Introduction

Describe the dataset

Research Question

Null & Alternative Hypothesis

Visualization

Explain data visualization

Explain what it shows (in our case explain every plot)

Visualizations should be imported into your document as images created by R script; do NOT import screenshots!

Analysis,

describing the statistical analysis used to test your hypotheses, and

what it means.

Conclusion

Describe what analysis means

Or this template below

Commonly referred to as a “lab manual” or “project organization protocol,” a research management document is used to outline expectations for your project team and to keep your project on track. In addition to increasing research efficiency, developing and sharing research and data management best practices for your team will help to foster a climate of diversity and inclusion by creating transparent work practices that provide equal footing for all team members to positively contribute to the research project.

Most people don’t have picture perfect memory, so even solo projects can benefit from creating a manual. Think of this document as a living “readme” file for your project. At the start of the project, it will explain your intended practices; be sure to keep the document updated if you find that particular aspects of your plan require modification.

This document provides a descriptive list of items to help you create a research management plan for you and your team. Consider all of the documentation possibilities presented here, then use your discretion to add/edit/modify to fit your project parameters. Depending on the size and complexity of your project, certain components may require separate and more detailed documentation. For example, data collection protocols may be referenced in a project organization protocol and live as their own stand-alone documents.

**1.** **PROJECT** **OVERVIEW**

**A. Summary** **of** **Research:** In a brief statement describe the research to be performed and the data to be developed. This could include a statement on the source of funding; research design and context; project history; aims and objectives; hypotheses; related publications and research outputs; etc.

**B. Roles** **and** **Responsibilities:** Description of the research team. List team member names and contact information. Include additional details such as team member roles and responsibilities, both generally and specific to data management/organization. Provide information on data ownership and rights. Set guidelines for communication best practices; standards for teamwork and conduct; other general expectations (e.g., work required for publication credit, etc.).

**C. Individual** **Team** **Member** **Documentation:** Detail standards and practices for personal lab notebooks or project diaries. Include information such as documentation responsibilities; ownership of research materials; and sharing policies.

**2.** **PROJECT** **MANAGEMENT** **AND** **ORGANIZATION** **PLAN**

1. **Folders and Files:** Outline the project folder structures and location of files by type and/or stage of development (raw, processed, master, etc.). Set standards for folder or file naming conventions, including for versioning or modifications. Provide guidance on selecting file formats.
2. **Storage and Backup:**  Explain the storage infrastructure and protocols for saving and backup (e.g., scheduling, testing, disposal, etc.). Detail how to handle security considerations, including access rights.

**3.** **DATA** **COLLECTION** **AND** **PROCESSING** **DOCUMENTATION**

1. **Data Collection Methods:** Describe the protocols, procedures, and workflows. List information about tools used such as instruments, hardware, and software. Give details of quality assurance procedures; information recorded about the data collection process itself; use of structured data entry documents (if any).
2. **Data Processing Methods:** Detail the protocols and procedures to clean the data and prepare it for analysis. List the hardware and software used; quality assurance procedures; information to be recorded about the data processing procedure itself.
3. **Metadata:** Provide contextual information about the data needed to discover, understand, and make use of it. Describe alignment with disciplinary standards (if any). Detail how to create or link to codebook or data dictionary which includes variables. Explain coding practices.
4. **Sensitive Data Considerations:** Explain how to adhere to requirements such as anonymization; special storage protections and permissions; disposal regulations. Include IRB considerations and link to/append compliance documents.

**4.** **DATA** **ANALYSIS** **DOCUMENTATION**

1. **Data Analysis Methods:** Describe the protocols, procedures, and workflows. List information about tools used such as hardware and software. Give details of quality assurance and quality control procedures; information recorded about the data analysis process itself (e.g., techniques, etc.).
2. **Dataset Versioning:** Outline how to provide clear identification and definition of versions; including distinction between versions.
3. **Master Dataset Rules:** Explain the designation of the master dataset. Describe protocols for using the master dataset.