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## HOW TO WRITE A RESEARCH PROPOSAL

Sherina Mohd Sidik *MMed (Fam Med)*, Department of Community Health, University Putra Malaysia

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A research proposal is intended to convince others that you have a worthwhile research project and that you have the competence and the work-plan to complete it. Generally, a research proposal should contain all the key elements involved in the research process and include sufficient information for the readers to evaluate the proposed study.

Regardless of your research area and the methodology you choose, all research proposals must address the following questions: What you plan to accomplish, why you want to do it and how you are going to do it.

### Why a good preparation is needed?

A good preparation for a research proposal is necessary as:

- this is vital for grant application in a competitive environment. Funding is very competitive.
- it assists the researcher in project formulation, planning, performance and monitoring of the research.
- the quality of the proposal contributes to the evaluation outcome
- a poorly prepared proposal may not be considered at all or cannot be considered fairly.

#### Reminder:

Before writing up a research proposal, it is essential to:

- identify the sponsors for the research
- read and understand application guidelines from sponsors / clients, e.g., Universities, Ministry of Health

### Components of a research proposal

- Title
- Introduction
- Literature review
- Methodology
- Plan - time frame and schedule of activities (Gantt chart)
- Budget
- Details of research team (signed CV)

Address for correspondence: Dr Sherina Mohd Sidik, Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400, UPM Serdang, Selangor  
Email: sherina@putra.upm.edu.my

### Title

The title of a research proposal should be concise and descriptive. Try to think of an informative but catchy title. An effective title not only pricks the reader's interest, but also predisposes him/her favourably towards the proposal.

### Introduction

The main purpose of the introduction is to provide the necessary background or context for the research problem. How to frame the research problem is perhaps the biggest problem in proposal writing.

The introduction typically begins with a general statement of the problem area, with a focus on a specific research problem, to be followed by the rationale or justification for the proposed study. The introduction generally covers the following elements:

- State the research problem, which is often referred to as the purpose of the study.
- Provide the objectives of the study. The objectives identified should be general as well as specific.
- Identify the rationale of the proposed study and clearly indicate why it is worth doing.
- Briefly describe the major issues and sub-problems to be addressed by the research.
- Identify the key independent and dependent variables of the study.
- State the hypothesis of the study, if any.
- Be aware of the limitations or boundaries of the proposed research in order to provide a clear focus.

### Objectives of the study

- Should be stated clearly
- Be clear and concise
- Must be measurable and feasible

### Literature Review

The aim of the literature review is to provide adequate background information on the research being proposed, especially on:

- the prevalence or incidence of disease or health problem
- the current status of selected research topic

It should be brief, and indicate relevant related research that had or is being conducted (references should be included). The review committee is normally aware of the various projects going on.

The literature review serves several important functions:

- Gives credits to those who have laid the groundwork for the proposed research.
- Demonstrates your knowledge of the research problem.
- Demonstrates your understanding of the theoretical and research issues related to your research question.
- Shows your ability to critically evaluate relevant literature information.
- Indicates your ability to integrate and synthesize the existing literature.
- Provides new theoretical insights or develops a new model as the conceptual framework for your research.
- Convinces your reader that your proposed research will make a significant and substantial contribution to the literature (i.e., resolving an important theoretical issue or filling a major gap in the literature).

### Methodology

The Methodology section is very important because it tells your Research Committee how you plan to tackle your research problem. It will provide your work plan and describe the activities necessary for the completion of your project.

For quantitative studies, the method section typically consists of the following sections:

- Study design -Is it a questionnaire study or a laboratory experiment? What kind of design do you choose (descriptive, cross-sectional, case-control)?
- Selection of research location
- Subjects or participants - Who will take part in your study? What kind of sampling method / procedure do you use? You will need to decide on the inclusion and exclusion criteria
- Sample size – you need to calculate your sample size based on the type of study you are conducting. There are several formulas for sample size calculation.
- Study instruments - What kind of measuring instruments or questionnaires do you use? Why do you choose them? Are they valid and reliable?
- Data collection - How do you plan to carry out your study? What activities are involved? How long does it take?
- Data analysis and interpretation – this includes plans for processing and coding data, computer software to be used (eg Statistical Package for Social Sciences / SPSS, EPI-INFO, etc), choice of statistical methods, confidence levels, significance levels etc. It is also convenient to provide dummy tables for the data you plan to analyse from your study.
- Ethical considerations – It is necessary to submit your research proposal to the Ethical Committee where you work and also where you plan to conduct your research. Depending where you are working and the type of research you are planning to conduct, you are required to submit the Ethical Committee Application Approval Form, together with the research proposal, patient information sheet, patient consent form, etc. Special ethical considerations are required if there are

invasive procedures for human subjects, or animal use.

#### Important reminders:

- Make sure the research design or approach is appropriate for the stated objectives
- Do not assume the reviewers are familiar with techniques to be used in your study
- Provide a brief description of the study location, study design and flow of activities

### Plan

Planning for the research proposal should include the time frame and activity schedule for the proposed research.

The time frame should include time for:

- purchasing and obtaining relevant consumables and facilities needed to conduct the study
- conduct of study
- analysis of data
- writing up of project report

The time needed for publication need not be included here.

The activity schedule is essential for effective monitoring of project. It should list the time frame for major activities, and include milestones. A most effective way of plotting the activity schedule is by using the Gantt Chart. (see example below)

Year	2004											
Project (Activities)	J	F	M	A	M	J	J	A	S	O	N	D
1.Planning of research												
2. Literature search												
3. Development of questionnaire												
4. Pre-testing												
5. Training of researchers and research assistants												
6. Data collection												
7. Data entry and analysis												
8. Report writing and presentation												

### Budget

It is essential to request for an adequate budget for the study you are planning to conduct:

- Provide a total and yearly breakdown of the budget needed
- Follow the guidelines provided by the sponsors where you plan on obtaining the grant from
- Give appropriate estimates of costs depending on the different areas, eg: travel and transportation, consumables, salaries, services, rentals, equipment, utilities, repairs, etc.
- Provide adequate justification, especially for costly items

### Example of a budget plan

Project expenses		
Expense Categories and Items	Details	Year RM
1. Temporary and contract personnel Justification:	Salary:	
2. Travel and transportation Justification:		
3. Rentals (J 600) Justification:		
4. Research materials and supplies Justification:		
5. Minor modifications and repairs Justification:		
6. Special services (J 900) Justification:		
7. Special equipment and accessories Justification:		
Total expenses		

### Research team:

- Identify all expertise required for your research
- Include the curriculum vitae (CVs) of all key researchers
- Obtain agreement of participation by team members in writing
- Ensure adequate expertise and spell out responsibilities of each of the researchers

Finally, keep in mind the common errors in proposal writing:

- Objectives too broad or too ambitious
- Objectives do not reflect title of the study or statement of problem
- No literature review or relevant references
- Inadequate information on methodology
- Inappropriate time-frame and schedule of activities – too ambitious
- No justification for Budget – asking for too much or too little

Please note: that all the above recommendations are only suggestions. They do not guarantee a successful research application. They may however, help you prepare a carefully conceptualized and comprehensive proposal. This may not only be important to the members of the reviewer board who have to decide on your application, but also to yourself, by giving yourself a clear structure of your own work, a rough map of where you are going and a time table in which to accomplish your research successfully.

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