Use of grounded theory in medical research

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Medical research

Scientific Method

Big data
Registries
Clinical trials
Longitudinal studies

Big ideas
Hypothesis driven
Surveys
Observational trials
Role of Qualitative research in the medical literature
Inductive vs. deductive approaches

**Deductive**
- Hypothesis driven
- Quantitative
- Basic on logic and fact
- Good when a lot is known
- Common in medical research

**Inductive**
- Used to form explanation or theory
- Qualitative
- Based on observation
- Good when little is known
- Rare in medical research

**Researcher tests or verifies a theory**

**Researcher tests a hypothesis from the theory**

**Researcher defines and operationalizes variables**

**Researcher measures variables using an instrument**

**Researcher looks for patterns, or theories**

**Researcher analyzes data into themes or categories**

**Researcher asks open ended questions**

**Researcher gathers information**

**Generalizations, or theories are developed**
Topics in healthcare where more information is needed:

- Medication adherence
- Health literacy
- Preventing readmissions
- Navigating the healthcare system
- Use of digital tools
- Motivation, engagement and behavior change
What is health literacy?

Healthcare professionals

Education

Blood pressure

Decision making

Health Literacy

Numeracy

Diabetes

Communication

Chronic conditions

Linguistics

Trusted sources

Knowledge

Connected health devices

Apps

PROSE

Social networking

Health apps

Navigation

Heart disease

Heart failure

Cholesterol

Print

Wearables

Digital tools & technology

Personalized, interactive, social, & relevant
Why use grounded theory in medical research?

- Grounded theory goes beyond the description of the phenomena to a theoretical explanation – or theory

- The theory or model can be used to better understand the process and actions, including:
  - the sequence of activities
  - including actions by people
  - including interactions by people

- leading to better hypotheses, tools, and interventions
Key Characteristics of Grounded Theory Design

- Theoretical sampling
- Simultaneous collection and analysis of data
- Constant comparison
A Brief History of Grounded Theory Designs

• 1967 Glaser and Strauss book *Discovery of Grounded Theory*
• Glaser, 1992, *Basics of Grounded Theory Analysis*
• 1990, 1998, 2008, & 2015 Strauss & Corbin; *Basics of Qualitative Research*, a prescriptive form with predetermined categories and concerns about reliability and validity
• 2000, 2008, & 2014 Charmaz introduces *Constructing Grounded Theory*, a “Constructivist” method
• 2005 Clarke introduces *Situational Analysis: Grounded theory after the postmodern turn*, a “Post-Modern” method
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Types of Grounded Theory Design:

- **Emerging design:** A theory is grounded in the data and not forced into categories – Glaser
- **Constructivist:** Theorist explains feelings of individuals as they experience a phenomenon or process- Charmaz
- **Systematic:** More structured process using open, axial, and selective coding-Strauss (and Corbin)
Use of grounded theory in medical research
Medical researchers are trained in the scientific method

✓ The Corbin and Strauss interpretation of grounded theory is more structured;
✓ While this may be limiting to some, it is the one most likely to be accepted by a medical researcher
Understanding Health Literacy Skills of Patients With Cardiovascular Disease and Diabetes
Grounded Theory

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- Patients
  - Interviews
    - Analytic memos
      - Theoretical Sampling
        - Data
          - Deduction
            - Validation
            - Inductive elaboration
          - Constant comparison
            - Theoretical saturation
              - Theoretical explanation
            - Open
              - Coding
                - Selective
              - Axial
Theoretical Sampling

Clinical sources
- Primary care
- Cardiology

Online sources
- Patient Centered Programs
- Social networking

Diagnosed with cardiovascular disease or diabetes?

Within past year?

Yes

Heart disease
- Heart failure
- Hypertension
- Lipid disorder
- Diabetes
Data collection/Data analysis

Patient interviews  Healthcare provider interviews  Observation of individual and group education

Deduction  Deduction  Deduction

Inductive elaboration  Inductive elaboration

Validation  Validation  Validation

Data  Data  Data

Open coding  Axial coding  Selective coding

Corbin & Strauss (2007)
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Constant Comparison Procedures in Grounded Theory

- Raw data
  - Interviews
  - Memos
- Transcribed
- Open Coding
- Code A
  - Code B
  - Code C
  - Code D
- Category A
  - Category B
  - Category C
- Theme A
  - Theme B
- Theory
Data from interviews was transcribed into a Word document and uploaded to MaxQDA.

Resources and technology
Programs and interventions
Categories generated from Codes
Teaching methods
Influencers
Emotions and behaviors
Personalized

Coding approach was process and evaluation coding.

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Axial Coding

Causal Conditions
Heart disease
Heart failure
Hypertension
Dyslipidemia
Diabetes

Phenomena
Development of knowledge and skills

Intervening Conditions
Emotional state
• Stages of loss
Influencers
Behavioral approach
• Readiness for change
• Hierarchy of needs

Context
Support system
Access to resources and technology
Format

Strategies
Support system
Programs and interventions
Traits
• Personalized
• Relevant
• Interactive

Consequences
Healthy distrust
Self-directed
Personal experience
Tech confusion
Digital divide
Confidence
Reduced anxiety

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Theoretical explanation: Health literacy instructional model

1. New Diagnosis
   - Emotional support
     - Not Good
     - Address emotional state
   - Good
     - Behavioral approach
       - Yes
       - Find social support system
       - Instructional Strategy
         - Instructional
         - Technology
       - No
       - Provide social and emotional support
Implications?

What is needed?

- Better understanding of the relationship between social and emotional support and health literacy
- Development of more effective tools and programs
- Development of more effective strategies for healthcare professionals
- Need for better options for unmotivated, non-self-directed learners – leaving no patient behind.
Criteria for Evaluating a Grounded Theory Design

- Are the categories based on the data?
- Has enough data been collected for dimensions to emerge and for saturation to occur?
- Does the theory emerge from the data?
- Does the theory provide an explanation of the process?
- Can the theory be modified as conditions change?
- Has the theory been validated?
Thank you! Questions?

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