analysis field in medicine since important objectives in medicine are the identification of ways to lengthen the life span, the identification of ways to shorten the periods of time with signs and symptoms. Survival analysis is a set of statistical tools to study the time from a subject entering in a study till a predefined event (e.g. death, occurrence or disappearance of a sign or a symptom) [12, 13]. Meta-analysis is a statistical way of combining results from multiple original papers studying the same thing [44] Meta-analyses may offer a unique perspective on that subject matter with increased precision, and may explain study variability [15]. In the evidence based medicine hierarchy of evidences meta-analyses offer high value evidences to physicians and researchers [16]. Thus knowing how to search for meta-analyses of survival data is important.

The aim of this study was the identification of useful search terms to be used in search strategies that aim to find meta-analyses of survival data.

Material and Method

Study Design

A qualitative study based on text analysis was undertaken to identify useful terms for search strategies in abstracts of scientific papers.

Study Sample

Survival analysis meta-analyses publication type studies were searched in Medline bibliographic database through Pubmed web interface. The search strategy was „survival rate OR survival analysis”. The search results were limited on humans, meta-analysis publication type, and studies published between 1st of January 1996 and December 2005.

Study Selection

All titles and abstracts of the studies retrieved with the search strategy were assessed to identify eligible studies.

For study inclusion, meta-analyses were considered any study that used a statistical method to pool results from a number of different original studies. For study inclusion, survival studies were considered any study that clearly indicated objectives about survival or mortality that were assessed through a follow-up of subjects during a specified time period of observation.

The inclusion criteria were: studies that used statistical methods to pool a unique result based on the results of a number of original studies, survival studies, studies on human subjects, studies published between 1st of January 1996 and December 2005. No exclusion criteria were used.

Data Extraction

Each abstract was analysed and each important terms were noted down if they were considered to be useful in the creation of search strategies for analysis of survival data, or meta-analyses. These terms were considered to be useful if they represented concepts in the previous written fields, or if they were synonymous to elements of the interest fields.

The terms were analysed qualitatively to see if only a root of the word could be retained and not the whole word, to increase the sensitivity of the search. For some words even misspelled words were retained, since there are authors whose English is not their primary language.

Identified terms were then grouped in a table for quick identification.

Results

Paper search results

Pubmed search yielded 773 results. From these search results 401 (52%) fulfilled inclusion criteria.

Abstracts qualitative assessment

The abstracts of the papers identified were qualitatively assessed. The terms that were identified as useful in search strategies for meta-analyses of survival data are presented in Table 1.

Table 1. Useful terms for search strategies about meta-analyses of survival data, identified by qualitatively assessment of meta-analyses of survival data abstracts. * - the truncation character, represents any termination of the word before the * sign.

| Utility/ Terms |
|---|
| <p>Meta-analyses identification:</p> <ul style="list-style-type: none"> • Meta-analysis, Metaanalysis • Meta-analyses, Metaanalyses • Pool* • Combine, Combin* • Secondary analysis • statistical method for meta-analyses: <ul style="list-style-type: none"> ○ Mantel-Haenszel, Mantel Haenszel ○ Peto ○ Stratif* ○ DerSimonian ○ Laird ○ Yusuf ○ Random effects model ○ Fixed effects model ○ Model • data type used in meta-analyses (primary, secondary) <ul style="list-style-type: none"> ○ individual patient, individual data, patient-level information, patient-level data, each patient <p>Survival analysis identification:</p> <ul style="list-style-type: none"> • Survival, Survival analysis • Failure, Failed, Event • Fatal, Mortality, Deat*, Die, Died • Time, Year, month, week, day, hour, minute • about the outcome: <ul style="list-style-type: none"> ○ Event free survival, Event-free survival, EFS ○ Progression free survival, Progression-free survival, Progression-free ○ Disease free survival, Dissease-free survival, Dissease free interval, Dissease-free ○ Overall survival, OS ○ Time to, Time-to, Time to progression, Time to appearance ○ Relapse-free survival, Relapse free survival ○ Recurrence-free survival, Recurrence-free intervals ○ Metastasis-free survival ○ Dissease-specific survival ○ Duration of • statistical indicator used: <ul style="list-style-type: none"> ○ Absolute, Relative ○ Rate, Rates, Ratio, Difference ○ Odds ratio, Odds rate, OR ○ Risk ratio, Risk rate, Relative risk, RR |

Utility/ Terms

- Survival ratio, Survival rate
- Hazard ratio, Hazard rate, HR, Hazard
- statistical method used:
 - Median
 - Kaplan Meier, Kaplan-Meier, Kaplan
 - Actuarial, Life table, Life-table
 - Logrank, Log-rank
 - Proportional hazard, Proportional-hazard
 - Cox
 - Weibull
 - Quality adjusted survival, Quality-adjusted survival, Quality adjusted time, Quality adjusted time without symptoms or toxicity, Q-TwiST

Discussion

The identification of useful terms to be used in search strategies for meta-analyses of survival data, by qualitative assessment of meta-analyses of survival data was successfully completed.

To increase the utility of these terms, search strategies that use terms with high specificity connected by the “OR” logical operator can increase the sensitivity without further decrease specificity.

The use of abstracts of papers to identify useful search terms has the advantage of decreasing the amount of work to identify these terms in the full text form of the same papers. Another advantage is that identifying words in the abstracts helps the searching in bibliographic databases that don't have the full text form of all the papers indexed, such as Medline or Embase. A drawback is that there are other terms in the full text form of the paper that aren't found in the abstracts of papers, so these terms were lost from this present research.

Retaining the root of the word can be useful if the search engine has a truncation operator (ex. * in Medline, allows to search words starting with the string written before *, no matter what terminations has the searched word).

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