

Cognitive-behavioral approach in medicine

Mgr. Barbora Kóša

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ÚPP LF MU

Affective heuristic

- **Occurrence:** Open-ended questions, no intense attention is needed
- **Current mood:** highly affects reasoning
- **Affective heuristic:** relying on emotion concerning object in fast judgement
- H: People concentrate their attention less on losses than gains when they are in a good mood
- Quick emotional reactions (**concern** or **safety?**) can serve as relevant information (*affect as information mechanism*).

Heuristics

- problem-solving method → shortcuts to produce **good-enough** solutions
- **quick decisions**, particularly when working with complex data
- **derived from previous experiences** with similar problems
- using readily accessible, though loosely applicable, information problem solving
 - For example, pattern recognition: seeing a patient with grandiose delusions and pressured speech leading to a rapid differential with the most-likely diagnosis being bipolar disorder.

+ Advantage

- Reduce cognitive load: time and effort to make reasonably good judgments and decisions.

- Disadvantage:

- Potential to lead to systematic cognitive errors called biases.

Factors influencing which system is employed

- Task complexity
 - S1 – typical signs and symptoms
 - S2 – atypical symptoms, complex cases
- Expertise
 - S2 – novices, students
- accuracy of systems 2 thinking depends on knowledge base, expertise..

Dual processes theory

Experiential system (intuitive 1)	Analytic system (2)
Holistic	Effortful
Emotional: Pleasure – Pain	Logical: reasoning oriented (what is rational?)
Associative connections	Logical connections
Behavior is influenced by previous emotions	Behavior is influenced by rational judgement of events
Reality is encoded in images, metaphores and narratives	Reality is encoded in abstract symbols, words and numbers
Fast processing: focuses on immediate action	Slow processing: focused on postponed action
Valid for own person: „experiencing is believing“	Demands support with logic and evidence

Heuristic or Bias	Medical Example	Non-medical example
<p>Anchoring is the tendency to lock onto salient features in the patient's initial presentation and failing to adjust this initial impression in the light of later information.</p>	<p>A patient is admitted from the emergency department with a diagnosis of heart failure. The hospitalists who are taking care of the patient do not pay adequate attention to new findings that suggest another diagnosis.</p>	<p>We buy a new car based on excellent reviews and tend to ignore or downplay negative features that are noticed.</p>
<p>Affective bias refers to the various ways that our emotions, feelings, and biases affect judgment.</p>	<p>New complaints from patients known to be "frequent flyers" in the emergency department are not taken seriously.</p>	<p>We may have the belief that people who are poorly dressed are not articulate or intelligent.</p>
<p>Availability bias refers to our tendency to more easily recall things that we have seen recently or things that are common or that impressed us.</p>	<p>A clinician who just recently read an article on the pain from aortic aneurysm dissection may tend toward diagnosing it in the next few patients he sees who present with nonspecific abdominal pain, even though aortic dissections are rare.</p>	<p>Because of a recent news story on a tourist kidnapping in Country "A," we change the destination we have chosen for our vacation to Country "B."</p>

Heuristic or Bias	Medical Example	Non-medical example
<p>Context errors reflect instances where we misinterpret the situation, leading to an erroneous conclusion.</p>	<p>We tend to interpret that a patient presenting with abdominal pain has a problem involving the gastrointestinal tract, when it may be something else entirely: for example, an endocrine, neurologic or vascular problem.</p>	<p>We see a work colleague picking up two kids from an elementary school and assume he or she has children, when they are instead picking up someone else's children.</p>
<p>Search satisficing, also known as premature closure, is the tendency to accept the first answer that comes along that explains the facts at hand, without considering whether there might be a different or better solution.</p>	<p>The emergency department clinician seeing a patient with recent onset of low back pain immediately settles on a diagnosis of lumbar disc disease without considering other possibilities in the differential diagnosis.</p>	<p>We want a plane ticket that costs no more than \$1,000 and has no more than one connection. We perform an online search and purchase the first ticket that meets these criteria without looking to see if there is a cheaper flight or one with no connections.</p>



Working memory and affective heuristic

- You hold in memory 7 digit number and need to write it down in different room
- On the corridor, someone from your family stops you and asks:
 - *Are you going to have chocolate or fruit?*
- You need to remember the numbers but are hungry too. What are you going to choose?

Working memory and affective heuristic

- 63% chose chocolate cake when holding in memory 7 digits
- 41% chose chocolate cake when holding in memory 2 digits
- **Fast judgement of object according to emotion.**
- Capacity of working memory can influence you capacity for reasoning and consider rational arguments.

Historical background of learning theories

- affective nature of human beings has long been considered secondary and inferior to the study of rational thinking, “nonscientific”
- cognitive shift (1960s) – psychology was directed even more on cold, affectless mental processes
- since 1980s – mood plays central role in how information about world is represented and affect determines cognitive representation of social experiences

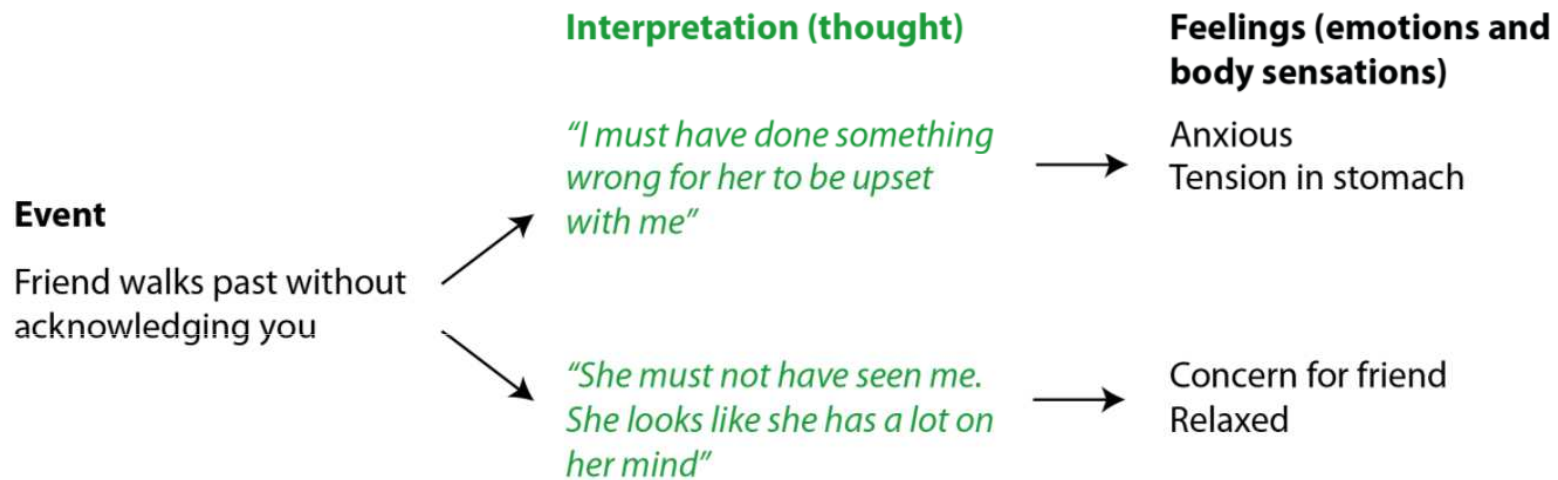
Early evidence linking Mood and Cognition

- **Classical conditioning:** if neutral stimulus associates with negative stimulus: child encounters live rabbit + noise → negative evaluation of neutral stimulus → avoidance of neutral: the child avoids the rabbit (Watson, 1929) <https://www.youtube.com/watch?v=V09FuazW8bc>
- People evaluated sociopolitical messages more favorably when in good rather than in a bad mood, induced either by a free lunch (!) or aversive smells, respectively (Razran, 1940)
- Electric shocks induced negative affect in subjects. Fearful subjects' evaluations of another person were more negative than neutral subjects' and even greater when subjects were trying to suppress their fear (Wegner, 1994).
 - *“suppression of fear facilitates the tendency to project fear onto another social object” (p. 286)*

Learning: Operant conditioning

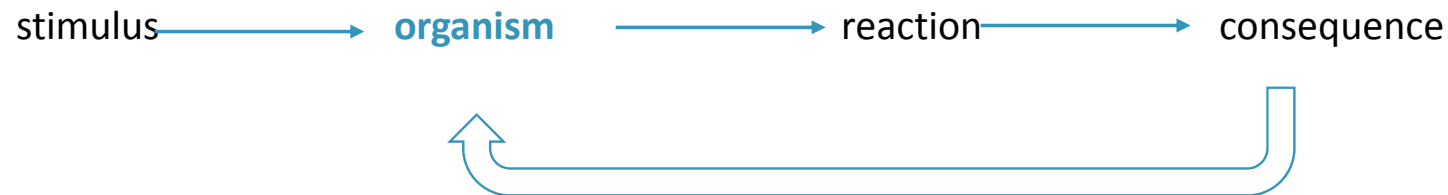
- **Operant conditioning**, is a method of **learning** that employs rewards and punishments for behavior. Through **operant conditioning**, an association is made between a behavior and a consequence
- *P*, of behavior to repeat depends on consequences





Cognitive factors in learning

- Not stimulus provokes behavior, but the meaning it has for a person
- Behavior can be predicted and understood based on cognitive processes



Eye contact with attractive man → **Organism: THOUGHTS: I look silly! EMOTION: anxiety BODY: redness in face** → Reaction: turning away eye contact → Consequence: relief from anxiety

Eye contact with attractive man → **Organism: T: I like him, I want to look good! E: excitement T: pupil enlargement** → Reaction: smile, long eye contact → Consequence: pleasant arousal

Cognitive factors when response is formed

- ABC – Albert Ellis



Beliefs	Rationality	Type	Description	Example
Primary	Irrational	Rigid and extreme demand	Assertion of preference transmitted into a demand	"I want to be successful and therefore I must"
	Rational	Flexible and non- extreme preference	Assertion of preference and negation of demand	"I want to be successful but that does not mean I have to be"
Secondary	Irrational	Awfulizing	Athlete believes that if x happens: nothing could be worse, x is worse than 100% bad, and no good could possibly come from this bad event	"I must succeed and if I don't it will be awful"
		Low frustration tolerance	Athlete believes that, in face of a struggle to put up with adversity: I will die if the discomfort continues, and I will lose the capacity to experience happiness if the discomfort continues	"I must succeed and it is unbearable to fail"
		Self-/other-downing	Self and others are rated on the basis of one aspect	"When I fail, it means that I am an idiot" "When they treat me poorly, it proves they are bad people"
	Rational	Anti-awfulizing	Athlete believes that if x happens: worse things could happen, x is not more than 100% bad, and some good could possibly come from this bad event	"I want to succeed but if I don't it will not be awful"
		High frustration tolerance	Athlete believes that, in face of a struggle to put up with adversity: I will not die if the discomfort continues, and I will not lose the capacity to experience happiness if the discomfort continues	"I want to succeed but failure is not unbearable"
		Self-/other- acceptance	Self and others are not rated on the basis of one aspect. It is unconditionally accepted that self and others are fallible, unique, and un-rateable	"When I fail, it is bad, but does not mean that I am an idiot" "When they treat me poorly it is bad, but does not prove they are bad people"

Experience of patient

- Part of human psychology in awareness:
 - emotion, cognition a behavior
- Thoughts – hypotheses which can be confirmed or not, not facts
- Emotion – validate that there are no good or bad feelings, labeling helps to deal and act in constructive ways
- Behavior – strengthen: valued behavior condition with positive consequences

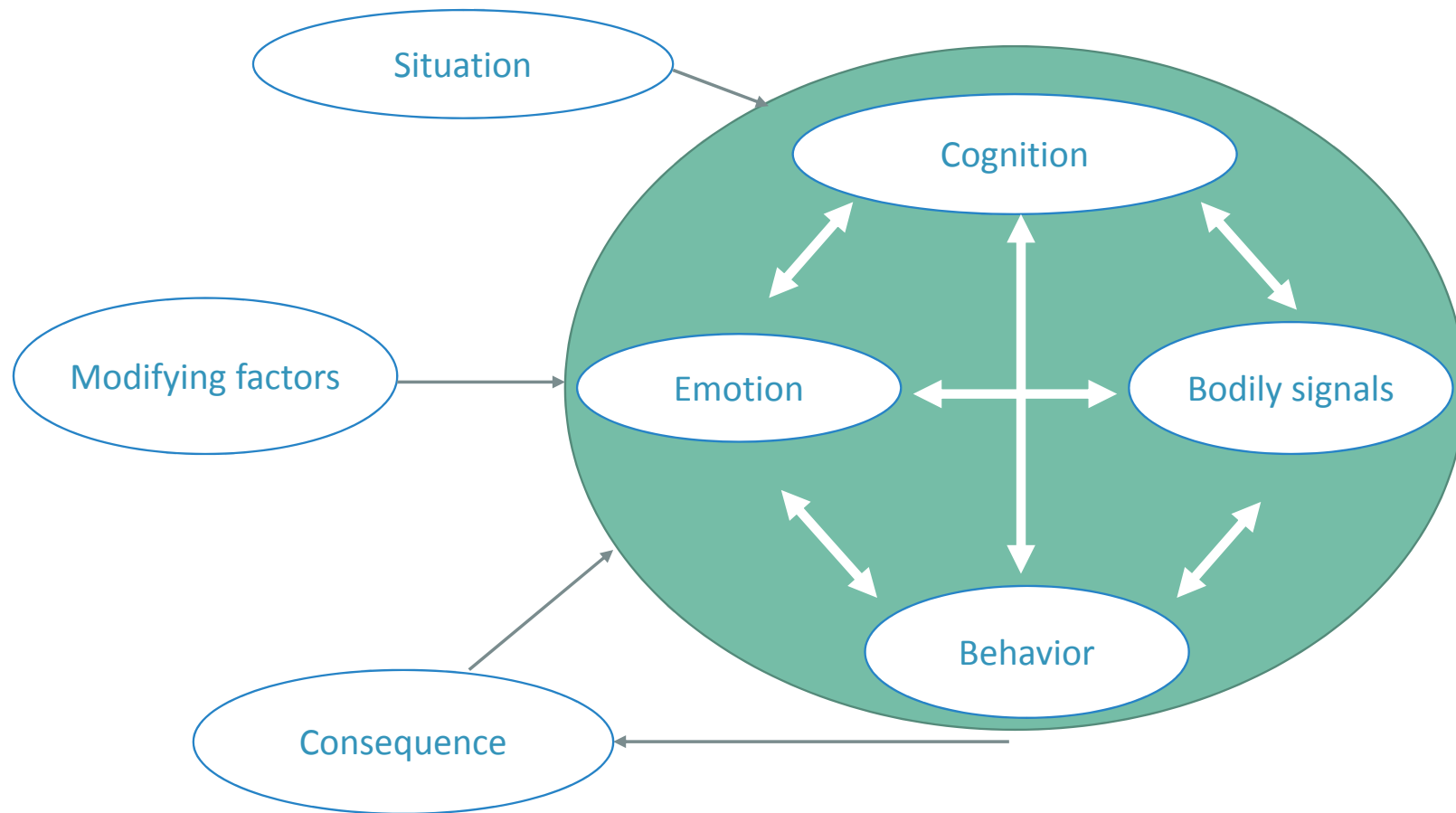
Cognitive behavioral interview

- When too ambiguous or technical → *“What exactly do you mean?”*
- **Reflective feedback:** to make sure you understand
- Don't use suggestive questions (*„You were probably scared, right?“* better: *„How did you feel in that situation?“*)
- Open ended → more specific questions
- Avoid starting with *„Why...“* (asking for explanation), better: *“Who?”*, *“Where?”*, *„How often?“* (**asking for description**)
- Assure the patient that his problems are common
- Strong emotion – be patient, curious, compassionate (*What does it mean for the patient? Why is he/she so upset?*)

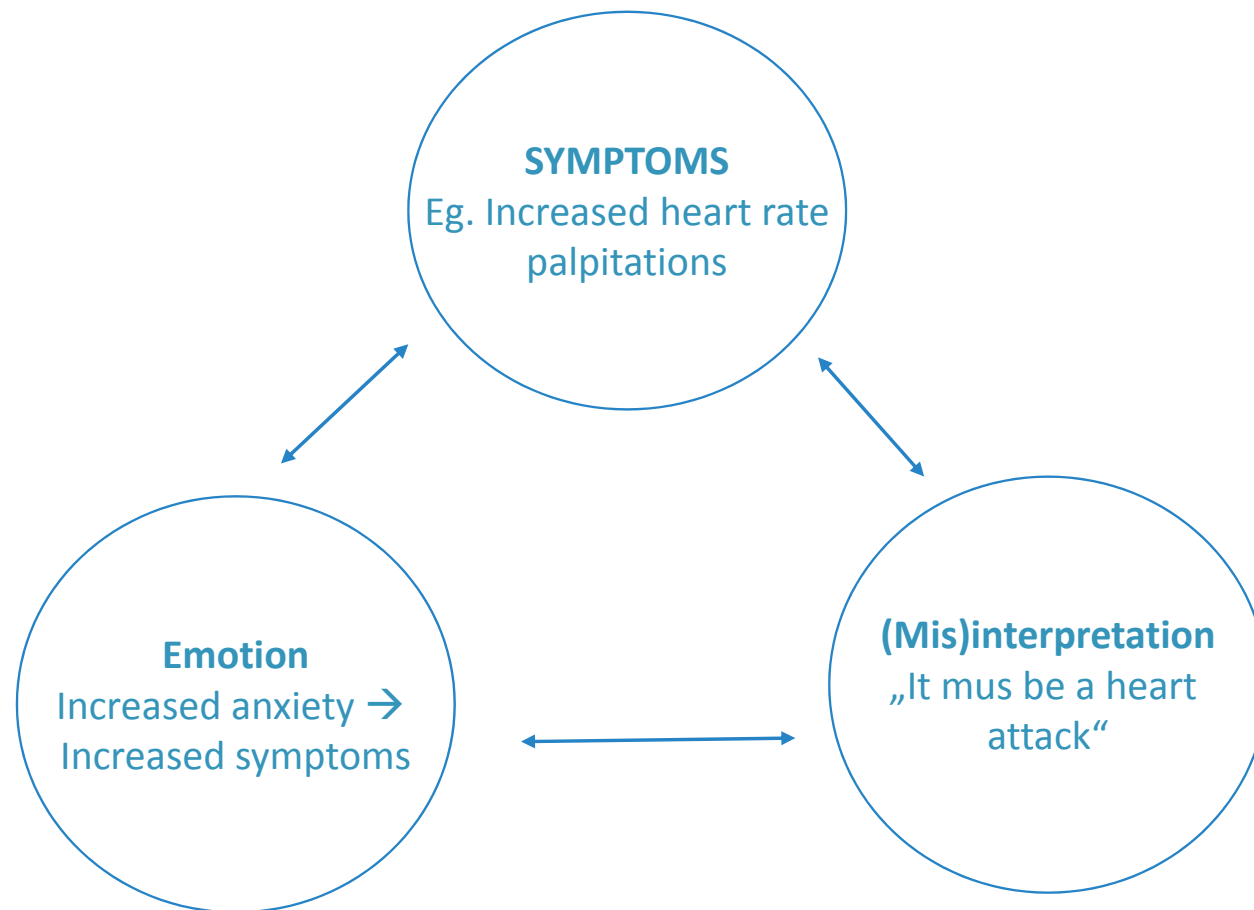
Problem description

- **Subjective** description of symptoms, their evolution, triggers, consequences, related problems ...
- Looking for mechanisms that maintain problem behavior
- Predisposing factors
- Precipital factors – internal / external

Microanalysis of problematic behavior



Microanalysis of problematic behavior



Consequences

- Relationships, work, reputation, health....
- Short-term positive / negative
- Long-term positive / negative

Goal setting to motivate the patient

- *What do you want to happen at the end of your treatment?*
 - S: specific
 - M: measurable
 - A: attainable
 - R: relevant
 - T: timely

Myšlienky

- How to know patients thoughts
 - What do you think? What is going to happen? What if you will never change how you think?
What is the worst case scenario?
- Hot – + emotion / Cold – descriptive

Cognitive distortions

	All-or-nothing thinking	Thinking in extremes. For example, something is either 100% good or 100% bad
	Catastrophizing	Jumping to the worst possible conclusion
	Over-generalizing	Seeing a pattern based upon a single event
	Mental filter	Only paying attention to certain types of evidence ("That doesn't count")
	Disqualifying the positive	Discounting positive information or twisting a positive into a negative
	Jumping to conclusions	Mind reading or predicting the future
	Low frustration tolerance	Saying things like "this is too difficult", "this is unbearable" or "I can't stand it"
	Minimization	Discounting the importance of something
	Emotional reasoning	Assuming that because we feel a certain way our hunch must be true
SHOULD MUST	Demands	Using words like 'should', 'must', and 'ought'
	Labelling	Assigning labels to ourselves or others ("I'm rubbish")
"This is my fault"	Personalization	Taking too much or too little responsibility



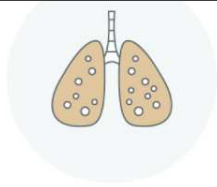
JOURNALING

Self-reflection
Identifying thought patterns



**NIGHTMARE EXPOSURE
AND RESCRIPTING**

Treats nightmares
Develops new responses



RELAXED BREATHING

Supports range of issues
Calms and focusses



**PLAY THE SCRIPT
UNTIL THE END**

Treats fear and anxiety
Reflects on worst case scenario
Improves feeling of coping



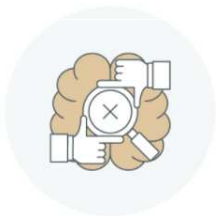
**UNRAVELING
COGNITIVE DISTORTIONS**

Identifying faulty
thinking
Challenging faulty
thinking



**PROGRESSIVE
MUSCLE RELAXATION**

Calming
Mindful focus on
physical relaxation



**COGNITIVE
RESTRUCTURING**

Exploring causes
of faulty thinking



**INTEROCEPTIVE
EXPOSURE**

Treats panic and anxiety
Purposeful exposure to



**EXPOSURE AND
RESPONSE PREVENTION**

Purposefully exposing
self to trigger

Useful CBT techniques

Trigger (situation)

Thoughts...

Emotions

Bodily signals...

Behavior

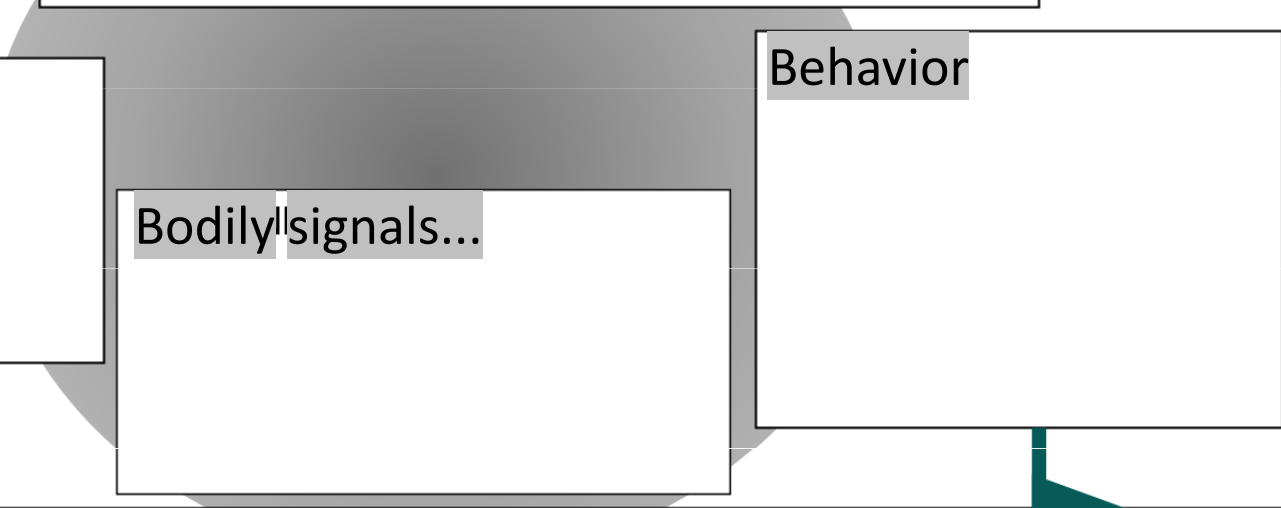
Consequences

Short-term positive....

Short-term negative...

Long-term positive....

Long-term negative.....



Cognitive restructuring

1. Situation When? Where? Who? What?	2. Emotion Intensity 1-10	3. Automatic thought Persuasiveness 0 – 100%

4. Evidence proving thought	5. Evidence against thought	6. Alternative thought Persuasiveness 0-100%	7. Emotion now Intensity 1-10

Thank you for attention

Suggested study materials:

Croskerry P. (2002). Achieving quality in clinical decision making: cognitive strategies and detection of bias. *Academic emergency medicine : official journal of the Society for Academic Emergency Medicine*, 9(11), 1184–1204.

Howard, J. (2018). *Cognitive Errors and Diagnostic Mistakes*. Springer Berlin Heidelberg.

Mandatory study materials:

Chapters from *Psychology in medicine*