

How to write a research proposal?

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ABSTRACT

Writing the proposal of a research work in the present era is a challenging task due to the constantly evolving trends in the qualitative research design and the need to incorporate medical advances into the methodology. The proposal is a detailed plan or 'blueprint' for the intended study, and once it is completed, the research project should flow smoothly. Even today, many of the proposals at post-graduate evaluation committees and application proposals for funding are substandard. A search was conducted with keywords such as research proposal, writing proposal and qualitative using search engines, namely, PubMed and Google Scholar, and an attempt has been made to provide broad guidelines for writing a scientifically appropriate research proposal.

Key words: Guidelines, proposal, qualitative, research

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INTRODUCTION

A clean, well-thought-out proposal forms the backbone for the research itself and hence becomes the most important step in the process of conduct of research.^[1] The objective of preparing a research proposal would be to obtain approvals from various committees including ethics committee [details under 'Research methodology II' section [Table1] in this issue of IJA) and to request for grants. However, there are very few universally accepted guidelines for preparation of a good quality research proposal. A search was performed with keywords such as research proposal, funding, qualitative and writing proposals using search engines, namely, PubMed, Google Scholar and Scopus.

BASIC REQUIREMENTS OF A RESEARCH PROPOSAL

A proposal needs to show how your work fits into what is already known about the topic and what new paradigm will it add to the literature, while specifying the question that the research will answer, establishing its significance, and the implications of the answer.^[2] The proposal must be capable of convincing the evaluation committee about the credibility, achievability, practicality and reproducibility (repeatability) of the research design.^[3]

Four categories of audience with different expectations may be present in the evaluation committees, namely academic colleagues, policy-makers, practitioners and lay audiences who evaluate the research proposal. Tips for preparation of a good research proposal include; 'be practical, be persuasive, make broader links, aim for crystal clarity and plan before you write'. A researcher must be balanced, with a realistic understanding of what can be achieved. Being persuasive implies that researcher must be able to convince other researchers, research funding agencies, educational institutions and supervisors that the research is worth getting approval. The aim of the researcher should be clearly stated in simple language that describes the research in a way that non-specialists can comprehend, without use of jargons. The proposal must not only demonstrate that it is based on an intelligent understanding of the existing literature but also show that the writer has

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Table 1: Five 'C's while writing a literature review

Cite	Keep the primary focus on the literature pertinent to your research problem
Compare	The various arguments, theories, methodologies and findings expressed in the literature: What do the authors agree on? Who applies similar approaches to analysing the research problem?
Contrast	The various arguments, themes, methodologies, approaches and controversies expressed in the literature: What are the major areas of disagreement, controversy or debate?
Critique the literature	Which arguments are more persuasive and why? Which approaches, findings, methodologies seem most reliable, valid or appropriate and why? Pay attention to the verbs you use to describe what an author says/does (e.g. asserts, demonstrates, etc.)
Connect	The literature to your own area of research and investigation: How does your own work draw upon, depart from, or synthesise what has been said in the literature?

thought about the time needed to conduct each stage of the research.^[4,5]

CONTENTS OF A RESEARCH PROPOSAL

The contents or formats of a research proposal vary depending on the requirements of evaluation committee and are generally provided by the evaluation committee or the institution.

In general, a cover page should contain the (i) title of the proposal, (ii) name and affiliation of the researcher (principal investigator) and co-investigators, (iii) institutional affiliation (degree of the investigator and the name of institution where the study will be performed), details of contact such as phone numbers, E-mail id's and lines for signatures of investigators.

The main contents of the proposal may be presented under the following headings: (i) introduction, (ii) review of literature, (iii) aims and objectives, (iv) research design and methods, (v) ethical considerations, (vi) budget, (vii) appendices and (viii) citations.^[4]

Introduction

It is also sometimes termed as 'need for study' or 'abstract'. Introduction is an initial pitch of an idea; it sets the scene and puts the research in context.^[6] The introduction should be designed to create interest in the reader about the topic and proposal. It should convey to the reader, what you want to do, what necessitates the study and your passion for the topic.^[7]

Some questions that can be used to assess the significance of the study are: (i) Who has an interest in the domain of inquiry? (ii) What do we already know about the topic? (iii) What has not been answered adequately in previous research and practice? (iv) How will this research add to knowledge, practice and policy in this area? Some of the evaluation committees, expect the last two questions, elaborated under a separate heading of 'background and significance'.^[8] Introduction should also contain the hypothesis behind the research design. If hypothesis cannot be constructed, the line of inquiry to be used in the research must be indicated.

Review of literature

It refers to all sources of scientific evidence pertaining to the topic in interest. In the present era of digitalisation and easy accessibility, there is an enormous amount of relevant data available, making it a challenge for the researcher to include all of it in his/her review.^[9] It is crucial to structure this section intelligently so that the reader can grasp the argument related to your study in relation to that of other researchers, while still demonstrating to your readers that your work is original and innovative. It is preferable to summarise each article in a paragraph, highlighting the details pertinent to the topic of interest. The progression of review can move from the more general to the more focused studies, or a historical progression can be used to develop the story, without making it exhaustive.^[1] Literature should include supporting data, disagreements and controversies. Five 'C's may be kept in mind while writing a literature review^[10] [Table 1].

Aims and objectives

The research purpose (or goal or aim) gives a broad indication of what the researcher wishes to achieve in the research. The hypothesis to be tested can be the aim of the study. The objectives related to parameters or tools used to achieve the aim are generally categorised as primary and secondary objectives.

Research design and method

The objective here is to convince the reader that the overall research design and methods of analysis will correctly address the research problem and to impress upon the reader that the methodology/sources chosen are appropriate for the specific topic. It should be unmistakably tied to the specific aims of your study.

In this section, the methods and sources used to conduct the research must be discussed, including specific

references to sites, databases, key texts or authors that will be indispensable to the project. There should be specific mention about the methodological approaches to be undertaken to gather information, about the techniques to be used to analyse it and about the tests of external validity to which researcher is committed.^[10,11]

The components of this section include the following:^[4]

Population and sample

Population refers to all the elements (individuals, objects or substances) that meet certain criteria for inclusion in a given universe,^[12] and sample refers to subset of population which meets the inclusion criteria for enrolment into the study. The inclusion and exclusion criteria should be clearly defined. The details pertaining to sample size are discussed in the article "Sample size calculation: Basic principles" published in this issue of IJA.

Data collection

The researcher is expected to give a detailed account of the methodology adopted for collection of data, which include the time frame required for the research. The methodology should be tested for its validity and ensure that, in pursuit of achieving the results, the participant's life is not jeopardised. The author should anticipate and acknowledge any potential barrier and pitfall in carrying out the research design and explain plans to address them, thereby avoiding lacunae due to incomplete data collection. If the researcher is planning to acquire data through interviews or questionnaires, copy of the questions used for the same should be attached as an annexure with the proposal.

Rigor (soundness of the research)

This addresses the strength of the research with respect to its neutrality, consistency and applicability. Rigor must be reflected throughout the proposal.

Neutrality

It refers to the robustness of a research method against bias. The author should convey the measures taken to avoid bias, viz. blinding and randomisation, in an elaborate way, thus ensuring that the result obtained from the adopted method is purely as chance and not influenced by other confounding variables.

Consistency

Consistency considers whether the findings will be consistent if the inquiry was replicated with the same participants and in a similar context. This can

be achieved by adopting standard and universally accepted methods and scales.

Applicability

Applicability refers to the degree to which the findings can be applied to different contexts and groups.^[13]

Data analysis

This section deals with the reduction and reconstruction of data and its analysis including sample size calculation. The researcher is expected to explain the steps adopted for coding and sorting the data obtained. Various tests to be used to analyse the data for its robustness, significance should be clearly stated. Author should also mention the names of statistician and suitable software which will be used in due course of data analysis and their contribution to data analysis and sample calculation.^[9]

Ethical considerations

Medical research introduces special moral and ethical problems that are not usually encountered by other researchers during data collection, and hence, the researcher should take special care in ensuring that ethical standards are met. Ethical considerations refer to the protection of the participants' rights (right to self-determination, right to privacy, right to autonomy and confidentiality, right to fair treatment and right to protection from discomfort and harm), obtaining informed consent and the institutional review process (ethical approval). The researcher needs to provide adequate information on each of these aspects.

Informed consent needs to be obtained from the participants (details discussed in further chapters), as well as the research site and the relevant authorities.

Budget

When the researcher prepares a research budget, he/she should predict and cost all aspects of the research and then add an additional allowance for unpredictable disasters, delays and rising costs. All items in the budget should be justified.

Appendices

Appendices are documents that support the proposal and application. The appendices will be specific for each proposal but documents that are usually required include informed consent form, supporting documents, questionnaires, measurement tools

and patient information of the study in layman's language.

Citations

As with any scholarly research paper, you must cite the sources you used in composing your proposal. Although the words 'references and bibliography' are different, they are used interchangeably. It refers to all references cited in the research proposal.

SUMMARY

Successful, qualitative research proposals should communicate the researcher's knowledge of the field and method and convey the emergent nature of the qualitative design. The proposal should follow a discernible logic from the introduction to presentation of the appendices.

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Conflicts of interest

There are no conflicts of interest.

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