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## WP 2.2.

Strengthening nursing research methodology  
“Advanced qualitative methods in nursing I”

# Analysis of qualitative research data: Qualitative content analysis

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# Learning outcomes of the lectures

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- ❑ Understand the purpose of the use for qualitative content analysis
- ❑ Be familiar with the different approaches for qualitative content analysis
- ❑ Possess knowledge and skills in conducting an inductive qualitative content analysis

# Development of qualitative content analysis

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- Initially used as a quantitative description of the manifest content of communication - newspaper and magazine articles, speeches, hymns
  - "truth" in the text can be revealed with little interpretation – measuring, weighing, counting frequencies and proportions of similar statements
- Over time a qualitative approach undergone comprehensive development to include interpretation of latent content
- Used in nursing, psychology, sociology, communication, journalism, business

(Elo & Kyngäs 2008; Graneheim & Lundman 2004; Lindgren et al 2020)

# Qualitative content analysis

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- To describe human experiences and perspectives
- To analyze qualitative data from various kinds of interviews, observations and any kind of written material
- Requirement: the data are unstructured or half-structured
- The chosen informants or data source have the best possible knowledge of the research subject

(Kyngäs et al 2020)

“The data and interpretation is a co-creation of the interviewee and the interviewer” (Graneheim et al 2017)

# Several phases of a qualitative content analysis

## 1. Planning/preparation

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- **Before** starting data collection → What do you want to find out? From whom? How?

Consider

- The aim – determines the structure of the study, sets its boundaries – not too broad!
- Choose sample - representative to the context
- Unit of analysis – most suitable whole interviews or observational protocols
  - large enough to be considered as a whole, small enough to be kept in mind
  - too large; makes the analysis process difficult - too small may result in fragmentation

(Bengtsson 2016; Graneheim & Lundman 2004; Graneheim et al 2017; Lindgren et al 2020)

# 1. Planning/preparation

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Consider...

- Methods of data collection - what to analyze
  - Interviews, focus group interviews, narratives, open-ended questions, observations, films
  - The choice of data collection method affects the depth of the analysis
- Methods of data analysis
  - In what detail, how deep will you reflect the respondents' statements about a subject? – will affect the number of informants needed, and how data are going to be collected
  - Inductive, deductive, or abductive approach?
  - Manifest or latent data analysis?
- Ethical considerations must be discussed – ethical approval

(Bengtsson 2016; Graneheim & Lundman 2004; Graneheim et al 2017; Kyngäs et al 2020; Lindgren et al 2020)

## 2. Analyzing the data material

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- Written data material - conducting and transcribing interviews verbatim
- No systematic rules for the analysis - a discussion between the researcher and the data material
- Several phases to follow
- **Familiarizing with the text**
  - Read through the transcribed text/data material several times keeping the aim in focus
  - Make sense of the data - obtain a sense of the whole – learn “what is going on”
  - Who is telling?
  - Where is it happening?
  - When did it happen?
  - What is happening?
  - Why?

(Bengtsson 2016; Elo & Kyngäs 2008; Elo et al 2014; Graneheim & Lundman 2004; Graneheim et al 2017; Kyngäs et al 2020)

# Analyzing the data material – different approaches

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Choose data  
analysis method

**Inductive**

**Deductive**

**OR**

**Abductive**

(Elo & Kyngäs 2008; Graneheim & Lundman 2004;  
Graneheim et al 2017)

## 2. Analysing the data material Manifest or latent analysis?

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How rich is the collected data material?

→ Manifest analysis

- *What the text says*
- Close to the text, uses the words themselves
- Describes the visible, obvious components, the content
- More concrete descriptions and interpretations

OR

→ Latent analysis

- *What the text talks about*
- More distant from the text, relationships
- Involves an interpretation of underlying meaning of the text
- More abstract descriptions and interpretations
- Also to notice silence, sighs, laughter, postures etc. during interviews

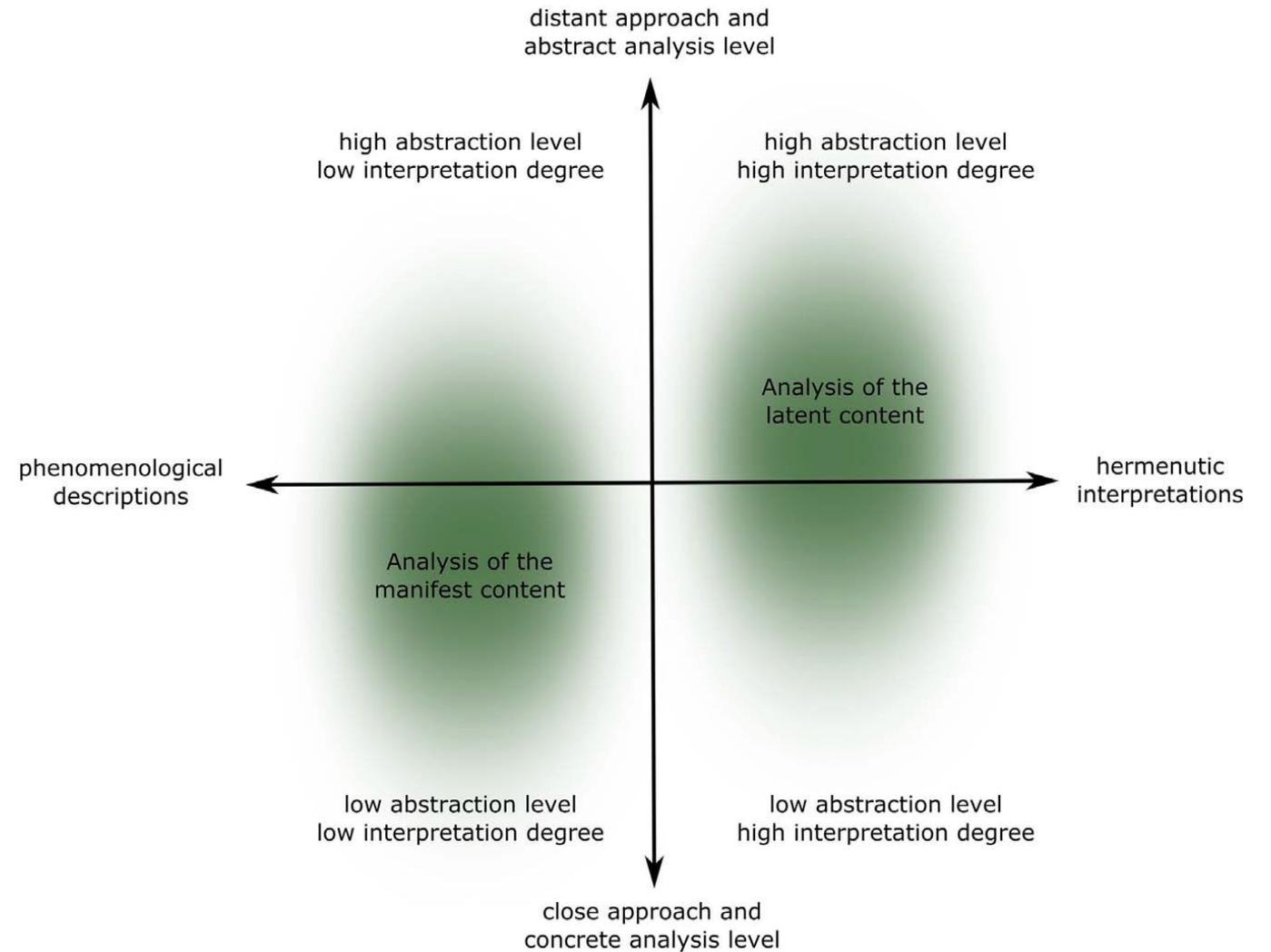
## 2. Analysing the data material

### Manifest or latent analysis?

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- Both manifest and latent analysis deals with interpretation - varying in depth and level of abstraction depending on the data material
- No description is free from interpretation
- Analyzing manifest and descriptive content → categories
- Analyzing latent and interpretative content → themes

# Abstraction levels and interpretation degree



(Graneheim et al, 2017)

# Example of manifest analysis

Table 1. Example of a description in the data analysis.

*The aim of this study was to describe nurses' experiences (> two years) of caring for dying patients in surgical wards.*

Meaning unit	Condensed content	Coding	Subcategory	Category
<b>I started to work in the early morning, and relatives came and said it looks like he has a fear of death ... I looked at him, and he looked very worried. I felt, I have to enter this caring process immediately.</b>	Work early morning, relatives and patient worried, immediately entered the caring process	Immediate care	Being sensitive	Caring — to be involved

Andersson et al. (2016) To be involved — A qualitative study of nurses' experiences of caring for dying patients

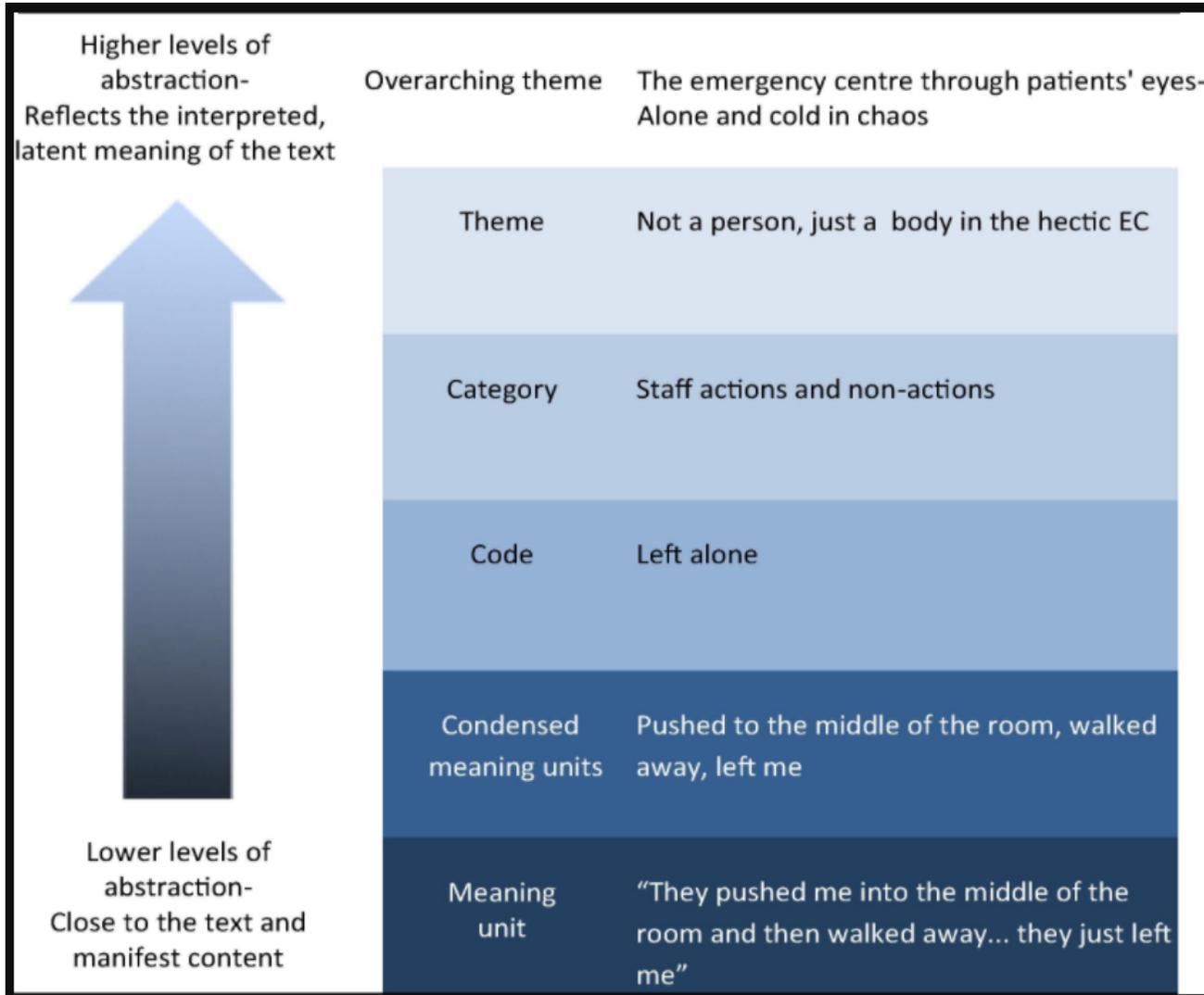
# Example of latent analysis

Table 1. Example of the process of analysis

Meaning unit	Condensed meaning unit	Code	Subcategory	Category	Theme
You know that they are lying. That's a part of their disorder that not everything they say is true	Lying is a part of the disorder	Patients' lies	Avoid being manipulated	Protecting oneself	The two-tailed vigilance
If you have the person's narrative it becomes something else than just having the fragments you can observe when they are here... what was it like before... and how it is between episodes	The narrative facilitates understanding of the whole person	Narratives as means for understanding	Account for patients' narratives	Safeguard the healthy	

***“This study aimed to describe how nurses’ working in inpatient psychiatric care experience caring encounters with patients suffering from substance use disorder”***

Johansson & Wiklund-Gustin (2016) The multifaceted vigilance – nurses’ experiences of caring encounters with patients suffering from substance use disorder



## Example of analyzing from manifest to latent content

described by Erlingsson & Brysiewicz 2017

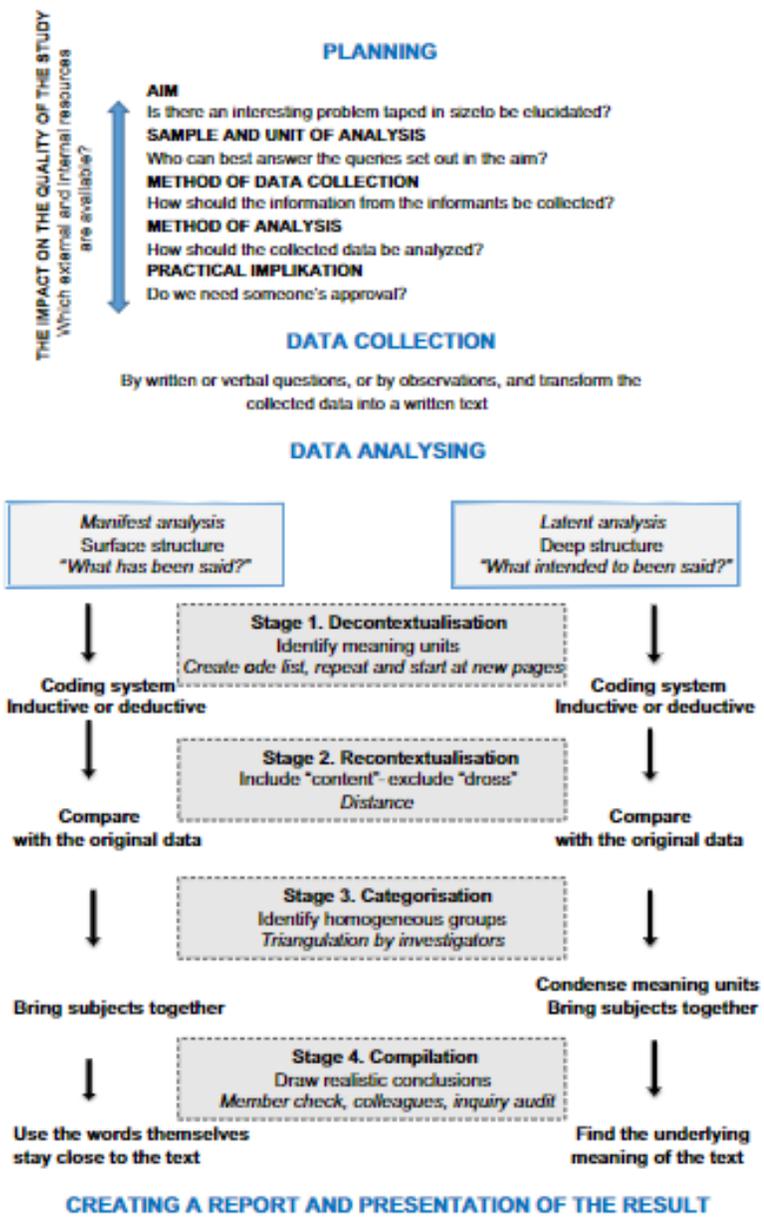


Fig. 1. An overview of the process of a qualitative content analysis from planning to presentation.

# The process of manifest or latent content analysis

(described by Bengtsson, 2017)

## 2. Analyzing the data material

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- **Creating meaning units**
  - A constellation of words, sentences or paragraphs containing aspects related to each other through their content, context and same central meaning
  - Can consist of more than one sentence and contain several of meanings
  - The smallest unit that contains some of the insights the researcher needs to answer the research question
  - Check the meaning units – have all the aspects of the content been covered in the relation to the aim?
    - Re-read the original text alongside with the meaning units
    - Is each meaning unit related to the research question?

## 2. Analyzing the data material

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- **Condensation of the meaning units**
  - Shortening the text keeping the core and central meaning intact
  - Still conveying the essential message of the meaning unit
  
  - Condensed into a description close to the text – manifest content
  - Or condensed into an interpretation of underlying meaning - latent content
  
- Abstraction on a higher logical level into codes, categories and themes on varying levels

(Bengtsson 2016; Erlingsson & Brysiewicz 2017; Graneheim & Lundman 2004; Graneheim et al 2017; Kyngäs 2020)

# Example of condensation of meaning units

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## Meaning units (Condensations)

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- Well, ok, where to start, that was a bad day in my life (*It was a bad day in my life*)
- And it started so much the same as any other day. Right up until I was in that car crash! (*Ordinary day until the crash*)
- I still have nightmares about the sound of the other car and the lady screaming (*Nightmares about sounds of the crash*)
- I can't get the sound out of my head! (*Can't get the sound out of my head*)
- it is a crazy place there. Do you know...do you work there? (*Emergency Centre is a crazy place*)
- Well the people in the ambulance, when they had me in the ambulance they were looking worried, they kept telling me “there was lots of blood here” (*Ambulance staff looked worried about all the blood*)

(Erlingsson & Brysiewicz 2017)

# 2. Analyzing the data material

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## ■ Coding process

- Each meaning unit is labelled with a short code – 1-3 words
- Close to the data with very limited interpretation of content
- The codes should be understood in relation to the context – clear connection between each code and the raw data
- The codes allow the data to be thought about in new ways
- A coding list should be used – explanations of the codes
- Add identification notes to each code, where to find them in the text – every code has to be checked before grouping them into sub-categories
- Comparing similarities and differences between the codes

(Bengtsson 2016; Erlingsson & Brysiewicz 2017; Graneheim & Lundman 2004; Graneheim et al 2017; Kyngäs 2020)

# Example of coding

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Table 3. Suggestions for coding of condensed meaning units.

Meaning units condensations	Codes
It was a bad day in my life	The crash
Ordinary day until the crash	The crash
Nightmares about the sounds of the crash	The crash
Can't get the sound out of my head	The crash
Emergency Centre is a crazy place	Emergency Centre is crazy
Ambulance staff looked worried about all the blood	In the ambulance

(Erlingsson & Brysiewicz 2017)

# 2. Analyzing the data material

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## Categorisation

- Creating categories is the core feature in qualitative content analysis – to provide ways of describing the phenomena
- Created through abstraction
- Codes which seems to belong together are sorted into categories
- Answer to "What?", "Who?", "When?" or "Where?"
- A heading of a category refers mainly to the descriptive level of the content – expresses the manifest content
- Named using content-characteristic words; short, factual names
  
- A thread throughout the codes - a group of content that shares a communality
- Categories are internally homogeneous and externally heterogeneous
- Exhaustive and mutually exclusive
  
- Often includes sub-categories or sub-subcategories – helpful when coding



# "The SuperMarket"

## Main categories



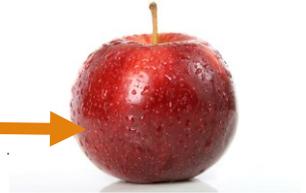
## Categories



## Sub-categories



## Codes



Based on Graneheim et al 2017

# 2. Analyzing the data material

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## Theme

- Themes are created when the data material has rich latent meaning
- Formed by grouping two or more categories together
- Answers the question "How?"
  - "Why?", "In what way?", "By what means?"
  - "What is this about?" "What are these participants trying to tell me?"
- Can not be an object or a thing – quite abstract level
- Expresses the underlying meaning on an interpretative latent level - searching for the latent content
- A "red thread" throughout the whole text analyzed
- Not necessary mutually exclusive – condensed, meaning units, codes and categories can fit into more than one theme

(Bengtsson 2016; Elo & Kyngäs 2008; Erlingsson & Brysiewicz 2017; Graneheim & Lundman 2004; Graneheim et al 2017)

# Example of themes

Table 4. Suggestion for organisation of coded meaning units into categories and themes.

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**Overarching theme: THE EMERGENCY CENTRE THROUGH PATIENTS' EYES – ALONE AND COLD IN CHAOS**

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*Theme: Reliving the pre-hospital experience*

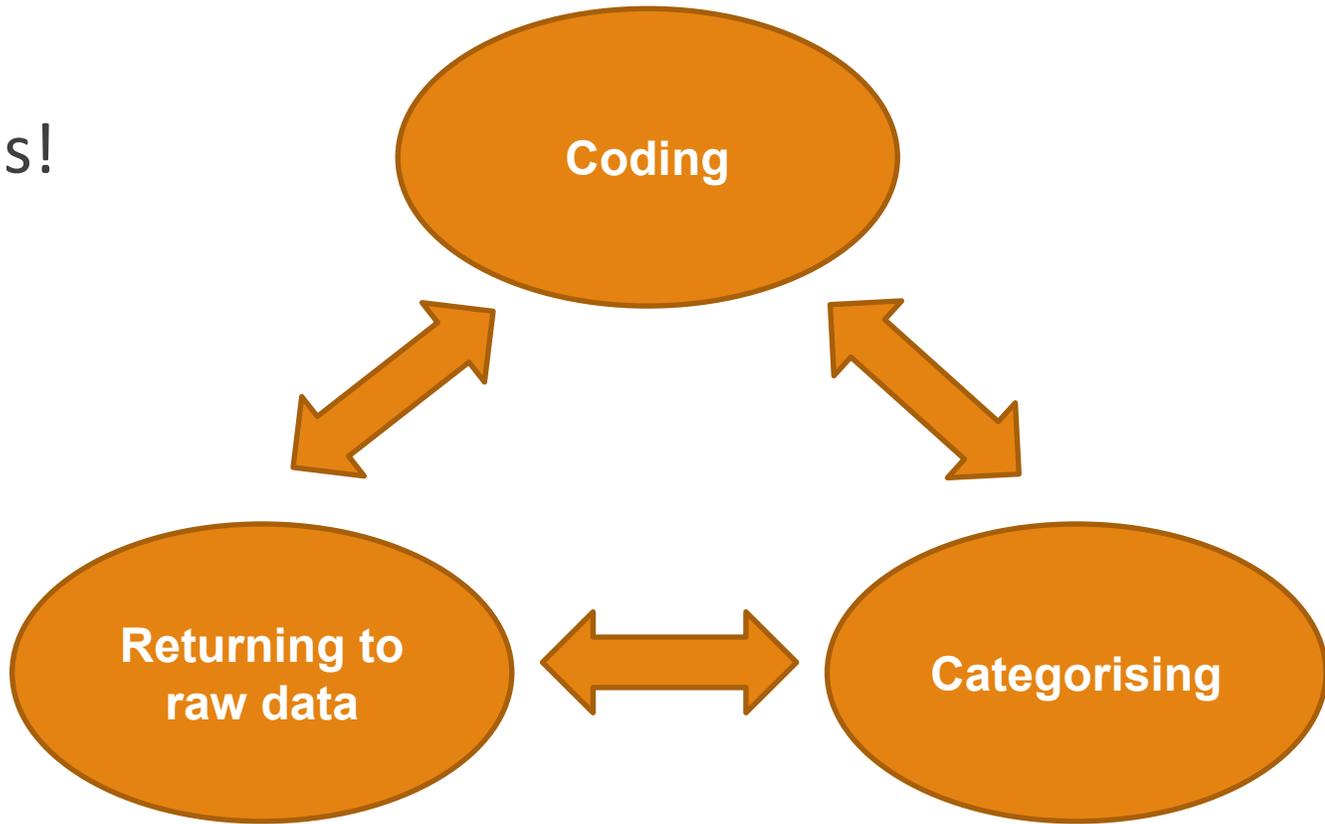
Condensations	Codes	Categories
It was a bad day in my life	The crash	Reliving the crash
Ordinary day until the crash	The crash	
Nightmares about the sounds of the crash	The crash	
Can't get the sound out of my head	The crash	
Ambulance staff looked worried about all the blood	In the ambulance	Reliving the rescue
Must have been given something in a drip	In the ambulance	
Thinking I should be in pain but can't remember feeling legs jammed in the car	In the ambulance	

(Erlingsson & Brysiewicz 2017)

# Analyzing is a continuous and reflective process

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No linear progression in qualitative content analysis!



# Use of terminology

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- Sub-categories – sub-themes – sub-concepts
  - Categories - themes – concepts
  - Main categories – main themes – main concepts
- apply chosen terminology throughout the whole research

# Inductive approach

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- Also called conventional, data-driven or text-driven approach
- Most used
- Open starting point - Seek for patterns with an open mind
- When not enough knowledge about a phenomenon or when knowledge is fragmented
- Moves from the specific and concrete to the general and abstract
- Search for similarities and dissimilarities

(Bengtsson 2016; Elo & Kyngäs 2008; Graneheim & Lundman 2004; Graneheim et al 2017; Kyngäs et al 2020)

# Inductive approach

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## 1. Planning/preparation phase

- Choose: participants, unit of analysis, data collection method, manifest or latent approach
- Collect the data material

## 2. Organisation phase

- Transcribed datamaterial (verbatim) → Naive reading → meaning units → condensation → open coding – creating a coding scheme → creating categories → themes
- A flexible reflective process - Repeatedly return to the original text to consider the stages of the analysis and, when needed, to revise identified connections and relationships
- Challenge
  - Avoid surface descriptions and general summaries
  - Does the analysis really present an inductive approach or is it a result of the researcher's pre-understanding?

(Bengtsson 2016; Elo et al 2014; Graneheim & Lundman 2004; Graneheim et al 2017)

# Example - Inductive approach

**Table 3.** Example of the analysis process.

Transcribed text	Condensation	Code	Sub-category	Main category
<p>AN: Then it's important to have a purposeful day, that's important too</p> <p>Interviewer: How do you create a purposeful day?</p> <p>AN: Well, that one can/or that one may be as one likes, if one wants to stay in the room and sit there staring all day, one may do so, but if one wants company so/ that there is something to/ come out to</p> <p>Interviewer: Then is there</p> <p>AN: Yes, sometimes it does and sometimes not, that depends on how it is at the unit, sometimes there are several coming out and/ and then they may have fun together</p>	<p>They may do as they like.</p> <p>There are activities, but if they prefer solitude, it's ok.</p>	<p>Adapts to the older person's desires</p>	<p>The older person as a person</p>	<p>The older person's well-being</p>

***“To describe assistant nurses’ perspectives of providing care to older persons at the end of life in a nursing home”***

Holmberg et al (2019) End-of-life care in a nursing home: Assistant nurses’ perspectives

# Example - Inductive approach

Condensed meaning unit	Codes	Sub-category	Category	Theme
How you are as a person... if you want support, do you want to talk to someone, are you looking for contact or do you want to be alone... affects the need for support	Personality affects	Individual	Collaborative resources of involved stakeholders	Act with respect
Who follows up is determined based on the client's needs, health problems and the nature of the work	The client's needs, health problems, the nature of the work			
Supportive actions are based on client's individual needs, each client is unique	Individual needs, each client unique			

***“to examine support actions given in OH services to older workers after completion of a comprehensive, multidisciplinary, vocational rehabilitation program. An additional purpose was to explore occupational healthcare professionals' (OHP) views of how to realize and improve adequate support activities”***

Wallin & Fjellman-Wiklund (2019) Act with respect: Views of supportive actions for older workers after completion of comprehensive vocational rehabilitation services

# Deductive approach

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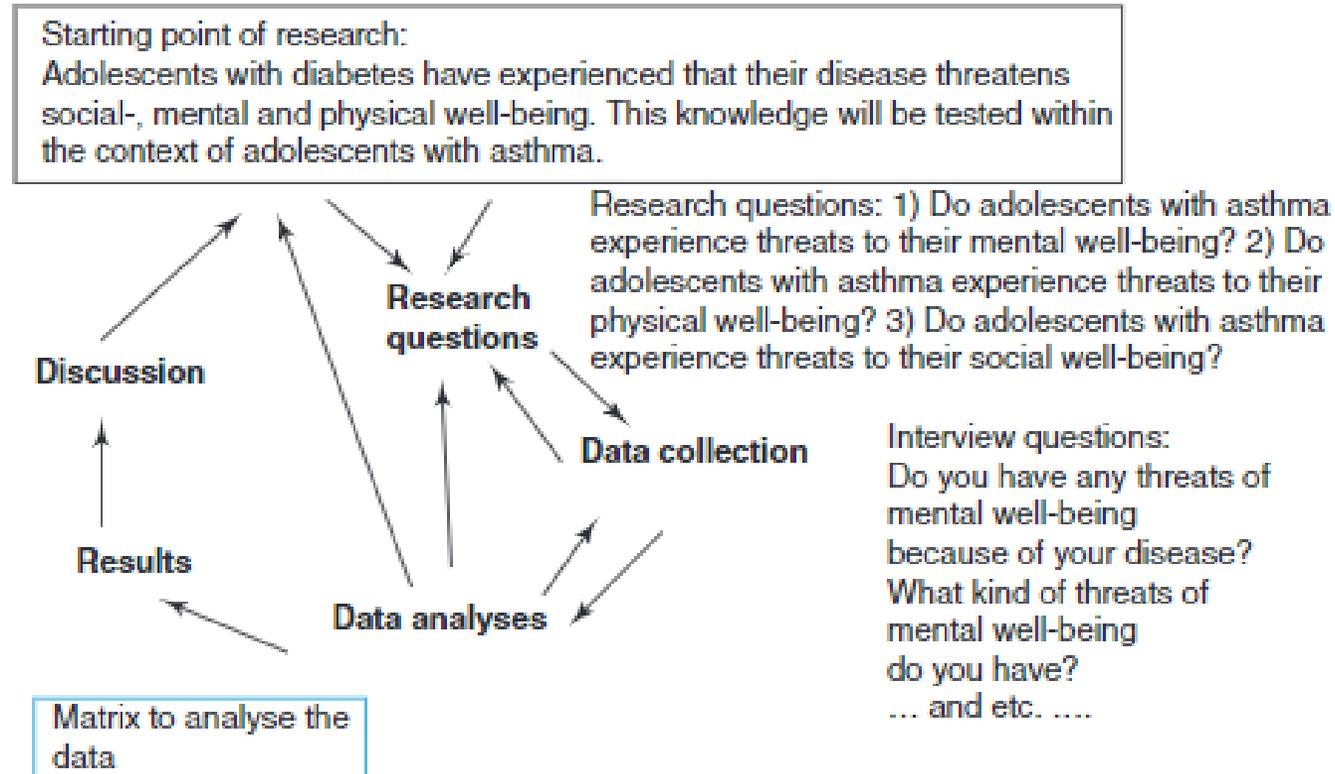
- Also called concept-driven or directed
- Rarely used in nursing research
  
- To test implications of existing knowledge, theories or explanatory models about the study phenomenon against collected data
- Compare existing data/concepts or study a specific theoretical structure in a new context
- Moves from theory/abstract level/general level to data/specific level/concrete level

# Deductive approach

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- **Planning/preparation phase:** Uses the same data collection methods and sources of data as in inductive approach
- **Organization phase:** The process quite similar to qualitative inductive analysis, but more structured
  - Development of categorisation matrix, coding according to the matrix, categorisation
- Using a categorisation matrix built from a theoretical structure - key concepts, existing theories/models/mind maps or literature review
  - Structured: only aspects that fit into the matrix are chosen from the data
  - Unstructured matrix: different categories are created within its bounds, following principles of inductive approach
  - guiding the data analysis process

# Process – Deductive content analysis



**Fig. 3.2** The research process of a qualitative study which includes deductive content analysis

(Kyngäs et al 2020)

# Example of an unstructured data analysis matrix - Deductive approach

**Table 3.1** An example of an unstructured analysis matrix

What kind of well-being threats do adolescents with asthma have?	Mental well-being threats	Social well-being threats	Physical well-being threats

**Table 3.2** An example of deductive analysis that is guided by an unstructured matrix

What kind of well-being threats does adolescents with asthma have?	Mental well-being threats	Social well-being threats	Physical well-being threats
	Conflicts between myself and guidelines of care Fear of asthma attacks Worries Sadness Dishonest	Difference Control Dependence Etc...	Unable to breath Complications Disease getting worse Etc...

(Kyngäs et al 2020)

# Example of a structured data analysis matrix - Deductive approach

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**Table 3.3** An example of a structured data analysis matrix

What kind of mental well-being threats do adolescents with epilepsy have?	Dependence	Worries	Sadness	Guilt

**Table 3.4** An example of how codes identified from the data can be organised according to a structured matrix

What kind of mental well-being threats do adolescents with epilepsy have?	Dependence	Worries
	<ul style="list-style-type: none"> <li>• Dependence on parents</li> <li>• Dependence on medication</li> <li>• Dependence on nurses</li> <li>• Dependence on physicians</li> <li>• Dependence of regular daily life</li> </ul>	<ul style="list-style-type: none"> <li>• Worries about future</li> <li>• Worries about health conditions</li> <li>• Worries about future occupation</li> <li>• Worries about getting a family</li> <li>• Worries about having the energy to take care of oneself</li> </ul>

# Abductive approach

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- Also called complementary, combined, retroductive or fuzzy logic approach
- Rarely used
- Aim to give a more complete understanding
  
- Move back and forth between inductive and deductive approaches
- Examples:
  - Subthemes from an inductive analysis is suggestive of a known theory – the analysis continues with a deductive analysis in relation to the known theory
  - An analysis started with a deductive approach using a matrix based on results from an earlier study, and moves to inductive analysis to analyse codes that not will fit into this theory

# Example - Abductive approach

Step 1: Started from a deductive approach – the interview guide was structured according to a known theoretical framework

## Box 1

Core questions of the semi-structured interview guide, presented according to the interacting hierarchic levels of the Social Ecological Model (Stokols, 1992).

QUESTION	LEVEL(S)
Please describe primary reasons for not taking your medications as prescribed?	Personal level
Please describe interpersonal relationships or aids you use to take your medication as prescribed?	Interpersonal and community level
Please describe the information you received about your medication and how this was communicated?	Organisational level
Please describe problems or concerns you have experienced	Policy level

***“An abductive qualitative approach was undertaken in order to obtain a more complete understanding of the challenges patients faced in adhering to their medication after first-time percutaneous coronary intervention.”  
Pettersen et al 2018***

(Pettersen et al 2018)

# Example - Abductive approach

## Step 2: Data analysis - Inductive manifest and latent qualitative content analysis

**Table 2**

Examples of how participant quotations were used in the analysis procedure of an emerging theme.

Theme: Medication adherence is a multidimensional phenomenon requiring action on several interacting levels				
Meaning unit	Condensed meaning unit	Code	Category	Sub-theme
<i>'In relation to side effects, I am tempted to quit everything and see what happens, because I am so sick of side effects. I cannot take it anymore.'</i>	Tempting to quit all medications due to side effects; cannot bear any more side effects	Wants to stop taking medications because of side effects	Intentional and unintentional reasons for medication non-adherence	Reasons for medication non-adherence are diverse
<i>'My body has become so stiff. Muscle ache. Yes, and depressed. Well, not exactly depressed; I am not sure what to call it. But lacking initiative and feeling under the weather [due to statin treatment]. Now I am going to start crying.'</i>	Muscle pain and stiffness and lacking initiative after commencement of statin treatment	Muscle pain and lacking initiative because of side effects from statin treatment	Multifaceted side effects from heart medications	
<i>'I never take generic drugs anymore. I have tried it once, and it did not work for me even though it is supposed to be the same active ingredients... I felt sick and unwell. That is why I only take what the doctors prescribe, I have tried, and know to work. No matter the cost.'</i>	Do not take generic drugs anymore, have tried it once but felt sick and unwell, only takes what he has tried and knows to work despite increased costs	Only uses brand-name drugs due to a bad experience with generic drugs	Scepticism towards generic drugs	
<i>'I remember sending a text to my friends saying, "completely undramatic, I have just done a percutaneous coronary intervention." But I do not find it undramatic anymore. It is a serious thing, a really serious thing'</i>	Texting her friends and telling them about an undramatic procedure; in retrospect, she finds the procedure serious	Altered view about the seriousness of the procedure	Lack of information about seriousness of heart disease after percutaneous coronary intervention	Need to address challenges and promote medication-taking behaviour
<i>'Both before and after the summer holiday I participated in a cardiac rehabilitation programme. And everything was fine. Because then I had someone to talk to. I worked out and felt that my physical form was decent. During the fall and the winter I have experienced some of the mental struggles everybody describes. When you suddenly are sitting there alone, when you are not working or anything, then you feel it.'</i>	Everything was fine when he participated in a cardiac rehabilitation programme. Experienced increased psychological strain when he did not have a job or anyone to talk to	Loneliness leads to increased psychological strain after myocardial infarction	Psychological impact of living with coronary artery disease	
<i>'Always use a pillbox. And keep the pillbox available so you can see that you have taken your medication... Take the medication during your morning ritual. Because if you always drink a cup of coffee in the morning, and the medication is right next to the coffee machine, it is quite natural to take it, because then you see it...'</i>	Always use a pillbox; keep the pillbox readily available; take the medication in conjunction with a morning ritual	The use of a pillbox and well-established routines improves medication adherence	Need for well-established routines and aids	

(Pettersen et al 2018)

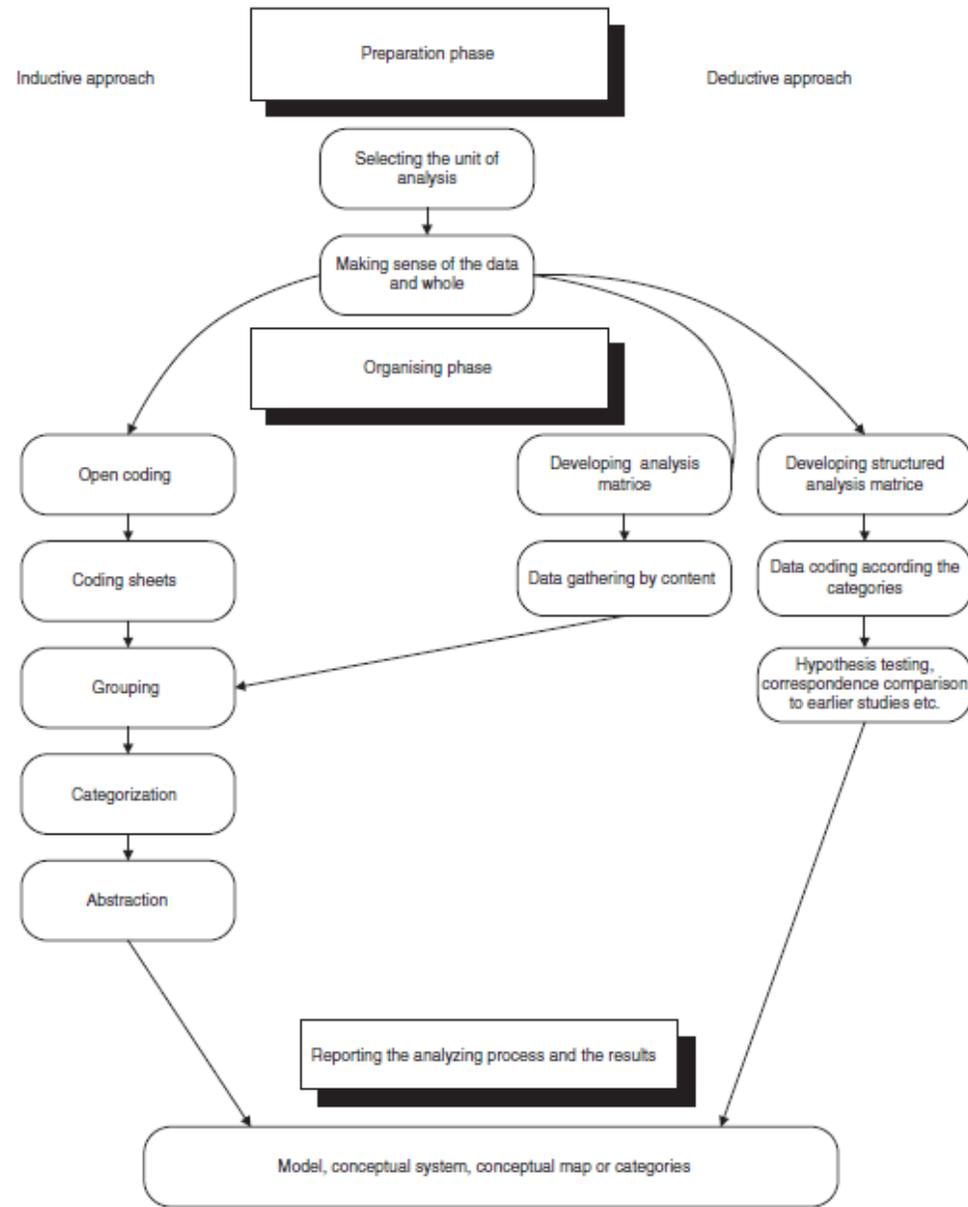


Figure 1 Preparation, organizing and resulting phases in the content analysis process.

# The phases of qualitative content analysis

described by Elo & Kyngäs 2008

# Conclusion/Key messages

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- A suitable method for analyzing qualitative data in nursing
- Suitable qualitative method to describe human experiences and perspectives
- Allows different levels of abstraction and interpretation – manifest or latent
- Different approaches – inductive, deductive, abductive

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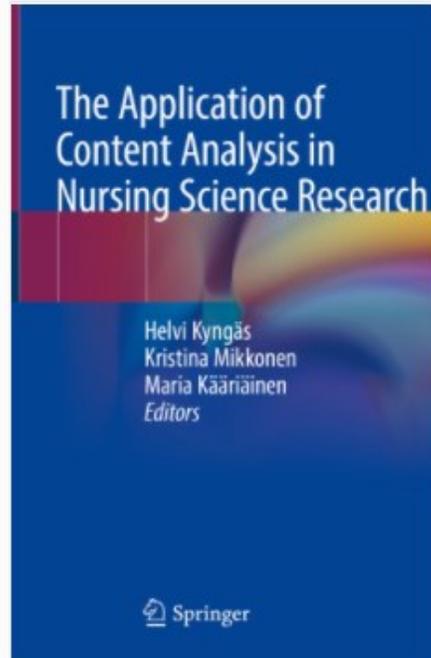
Questions?  
Comments?



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*Thank you!*

# Reading list



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