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Learning Objectives

- Describe a qualitative analysis and a quantitative analysis.

- List the evaluation steps for an article published in the JDE.

- Recall the submission process for learner attitudes and behavior studies.

Introduction

Romesh P. Nalliah, D.D.S., M.H.C.M.
Associate Dean for Patient Services, Clinical Professor
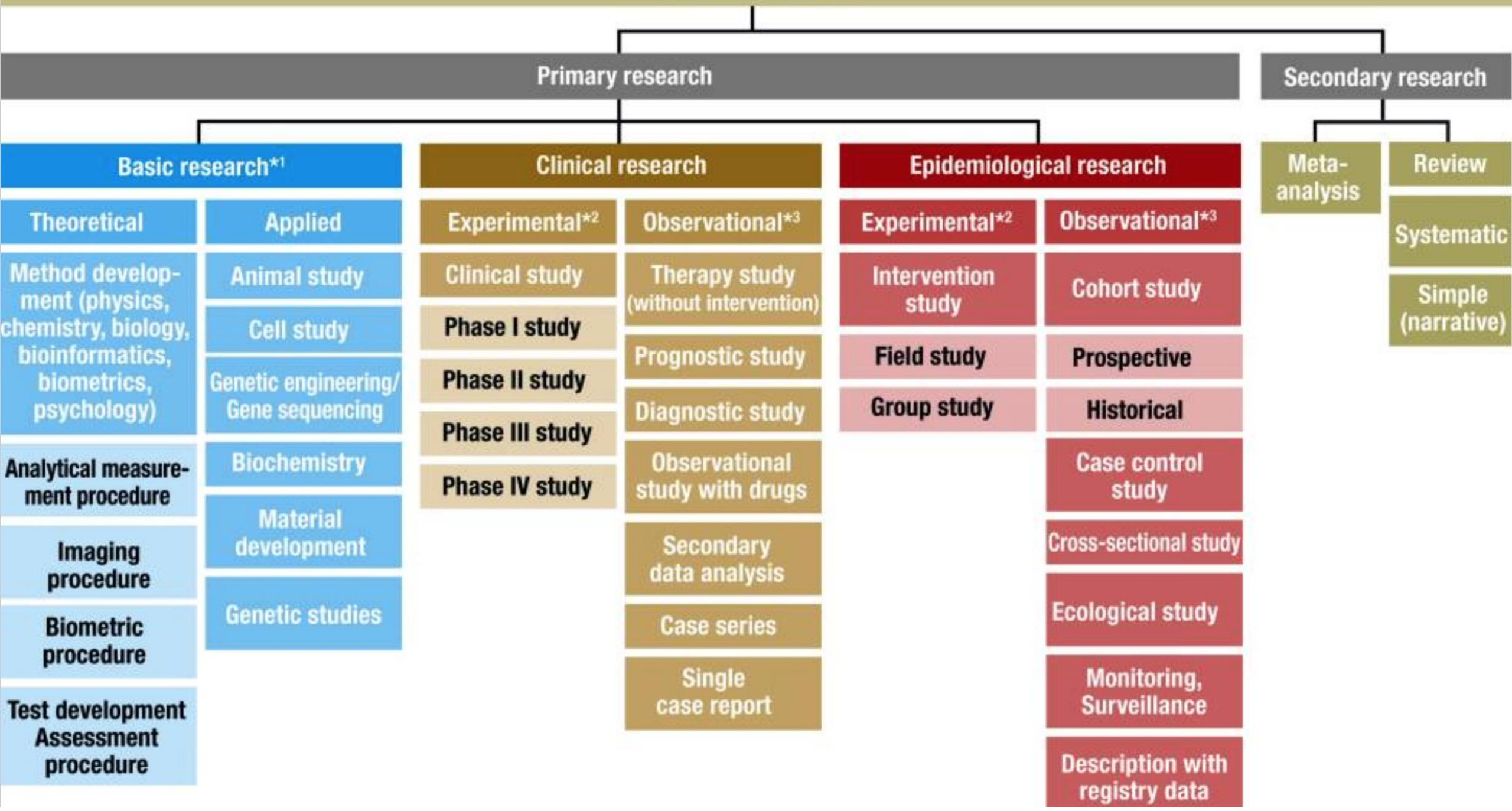University of Michigan School of Dentistry
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Case Study

Commentary

Conference Notes

Editorial/Commentary

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Medical research

Primary research

Basic research[*1]

Theoretical
- Method development (physics, chemistry, biology, bioinformatics, biometrics, psychology)
- Analytical measurement procedure
- Imaging procedure
- Biometric procedure
- Test development Assessment procedure

Applied
- Animal study
- Cell study
- Genetic engineering/ Gene sequencing
- Biochemistry
- Material development
- Genetic studies

Clinical research

Experimental[*2]
- Clinical study
- Phase I study
- Phase II study
- Phase III study
- Phase IV study

Observational[*3]
- Therapy study (without intervention)
- Prognostic study
- Diagnostic study
- Observational study with drugs
- Secondary data analysis
- Case series
- Single case report

Epidemiological research

Experimental[*2]
- Intervention study
- Field study
- Group study

Observational[*3]
- Cohort study
- Prospective
- Historical
- Case control study
- Cross-sectional study
- Ecological study
- Monitoring, Surveillance
- Description with registry data

Secondary research

Meta-analysis

Review
- Systematic
- Simple (narrative)

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

MIXED METHODS: 0.73%

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

BLINDED: 0.78%

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

RANDOMIZED: 2.2%

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

QUALITATIVE: 5.3%

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

QUESTIONNAIRE: 43.0%

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

SURVEY: 44.1%

Key Words From Methods Sections of Accepted articles (Jan 2013 – Dec 2023)

- Among accepted articles, RANDOMIZED appeared in 42 out of 1917 articles (2.2%).

- Among rejected articles, RANDOMIZED appeared in 5 out of 4579 articles (0.11%).

Qualitative research is the naturalistic study of social meanings and processes, using interviews, observations, and the analysis of texts and images. The goal of qualitative research is to understand participants' own perspectives as embedded in their social context.

In contrast to quantitative researchers, whose statistical methods enable broad generalizations about populations (for example, comparisons of the percentages of U.S. demographic groups who vote in particular ways), qualitative researchers use in-depth studies of the social world to analyze how and why groups think and act in particular ways (for instance, case studies of the experiences that shape political views).

https://guides.library.stanford.edu/qualitative_research
https://www.mcgill.ca/mqhrg/resources/what-difference-between-qualitative-and-quantitative-research

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Why Do We Need Qualitative Research?

- Numbers don't tell the whole story.
- Qualitative Research occurs within the "natural setting".
- Greater understanding of perceptions, culture and impact of interventions.
- Well-suited to study of relevant topics in HCE, such as team-based care, climate in the class, student engagement, professionalism, understanding of SDOH, etc.
  - Explore social process and human experience.
  - Ask about what, why and how.
  - Seek to explore and explain.

"Not everything that can be counted counts and not everything that counts can be counted."

—Albert Einstein

Cristancho SM, Goldszmidt M, Lingard L, Watling C. Qualitative research essentials for medical education. Singapore Med J. 2018 Dec;59(12):622-627. doi: 10.11622/smedj.2018093. Epub 2018 Jul 16. PMID: 30009321; PMCID: PMC6301871.

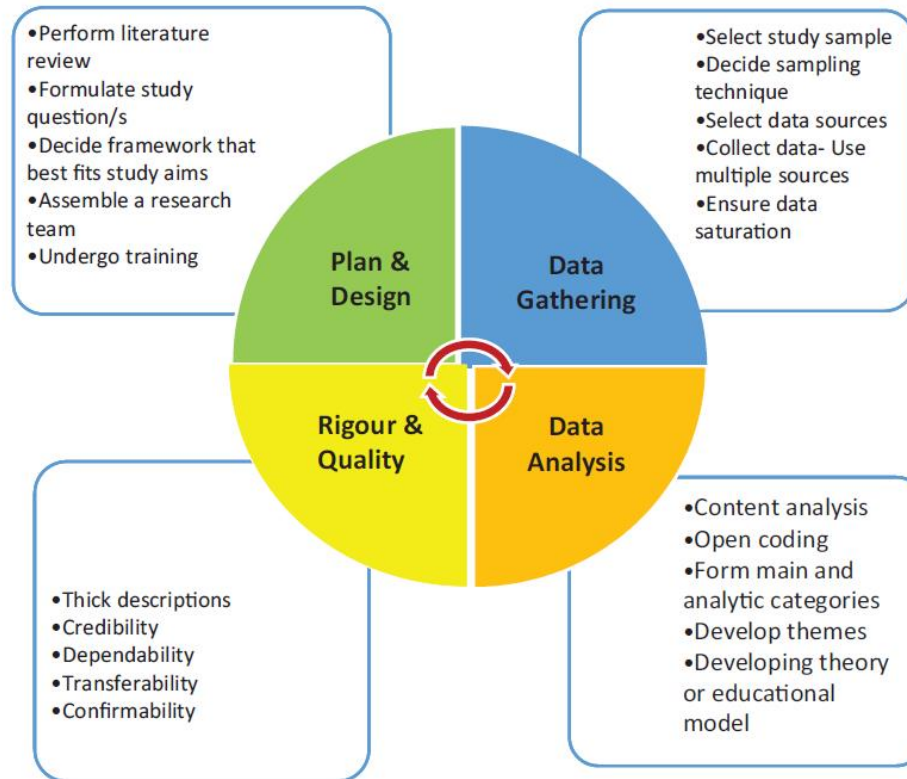**Discourse analysis**: Analyzing language

Grounded theory: Developing a thorough analysis of data

Qualitative Research Methodologies

Ethnography: understanding of group membership

Phenomenology: Understanding how individuals make meaning

Four Critical Steps in Qualitative Research Design

Subha Ramani & Karen Mann (2016) Introducing medical educators to qualitative study design: Twelve tips from inception to completion, Medical Teacher, 38:5,456-463, DOI:10.3109/0142159X.

Comparisons of Quantitative and Qualitative Research

	Quantitative	Qualitative
Epistemology	Objectivism	Constructivism
Theories of knowledge	Positivism, postpositivism	Postmodernism, interactionism, critical theory, etc.
Objectives	Correlations, cause and effect, deductive, theory testing	Understanding of individual and context, inductive, theory building
Questions	What? Why (cause)? How (mechanism)?	Why (explanation)? How (process)?
Methodologies	Experimental or quasi-experimental	Grounded theory, ethnography, phenomenology
Methods	RCTs, surveys, statistical analysis	Observations, interviews, focus groups, narratives, etc.
Researcher	Detached, unbiased, "blinding"	Situated, influences research analysis, "reflexivity

Comparisons of Quantitative and Qualitative Research

QUANTITATIVE

- Assumes there is a **single reality.**
- **Test and confirm** hypotheses.

DEDUCTIVE
- **Highly structured** methods like questionnaires, inventories and scales.
- Predetermined and **rigid design**.
- Concerned with the outcomes/**causal relationships**.
- Rely largely on **random sampling** methods.
- Variable based and use of statistical or mathematical methods.

QUALITATIVE

- Assumes existence of dynamic and **multiple reality.**
- **Explore and understand** phenomena.
- **Semi structured** like in-depth interviews, observations and focus group discussions.
- Flexible and **emergent design**.

INDUCTIVE
- Concerned primarily with **process**, rather than outcomes or products.
- Based on **purposive sampling** methods/Small sample size but studied in-depth.

Renjith V, Yesodharan R, Noronha JA, Ladd E, George A. Qualitative methods in healthcare research. Int J Prev Med 2021;12:20.

Trustworthiness in Qualitative Research

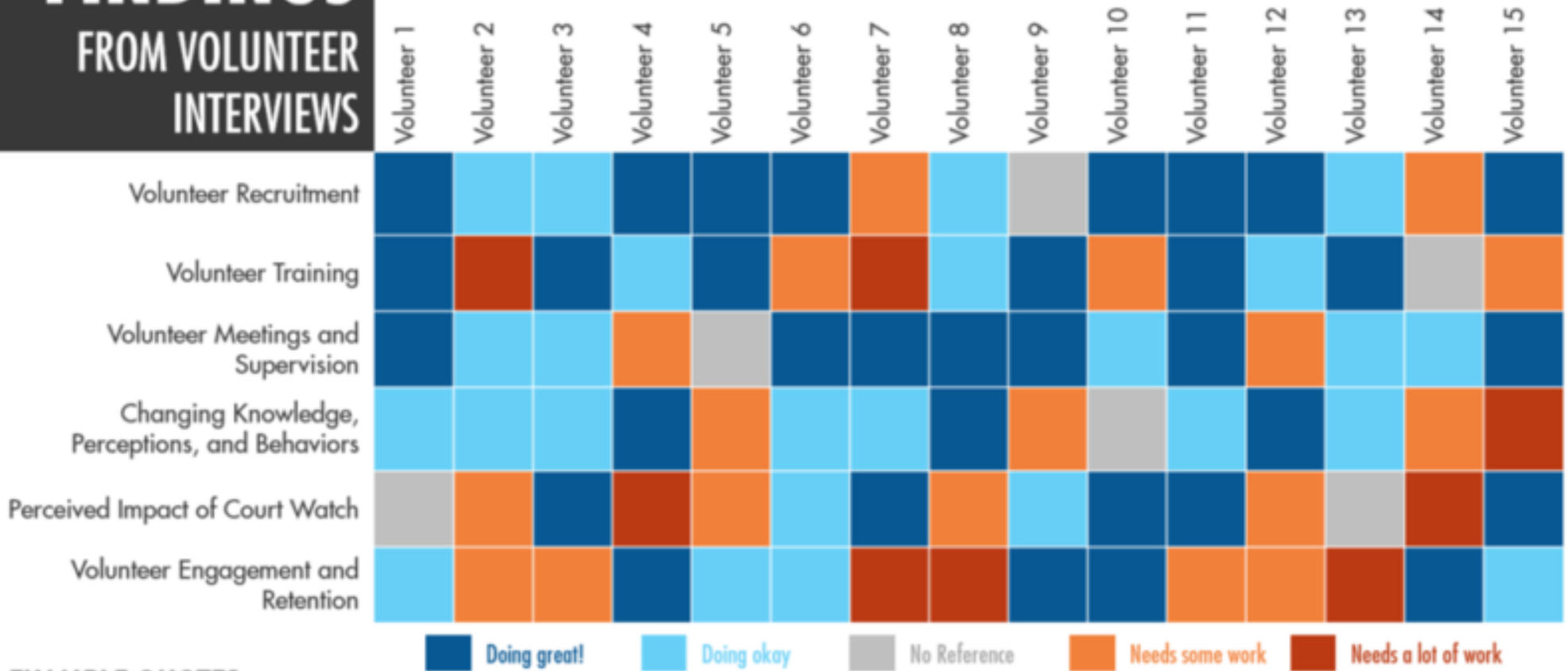CREDIBILITY

TRANSFERABILITY

DEPENDABILITY

CONFIRMABILITY

REFLEXIVITY

1. Lincoln YS, Guba EG. Naturalistic inquiry. California: Sage Publications; 1985.
2. Korstjens I, Moser A. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. Eur J Gen Pract. 2018 Dec;24(1):120-124. doi: 10.1080/13814788.2017.1375092. Epub 2017 Dec 5. PMID: 29202616; PMCID: PMC8816392.

FINDINGS
FROM VOLUNTEER INTERVIEWS

	Volunteer 1	Volunteer 2	Volunteer 3	Volunteer 4	Volunteer 5	Volunteer 6	Volunteer 7	Volunteer 8	Volunteer 9	Volunteer 10	Volunteer 11	Volunteer 12	Volunteer 13	Volunteer 14	Volunteer 15	OVERALL FINDING
Volunteer Recruitment																Most of the volunteers felt that the program was very clearly described and that they had a good sense of their role.
Volunteer Training																The majority of the volunteers had very positive feedback about the volunteer training.
Volunteer Meetings and Supervision																The volunteers had extremely positive feedback on the formal and informal meetings.
Changing Knowledge, Perceptions, and Behaviors																The greatest impact of volunteering with the program was increased knowledge of the criminal court system.
Perceived Impact of Court Watch																Volunteers had widely varying perceptions of the amount of impact of the program.
Volunteer Engagement and Retention																The volunteers reported different levels of engagement over their tenure as volunteers.

Legend: Doing great! · Doing okay · No Reference · Needs some work · Needs a lot of work

EXAMPLE QUOTES

"I like being informed and seeing a different part of the world that on my daily basis I don't see and I hope I never have to see. You get a better appreciation of how things happen."

One volunteer shared how they felt more engaged in the program over time, as they've become more involved, and that "I have a real sense of being part of my community's efforts to maintain justice for all."

One student thought that the program director spent too much time reviewing what they saw in the courtroom; "we were outside the courtroom for 30 minutes. It was overkill, could have been 2 minutes."

One volunteer reflected how they "weren't prepared for hostility some of the judges feel, and how you're treated by the court like the enemy." They thought the court was not very not user-friendly.

Reviewing Qualitative Research

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Robustness of Research

- Validity in qualitative research means "appropriateness" of the tools, processes, and data.

- In quantitative research, reliability refers to the replicability of the processes and the results.

Leung L. Validity, reliability, and generalizability in qualitative research. J Family Med Prim Care. 2015 Jul-Sep;4(3):324-7. doi: 10.4103/2249-4863.161306.

Philosophical Underpinning

Has the philosophical approach been identified?

Why was this approach chosen?

Have the philosophical underpinnings of the approach been explained?

Are the authors building new theory or elaborating an existing theory?

Methods

Who collected the data?

Who transcribed it?

Evaluate the appropriateness and rigor of the data collection methods (e.g., interviews, focus groups, observation, document analysis).

Check for a thorough description of data collection, including any tools or protocols used.

Example of Reviewer Comments

Comment: Please clarify this sentence 'All interviews were recorded and transcribed verbatim by a third party.' Were BOTH the interviews and the transcription done by a third party or just the latter? If so, were the interviewees informed that a third party would listen to their interactions?

Response: Two members of the research team conducted and recorded the interviews, and a third party did the transcription. Prior to the interviews, the interviewees were informed about this and were told that confidentiality would be maintained by not revealing names, and the results of the interviews would be compiled as a whole and not individually.

Sampling

- Purposive Sampling
- Convenience Sampling
- Snowball Sampling
- Theoretical Sampling

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Example of Reviewer Comment

Comment: Your report described a recruitment process determined a priori and interview length constrained by dentists' availability.

Response: We have used a snowball method for recruitment (provided a citation), which is an accepted and commonly used method for qualitative research. Saturation was reached within the seven interviews that were conducted.

Anonymity of Participants

**Comment:** What is the breakdown of the six faculty (leadership position vs. clinical)?

Response: Qualitative research provides an amalgamation of the thoughts, perceptions, and views of the participants, and thus, the participants are always anonymous, as in all research.
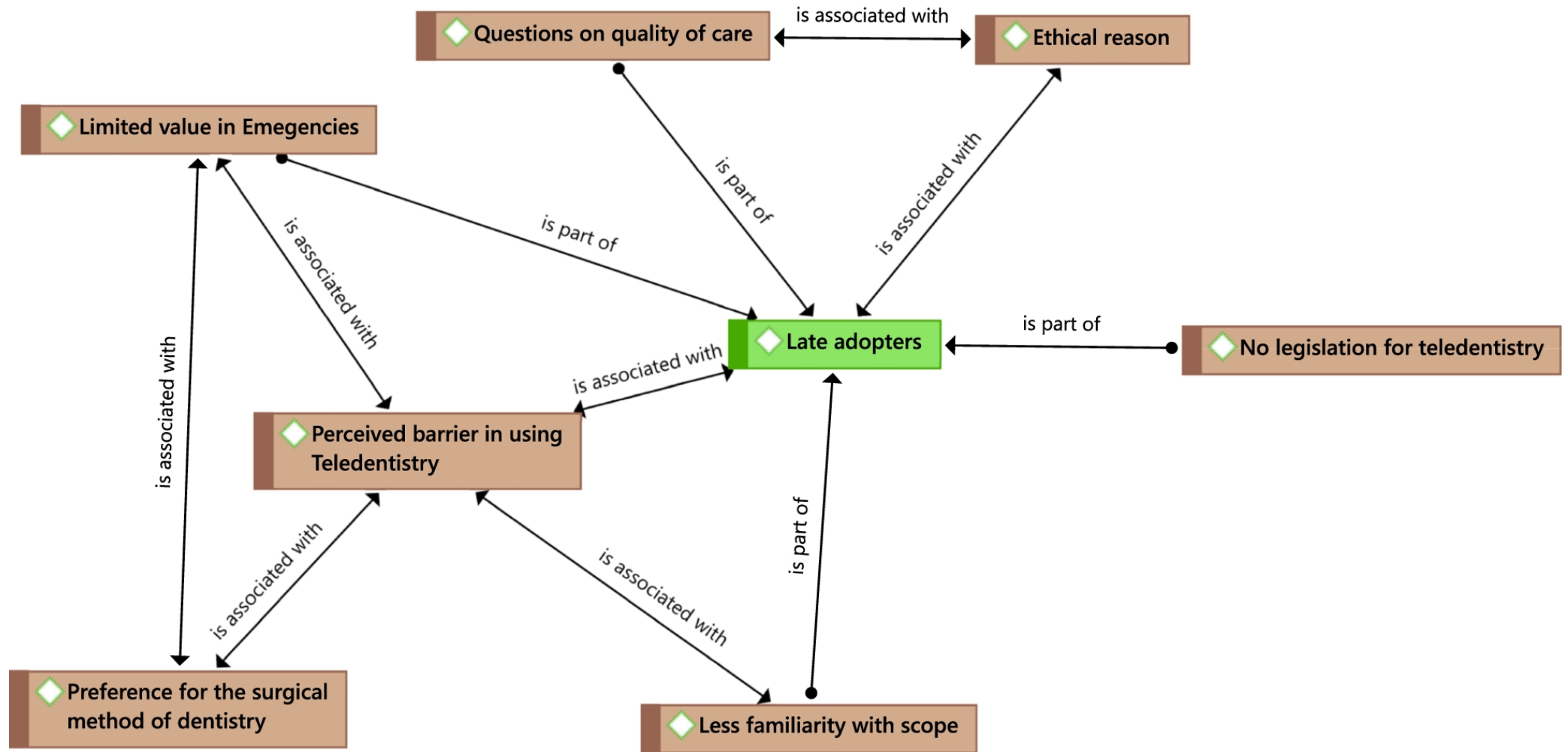
Results

- How did the author get from data to findings?
  - Telling about data and not showing it.

https://www.alanapirrone.com.au/blog/2020/7/30/7-ways-to-display-qualitative-data
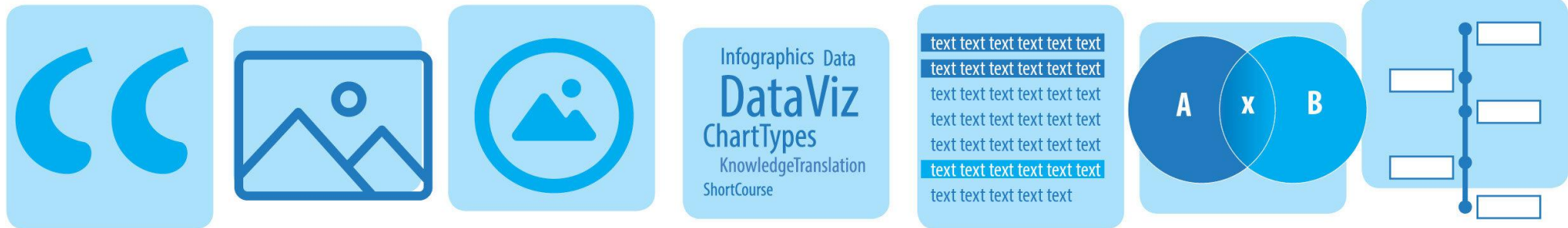
Tiwari T, Diep V, Tranby E, Thakkar-Samtani M, Franstve-Hawley J. Dentist perceptions about the value of teledentistry. BMC Oral Health 22, 176 (2022).

Themes and Code Groups

Themes	Codes Groups
i. Population Served by the SBHC-SBOH Program	• Uninsurable communities • Children who have low utilization of care • High disease burden • Predominantly a Hispanic or Spanish-speaking • Oral health disparities seen • Serving mostly low-income communities • Communities that have food insecurity
i. Barriers to Implementation of Oral Health Program	• Requirement by the funder • Challenges with schools • Staffing issues, both dental and non-dental • Electronic health records as a barrier to integrated care • Turnover of staff • Value of oral health services
i. Facilitators and Measurement of Success	• Collaboration with teachers and students • Collaborations with other clinics for specialized services • Future scope – onsite services and integrating physical, oral, and behavioral health • Future services – expanding space, infrastructure, and equipment • Interprofessional collaborations
i. Success in the Implementation of the SBHC-SBOH Program	• Establishing/providing a dental home for students • Reducing the need for surgical/restorative services • Increasing the number of children seen

Analysis Elevated Beyond Description

- Are the authors telling a story?

Think of each theme as a character in a story. Who is the central character or protagonist? What obstacles does the protagonist face? What does the protagonist hope to accomplish? This exercise helps a writer distinguish "figure" from "ground."

Consider the significance of the research for practice, policy or further research. Reflect on the potential for the study to contribute to theory development or to challenge existing theories.

Rigor (Trustworthiness)

- Rigor is the means of demonstrating the plausibility, credibility, and integrity of the qualitative research process. The rigor, or trustworthiness, of a study may be established if the reader is able to audit the actions and developments of the researcher.

- Rigor in documentation

- Procedural rigor

- Ethical rigor

Ryan F, Coughlan M, Cronin P. Step-by-step guide to critiquing research. Part 2: Qualitative research. British journal of nursing. 2007 Jan 28;16(12):738-44.

Proof of an Iterative Process

- Did they submit the interview guide in the supplemental documents?

- How did they make the interview guide?

- How many people coded the data? How did they reach a consensus?

- Did they have any interrater reliability?

Thank you!

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