

Chapter-19

How to write Synopsis for a Dissertation

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What is Synopsis?

Synopsis (Greek word, sun - together, ophis - seeing) means brief summary of something. It is a structured summary of the planned research project which is written in future tense. Synopsis is the prerequisite and has to be written before the start of the project, while article is the final research project written after the work has been done. It provides the rationale for the research, the research objectives, the proposed methods for data collection and recording formats and/or questionnaires and interview guides. A synopsis should be constructed in a manner that facilitates the reviewer to understand the research project at a glance. It should be brief but precise; most often around 1000 to 1500 word count excluding references and questionnaire is acceptable.

Why to write Synopsis?

- Institutional / Ethical Board Approval
- To apply for funding
- Technical support for different organizations
- Requirement before writing thesis / dissertation

Structure of Synopsis?

Its structure depends upon why the synopsis is written and where to submit. However, technically overall structure remains the same. Few organizations require some more details which

are clearly mentioned in their documents with expected word counts. Here are a generalized guideline which is acceptable for many institutional IRB/ERB approval as well as many other places like RTMC of College of Physicians & Surgeons Pakistan. (CPSP).

Following headings / parts are required for a technically sound synopsis:

- Title
- Author details with affiliation
- Introduction
- Objectives
- Operational Definitions
- Hypothesis
- Methods
- Statistical Analysis
- References
- Gent Chart / Budgeting (if required)
- Data Collection Tool / Questionnaire
- Appendix including informed consent Forms

Title:

This should be brief and self-explanatory. It should relate directly to the main objective of the proposed research. Many

Examples of title:

Undergraduate educational environment of different institutes of Pakistan

researchers write the title similar to objective but this practice should be avoided. Final paper title can be slightly different from the synopsis if required, however the methods of the study and synopsis should remain the same.

Author Details:

Mention all researcher names with qualification, their current position and institute affiliation. Corresponding researcher is clearly mentioned among the list.

Introduction:

Structure of introduction remains the same whether it's of synopsis or final research paper. Although few organizations /

institutes requires more elaborate introduction with review of literature, separate problem statement but mostly its structure

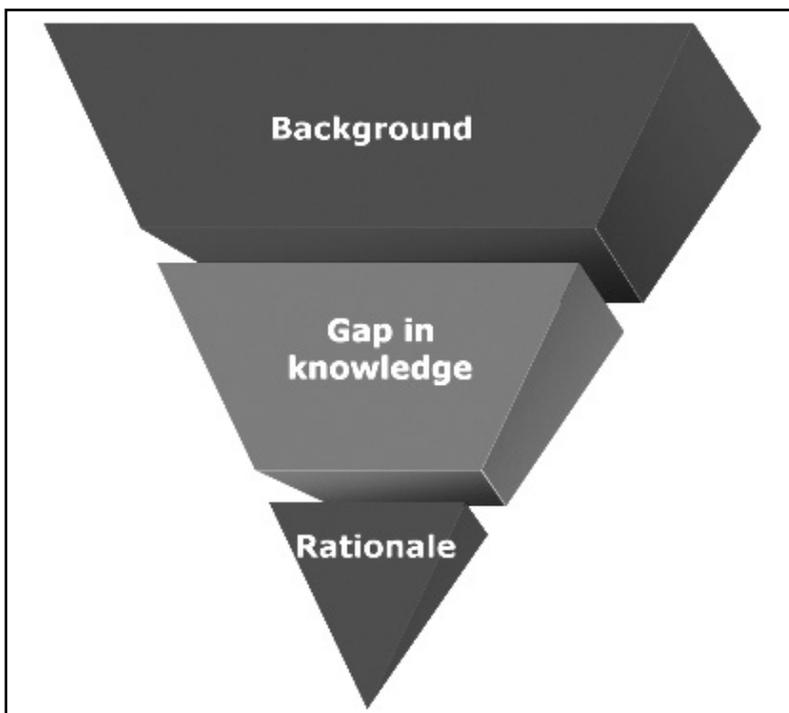


Fig.1: Structure of introduction

follow inverted triangle format (Figure 1). This means starts from generalized to become more specific towards rationale in the end. One can divide the introduction part into three sections; this is for simplicity and understanding, no need to have headings of these sections.

In the first section, brief background of the topic under research should be written. Some recent statistics or historical aspect can be used to introduce the topic. However, one should avoid writing very basic definitions as introduction is for readers of research article.

In the second part, one should write the main problem analysis, set it into context and introduce the particular niche within the main subject area that one will work with. Current gap

in the knowledge in relation to national and international studies should be written. This gap in the knowledge however should be only related to the objectives of the current research project, generalized statement and discussion should be avoided.

Last section is the most important part of introduction where the importance of study must be clearly written, its relevance and applicability of results, this is known as rationale of the study. One common mistake which many new researchers make is to write objective only instead of rationale. The difference is: objectives are what researcher wants to do while rationale is why they are doing this. One must do a good literature search as well as discussion with senior colleagues for proper phrasing of rationale.

Objectives:

These should be identified on the basis of the problem analysis. That means, after reading the problem analysis it should be immediately clear that the choice of objectives is relevant and justified. Each research proposal can contain primary as well as secondary objectives. Objectives should be written in a statement form and must be started with action verbs like; To compare, To describe, To correlate etc. Every objective should be SMART which means

S: Specific

M: Measureable

A: Achievable

R: Realistic

T: Time bound

One must write outcome variable in clearly measureable terms. Some outcomes are very easily measurable like blood pressure, temperature while some subjective outcomes should be measured by validated and reliable tool like quality of life by Short Form 36 (SF36) , pain by visual analog score (VAS).

Operational Definitions:

Exposure and outcome variables of interest in the context to objective need to be defined with their particular means of measurement / determination. It should be remembered that

operational definitions should be used to define terms written in objective only.

Mostly operational definitions need to be written for two types of terms in objective statement.

1. Terms/Score/inventory need to be defined like
Anemia: for the particular study, what level of hemoglobin will be labeled as anemia
Wound healing: There are different classifications of wound healing, state which specific grading method will be utilized for example Southampton wound grading.

Example of Variable Definition:

3. Objective: To compare the educational environment of public and private medical colleges in Pakistan using DREEM inventory

* Operational Definition: In this objective, **DREEM inventory** need to be defined and reference should also be provided.

Example of vague term:

4. Objective: Comparison of **effectiveness** of drug A and drug B for the control of hypertension

5. Operational Definition: In this objective, effectiveness need to be defined what it means in this study, either symptomatic improvement, duration of treatment from start to control of BP or anything else

2. Vague terms:

In objective, if there are such terms like efficacy, outcome, and effectiveness; researcher should define and explain these terms in this section.

Hypothesis:

A hypothesis is a statement showing expected relation between two variables. Not all synopsis need hypothesis but it is needed in the following study designs:

6. Cohort
7. Case control
8. Interventional studies like RCTs and clinical trials

Methods:

This section can be written in one paragraph or alternatively different headings can be given. Remember this section should be written in future tense as you want to describe how you will be performing the study.

Setting:

In which institution, the study will be conducted if its metacentric, all institution names need to be written. Also mention if study will be conducted in any specific department like OPD, emergency department.

Duration:

Expected duration of the study from first subject enrolment to last follow-up visit.

Study Design:

Write specific study design, many researchers still writes prospective or retrospective. Don't write these terms but write whether cross sectional, case control, randomized control trial etc.

Sample Size:

Not only the number of subjects but how you have calculated the number should be written in this section. Give reference study as well which is used to calculate the sample size. Reference study should be local / national study, however if no

Example of sample size calculation with writing:

The sample size is calculated by using statistical software _____. With 80% power of the test and 95% confidence interval. Considering proportions (P1) & (P2) in study and control group (provide reference) the sample size is _____ patients in each group.

such study is available then one can use regional or international study for sample size calculation.

Sampling Technique:

There are different sampling techniques for different study designs. Write specific one, you intend to use in this study for

example: convenience sampling, non-probability convenience sampling.

Sample Selection:

Inclusion criteria: On what bases subjects will be inducted in the study. Informed consent of the subjects of interventional study should also be mentioned here.

Exclusion criteria: On what bases subjects will be excluded from the study. Exclusion criteria are used to control different confounding factors so that results are more valid in relation to specific objectives of the study.

Data Collection Procedure:

A detailed summary of how the researcher will perform research and measure the study variable is written in this section. An example is given here for easy understanding of a simple cross sectional study:

Example:

Consecutive adult patients with symptomatic chronic anal fissure will be enrolled in the study. All patients will undergo a pretreatment evaluation that includes history, general physical examination, and clinical inspection of the fissure, proctoscopy by RMO or postgraduate student. If this is not possible at the first visit because of pain, it will be completed at a subsequent visit. Eligible patients will be assigned randomly to one of the two treatment group. The patients will be advised to apply a pea size (approx. 250-500 mg) quantity of 2% diltiazem or 0.2% GTN ointment by fingertip to the anus (anal verge) twice daily for 8 weeks.

The Patients will be assessed and followed up by clinical examination by RMO or Post Graduate student on two weekly basis for eight weeks. At each follow up, examiner will evaluate the outcome clinically and by use of visual analogue score. The treatment will be considered successful if fissure heals. Persistence of fissure in the absence of symptoms will be considered to be symptomatic improvement.

A Proforma will be used by the examiner to document findings. It will include demographic information, duration of symptoms, severity of pain and headache (visual analogue score), other adverse reactions and fissure healing.

Statistical Analysis:

A properly written statistical analysis simplifies the task for researcher as well as statistician once data is available. In this section, first mention the name of software with version for statistical analysis, most commonly employed software is SPSS (Statistical Package of Social Sciences). Descriptive statistics should be mentioned as it is needed in all types of study designs. Inferential analysis with test of significance (if planned) should be written next. Don't mention generic statement but one should write specific statistics for specific variable of the study. In the end, if one is applying inferential statistics, p value should be mentioned which mostly set at <0.05 .

Example of a simple statistical analysis plan:

Data will be analysed by using SPSS. Frequency and percentages will be computed for categorical variables like gender, symptoms. Mean \pm Standard Deviation will be computed for numerical variables like age, weight, duration of hospital stay. Chi square test will be used to compares relative frequencies of categorical variables (headache) in both groups. Student t-test will be used to compare Mean \pm Standard Deviation of numerical variables (duration of treatment) in both groups. Level of significance will be taken at $p<0.05$.

References:

Around 10-15 relevant recent references (last 5 years) are required for a good synopsis. Make sure to provide some local references as well. As a general rule, out of total reference at least half should be last five years (if not all) and 1/3rd should be local references. Introduction is incomplete without references. However, sometimes in operational definition and sample size calculation as well as method sections references can be given if required. There is different style of reference writing, Vancouver style being one of the most common formats used in medical journals.⁴

Data Collection Tool / Questionnaire:

A copy of data collection tool should be provided after the references.

Appendix:

Informed Consent both in English as well as local language should be provided as appendixes. Any other document which researcher thinks can be helpful for reviewer of synopsis can be provided and appendix, for example patient information sheets, research assistant training material etc.

Other sections:

Some Synopsis for research assistant or grant requires Gantt chart and Budgeting to be written. If these are required, they should be mentioned before the reference section of synopsis.

Conclusion:

Synopsis writing is an important step in a research project. A good synopsis will give maximum information in minimum words. A well-conceived synopsis will go a long way in convincing the reviewer about the ability of the researcher to conduct the project. In cases of need for financial assistance, the request will be considered favorably. Thus, all researchers should make efforts to prepare a well-structured synopsis.

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