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1-1-2006

How to write an abstract for a manuscript publication

V. D. Sousa

Martha Driessnack
University of Iowa

M. Floria-Santos

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Acta Paulista de Enfermagem, 19:3 (2006) pp.IX-xii. DOI:10.1111/j.1744-6155.2009.00180.x.

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EDITORIAL

How to Write an Abstract for a Manuscript Publication

The preparation of an abstract for a manuscript publication is a very important step in the communication of a research study or report. Too often manuscript authors give this element of their writing too little time or attention. The purpose of this editorial is to discuss how to approach and write a well-organized abstract.

An abstract is a brief summary of the manuscript. It is not an introduction to what follows, but a complete and concise description of key methodological features of the study and important research findings. The abstract is often a reader's first encounter with a research study or report and at times the only element retrieved and/or reviewed from scientific databases. It provides the all-important first impression and identifies the potential value or relevance of the research approach and findings. If the abstract is well written, it will entice readers to obtain a copy of the full manuscript report, build on the findings, and cite your work. If it is poorly written, your research may be ignored or untapped.

The abstract is found at the beginning of the manuscript, right after the Title, and typically includes the following information: Background, Purpose, Methods, Results, and Conclusion. A listing of author (s) selected Key Word(s) is found at the end of the abstract and precedes the body of the manuscript. Some journals require an Introduction instead of a Background section, while others begin with the Purpose or Objective of the research study. Other journals require Discussion, Implications, and/or Further Considerations sections. Another approach to writing a manuscript abstract[1] is to answer the following four questions: Why was the study done? How was the study conducted? What were the findings? And, What do the findings mean? It is a good practice to consult the journal's author guidelines as well as access and review examples of the journal's published abstracts prior to submitting to the journal.

Most scientific journals provide author guidelines that include the suggested format and length of a manuscript abstract. The two most common formats are structured and unstructured. Although the approach is quite different, both formats require similar information. In a structured abstract, the required information is organized into sections and identified by a bolded heading. In an unstructured abstract, there are no bolded headings. Instead, the required information is presented in a paragraph or narrative format and headings are stated as part of a sentence[1]. The typical length of an abstract is 250 words. However, some journals limit the length of an abstract to only 50 to 100 words and this is a particular challenge. It is also important to remember that some electronic databases automatically truncate abstracts beyond a certain length (e.g. MEDLINE truncates everything beyond 400 words).

The title, abstract sections, and key word(s) will be discussed in the following paragraphs and include quantitative (QT) and qualitative (QL) examples from the current literature.

Title

The title should reflect the content of the manuscript and convey to the readers the scope, design, and goal of the research. Many journals have strict guidelines as to how many characters or words are allowed which can make this task challenging. The title should be no longer than 12 words and free of jargon or unfamiliar acronyms[1].

QT: "The relationships between depression and other outcomes of chronic illness caregiving"[2].

QL: "The lived experience of rural mental health nurses"[3].

Background

The background section provides an introduction to the research problem and/or study. It identifies the key focus or issue considered in the study and answers the question, "Why was the study done?" It must be written in a few sentences saying briefly what the manuscript is about[4]. The background section is typically followed by the purpose of the study and, in many abstracts, is optional or eliminated from the abstract altogether.

QT: "According to current evidence and psychological theorizing proper information giving seems to be a promising way to reduce patient anxiety. In the case of surgical patients, admission to the intensive care unit (ICU) is strongly associated with uncertainty, unpredictability and anxiety for the patient. Thus, ICU specific information could have a high clinical impact. This study investigates the potential benefits of a specifically designed ICU-related

information program for patients who undergo elective cardiac, abdominal or thoracic surgery and are scheduled for ICU stay"[5].

QL: "Though the continuum of care model has been adopted in HIV/AIDS intervention, there is little empirical work documenting the experiences of care giving families. Addressing this gap, a study on family care giving and care receiving was undertaken in Mumbai, India"[6].

Purpose

The purpose section focuses specifically on the research questions, hypotheses, aims or objectives of the study. The purpose can be written as a statement that reflects the research questions or hypotheses or by stating the specific aims or objectives.

QT: "The purpose of this study was to predict the influence of socioecological factors, including social support, barriers to health promotion behaviors (HPB), perceived health status, and demographic variables on the HPB of rural women with heart failure (HF)"[7].

QL: "This phenomenological study describes the meaning of mentoring relationships from the perspectives of six purposefully selected mentors involved in the Latino Achievement Mentoring Program (LAMP), and investigates underlying themes regarding the mentors relationships"[8].

Methods

The methods section identifies for the reader the nature of the data analyzed in the study and answers the question, "How was the study conducted?" Depending on the research paradigm, the components of this section may vary. In a quantitative study, the methods section typically includes the research design, sample, setting, variables and/or instruments, and approach to data analysis. In a qualitative study, the methods section typically includes the philosophical approach, participants, context, data collection method, and approach to data analysis[9].

The methods section typically begins with a description of the research design. Examples of quantitative research designs include: descriptive, correlational, quasi-experimental, and experimental. Commonly reported qualitative designs include: phenomenology, grounded theory, ethnography, action research, and narrative inquiry. Research designs may also reflect a time dimension, such as cross-sectional (data collected at one point in time), longitudinal (data were collected in two or more point in time), retrospective (search for causes in the past of a phenomenon identified in the present), and prospective (search for a phenomenon in the future based on identification of potential causes in the present). Other classifications of research designs also exist and are focused more on the method: trend design, case-study design, case control study, association study, predictive design, model-testing design, conversational analysis, discourse analysis, etc. Excluding the research study design may cause a reader to disregard the study when conducting a scientific database search.

Statements about the sample, the approach to sampling, and the context for data collection are also important. This information can easily be incorporated into a few sentences along with the research design. In addition, the approach to data analysis should also be noted. This information assists the reader in understanding the nature of information obtained and analyzed.

QT: "A randomized prospective control study was conducted on 94 patients undergoing 102 thyroid surgeries, over a period of fifteen months. Patients included in the study were randomly allocated to drain and non-drain group on the basis of a computer generated random number table. The surgeon was informed of the group just before the closure of the wound Postoperatively ultrasonographi neck was done on first and seventh postoperative day by the same ultrasonologist each time. Any swelling, change in voice, tetany and tingling sensation were also recorded. The data was analyzed using two-sample t-test for calculating unequal variance"[10].

QL: "Five women participated in a 1-hour interview and a focus group. To give voice to each participant while also identifying common themes and learning experiences, the author used a two-step research method. The first step entailed individual interviews, which the author analyzed using a voice-centered relational method. The author chose the second step, the focus group, to facilitate women's learning from each other's experience"[11].

Results

The results section answers the question, "What were the findings?" The results are the end points of the research questions or hypotheses and should be stated in a logical sequence. If statistical tests were used to analyze the data, report the results of these tests and the level of significance, even if non-significant. For a qualitative study, report the themes, categories, or resultant theory. This section sets the stage for the study's conclusions and, if space allows, should be reported in as much detail as possible.

QT: "Dutch residents had higher mortality than US residents (28.1% vs 15.1% at 1 month, respectively; $P < .001$). After adjusting for illness severity with logistic regression, the differences between the Dutch and US populations were not significant (odds ratio 1.34; 95% confidence interval, 0.94–1.90). Predicted mortality was overestimated for

more severely ill US residents at 1 month but not at 3 months. No antibiotic regimen was consistently associated with increased or decreased mortality"[12].

QL: "Five essential themes were identified. They were holistic care of clients; isolation, autonomy and advanced practice; professional development and status recognition; educational support; and caseload numbers and caseload composition"[3].

Conclusions

The conclusion section answers the question, "What do the findings mean? This section needs to reflect the potential use, relevance, or implications of the reported findings. The emphasis should be on new and important aspects of the study that are supported by the results or findings.

QT: "Despite differences in illness severity and treatment, adjusted mortality did not differ between the 2 countries. Although we cannot exclude a short-term survival benefit from more aggressive treatment in the United States, differences in baseline health appear prognostically more important than the type of antibiotic treatment"[12].

QL: "The study uncovered the psychological impact of negative social attitudes towards the people who visit sexual health services and to the staff who work there"[13].

Key Words

When submitting a manuscript to a journal, author (s) must choose words and phrases that communicate the central concepts of the study or research. These concepts must be closely related to the study, research problem, and/or methods. Careful selection of keywords will facilitate the retrieval of relevant research studies as keywords are used for indexing and searching research studies in scientific databases. Consult medical librarians, scientific databases, and journals prior to selecting key words to use appropriate nomenclature.

QT: **"Key Words:** nursing homes, aged, respiratory tract infections, pneumonia, anti-bacterial agents, delivery of health care, health services research"[12]

QL: **"Key Words**: hermeneutic phenomenology; mental health; rural nursing[3].

Writing an abstract is hard work, but a well-written abstract will pay off. The major function of an abstract is to provide potential readers with sufficient information both to interest them and to help them determine whether to read the complete article. It is critical to be both concise and precise in your writing as others will be scanning your abstract in order to identify potentially useful elements for their own literature reviews and use. In this editorial we have outlined a few guidelines and we invite you to try to use them the next time you write an abstract. We also welcome others to share additional tips based on their own experiences in writing and reviewing abstracts. Responses to this editorial will be well received.

Note. All examples were retrieved from manuscripts published in journals listed on the Directory of Open Access Journals (DOAJ), which permits unrestricted use, distribution, and reproduction in any medium if the work is properly cited.

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Valmi D. Sousa, PhD, APRN, BC
Assistant Professor at the University of North Carolina at Charlotte
Post Doctoral Research Fellow in Clinical Genetics Research at the University of Iowa

Martha Driessnack, PhD, APRN, BC
Post Doctoral Research Fellow in Clinical Genetics Research at the University of Iowa

Milena Flória-Santos, PhD, RN
Junior Professor in Genetics at the College of Nursing University of São Paulo at Ribeirão Preto