

Kunstneren og psyken

Musiker & psykolog Jo Fougner Skaansar

KHIO, 9. november 2022



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Microtiming and Mental Effort: Onset Asynchronies in Musical Rhythm Modulate Pupil Size

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The present study tested two assumptions concerning the auditory processing of microtiming in musical grooves (i.e., repeating, movements inducing rhythmic patterns). 1) Microtiming challenges the listener's internal framework of timing expectations, in turn, and demands cognitive effort. 2) Microtiming promotes a "groove" experience—a pleasant sense of wanting to move along with the music. Using pupil size measures and microtiming as participants, we hypothesized that microtiming asynchronies between bass and drums (varying from -80 to 80 ms) were related to a) an increase in "mental effort" (as indexed by pupil dilation), and b) a decrease in the quality of movement synchronization (as indexed by reduced finger tapping stability). We found bass drums microtiming asynchronies to be positively related to pupil dilation and negatively related to tapping stability. In contrast, we found that steady time-keeping (presence of eighth note in the groove) decreased pupil size and increased tapping in the music, though there were no conclusive differences in pupil response between musicians and nonmusicians. However, jazz musicians consistently tapped with higher stability than nonmusicians, reflecting an effect of rhythmic expertise. Except for the condition most closely resembling real music, participants preferred the no-the-groove to displacements in microtiming and had successful-dance conditions were preferred over the reverse.

Received January 11, 2019; revised August 21, 2019.

Key words: microtiming, groove, pupilometry, effort

patterns that have a certain stylistic, experimental, or instantly appealing and danceable quality to them (Thoring, 2002). Groove-based genres include African American and derived music traditions, such as jazz, soul, reggae, hip-hop, and funk (Thoring, 2002), as well as contemporary computer programmed styles (e.g., electronic dance music, EDM; Butler, 2008). Second, groove is also a psychological construct, being a subjective anticipatory response to the above types of music. Third, groove can be defined as "that aspect of the music that induces a pleasant sense of wanting to move along with the music" (Juska, Tansik, & Hohenstein, 2012, p. 36), which involves a general association of groove to positive affect. The phenomenological state of feeling "in the groove" is assumed to be closely related to smooth and effortless musical stimulation for the above-mentioned musical styles (Dziewan, 2008; Hsieh, 2018).

A groove-based musical pattern usually contains features that afford successful interpretation, including temporal information that increases rhythmic predictability. These features may include a "downbeat" (strongly accented tempo) (Hart, 2008; Kessner, & Koller, 2018; Jorjatz et al., 2012), dynamic, repetition (Diederich, 2009, 2010), and structured "low level" features like onset delay and beat salience (Madsen, Gossens, Ullén, & Høimann, 2011). However, it seems reasonable that certain forms of complexity are present in a certain extent so as to challenge the listener's perception and expectations, e.g., of a second rhythmic virtual reference structure (Lerner), so well as to create musical "tension" (Hansen, 2004, p. 307). For example, researchers have debated the role of syncopation directly (Nero, 1998; Chaves, Gossens, & Madsen, 2014), polyrhythm (Diederich, 2009; Vines, Gossens, & Vines, 2014), as well as microtiming which is the focus of the present study (Diederich, 2010; Diederich, Haugen, & Tremblay, 2015; Iyer, 2014). Specifically, microtiming refers to subtle timing variations

The background features a series of concentric, hand-drawn circles in a light gray color. These circles are centered around a large, solid orange rectangle that occupies the middle of the frame. The orange rectangle has a small triangular point at its bottom center, resembling a speech bubble or a drop. The overall aesthetic is minimalist and modern.

Stress- og stressmestring

Læringskultur og kommunikasjon

Bedragersyndromet

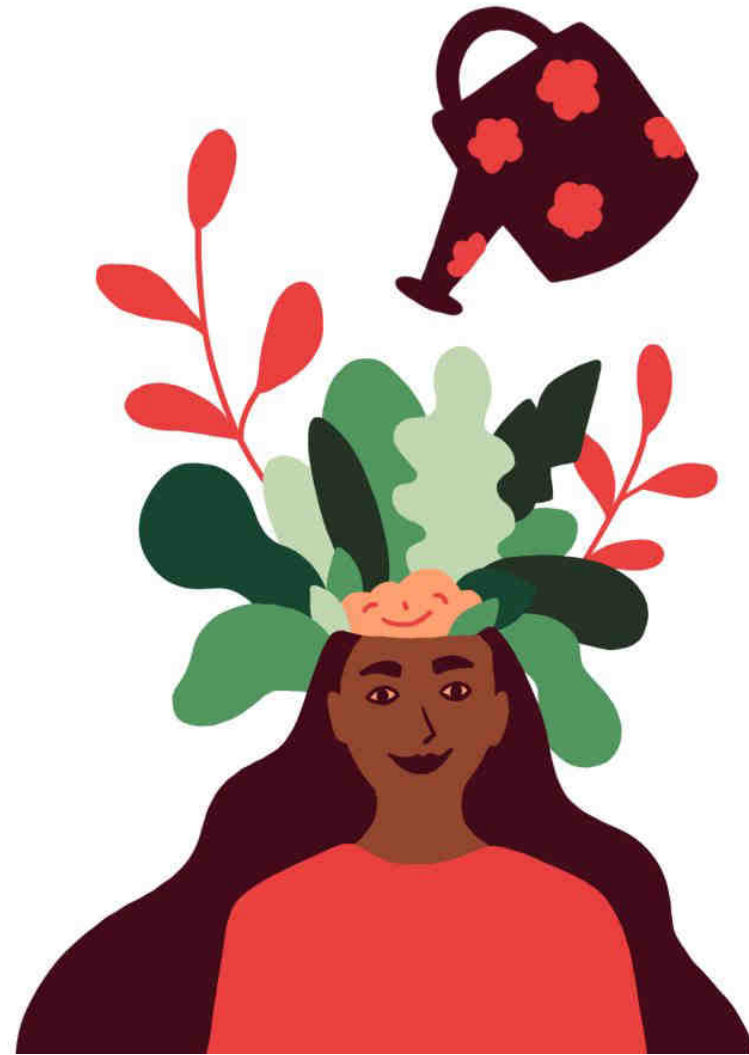


Hva liker du best med å undervise på KHIO?

... og hva er det mest utfordrende?

Hva er den største trusselen mot studentenes psykiske helse?

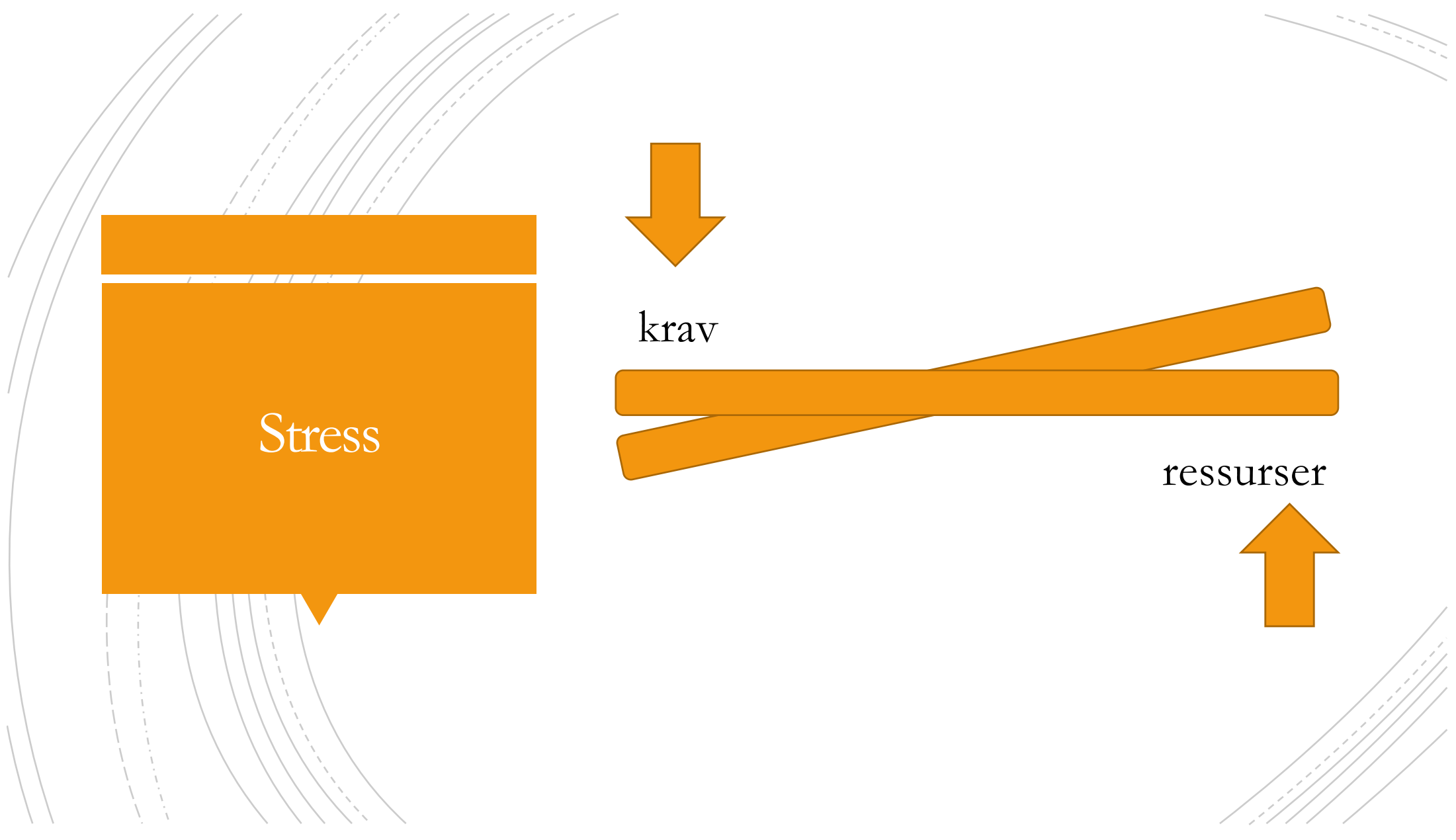
Hva er psykisk
helse?







- Press
- Uforutsigbarhet
- Ensomhet

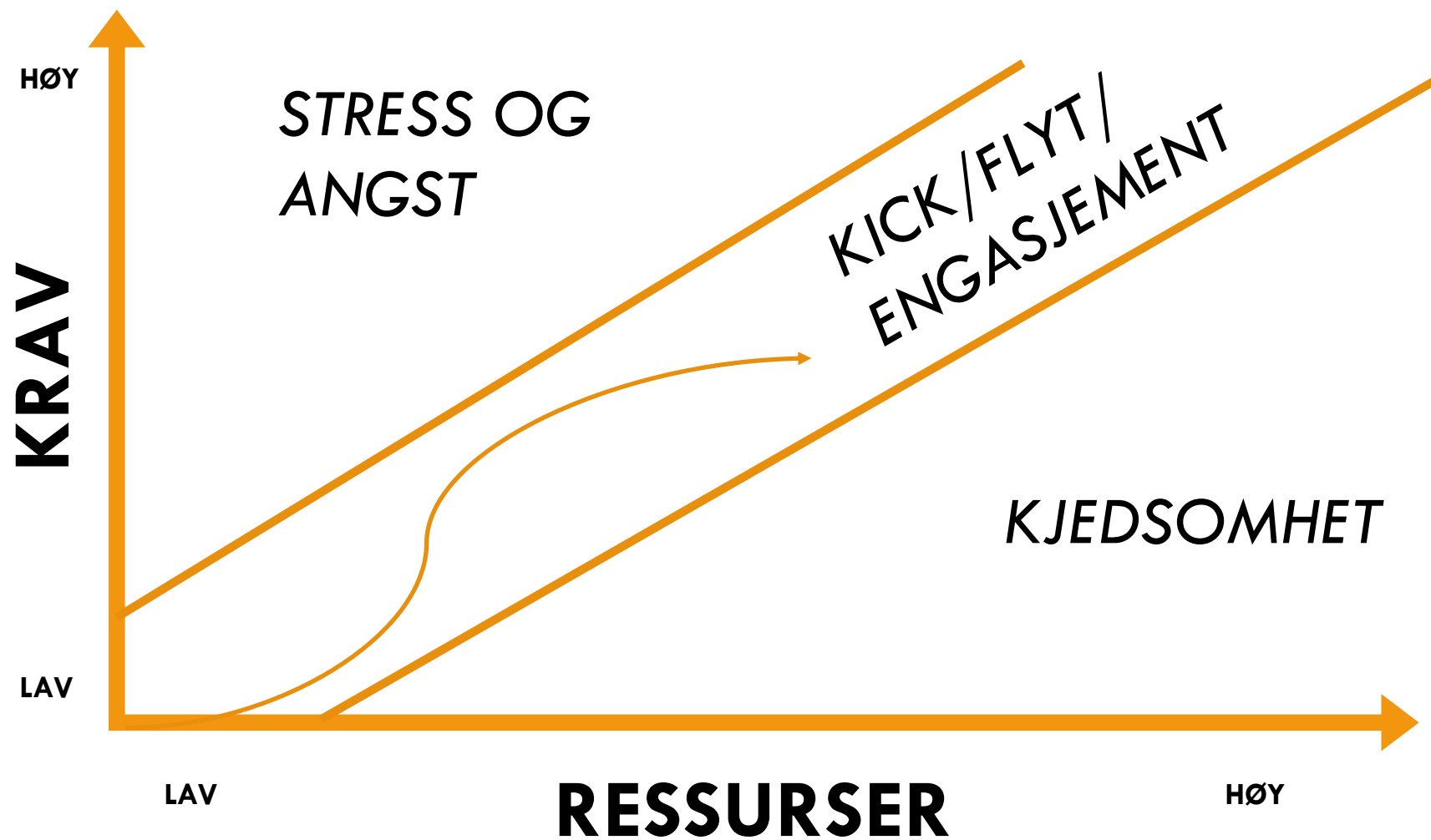


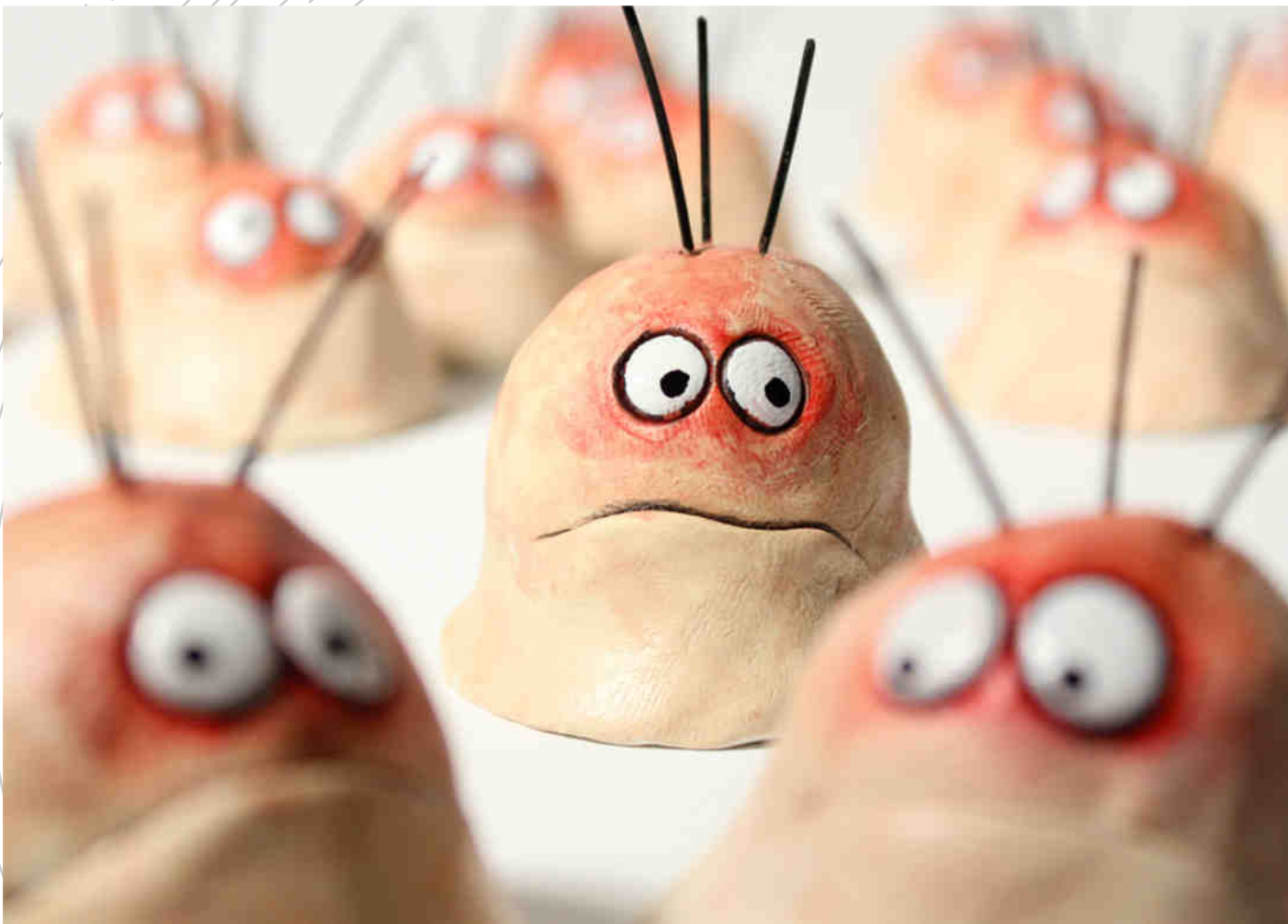
A conceptual diagram illustrating the relationship between stress, demands, and resources. On the left, a large orange rectangle with a speech bubble tail is labeled 'Stress'. To its right, a thick orange horizontal bar represents a central concept. Above this bar, a downward-pointing orange arrow is labeled 'krav' (demands). Below the bar, an upward-pointing orange arrow is labeled 'ressurser' (resources). The background features faint, curved lines on the left and right sides, suggesting a dynamic or environmental context.

Stress

krav

ressurser





Stressmestring

Problemfokuseret

TO DO				DATE:
				FINISH BY:
				TOPIC:
No.	TASKS	DONE	ERRANDS	DONE
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
No.	CORRESPONDENCE	DONE	NOTES	
01				
02				

Emosjonsfokuseret



Søke sosial støtte



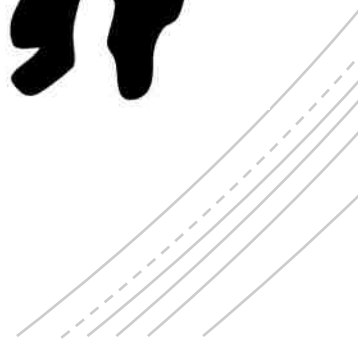
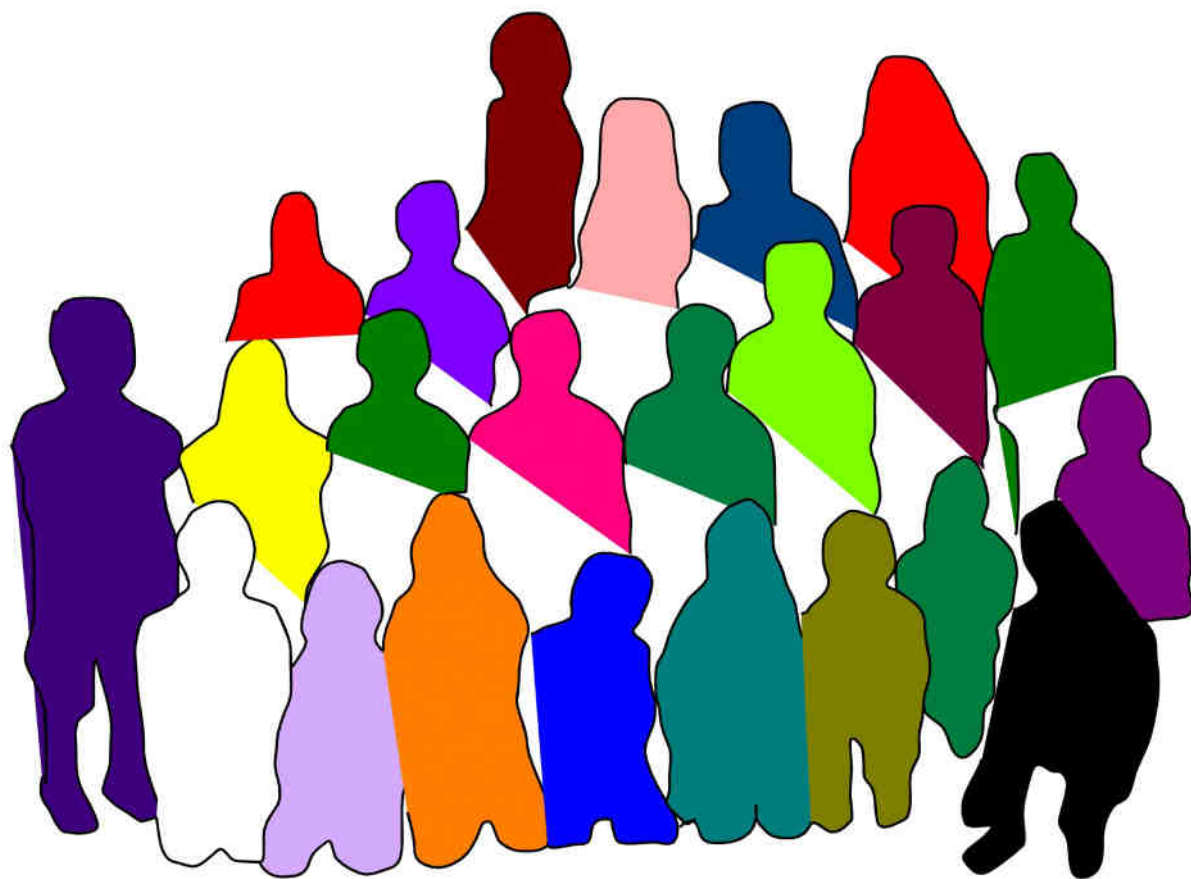
Å møte egne
følelser:
selvmedfølelse

- Tillate
- Forstå og skape mening
- Normalisere
- Behov



The background features a series of concentric, hand-drawn circles in a light gray color. These circles are centered around a large, solid orange speech bubble that has a small triangular tail pointing downwards. The speech bubble is the primary focus of the image.

Hvordan håndterer du stress?



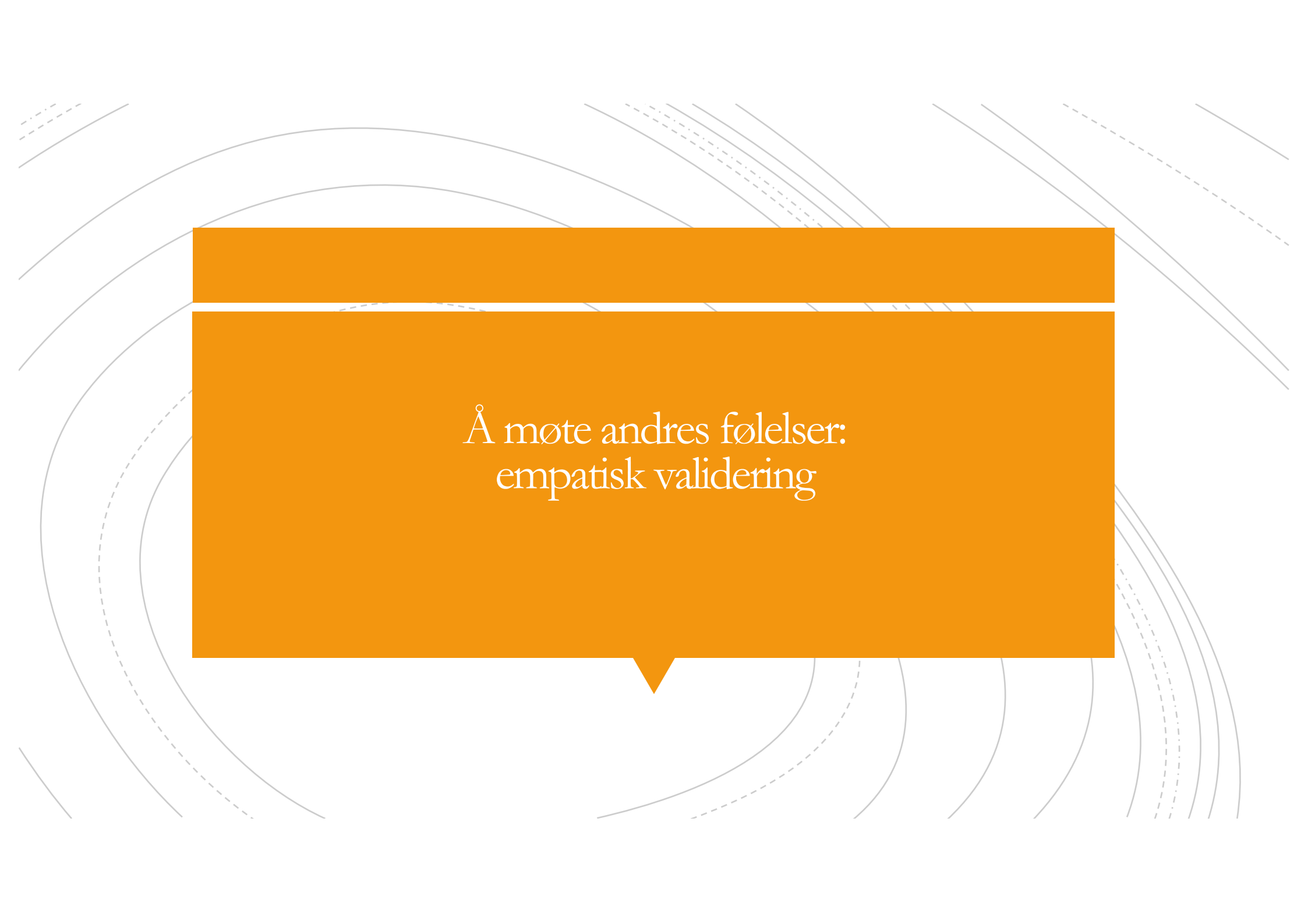
Psykologisk trygghet

- Bygge relasjoner
- Trygg ledelse



*«At man, naar det i Sandhed skal lykkes En
at føre et Menneske hen til et bestemt Sted,
først og fremmest maa passe paa at finde ham
der, hvor han er, og begynde der. Dette er
Hemmeligheden i al Hjælpekunst. Enhver, der
ikke kan det, han er selv i en Indbildning,
naar han mener at kunne hjælpe en Anden.»*





Å møte andres følelser:
empatisk validering



«Jeg føler meg helt ubrukelig, alt har stoppet opp, jeg får ikke til å arbeide i det hele tatt. Alt er bare et ork».

Hvordan kan man validere dette?



«Jeg føler meg helt ubrukelig, alt har stoppet opp, jeg får ikke til å arbeide i det hele tatt. Alt er bare et ork».

«Du kjenner deg helt tom, og føler du at du ikke strekker til i det hele tatt. Det høres ut som om det er veldig mye på én gang for deg nå, og jeg tipper det er vondt å ha det sånn!



«Nei, det stemmer nok ikke. Jeg vet du har kjempehøy arbeidskapasitet. Bit tenna sammen, så går dette seg til!»

OPPMUNTRING

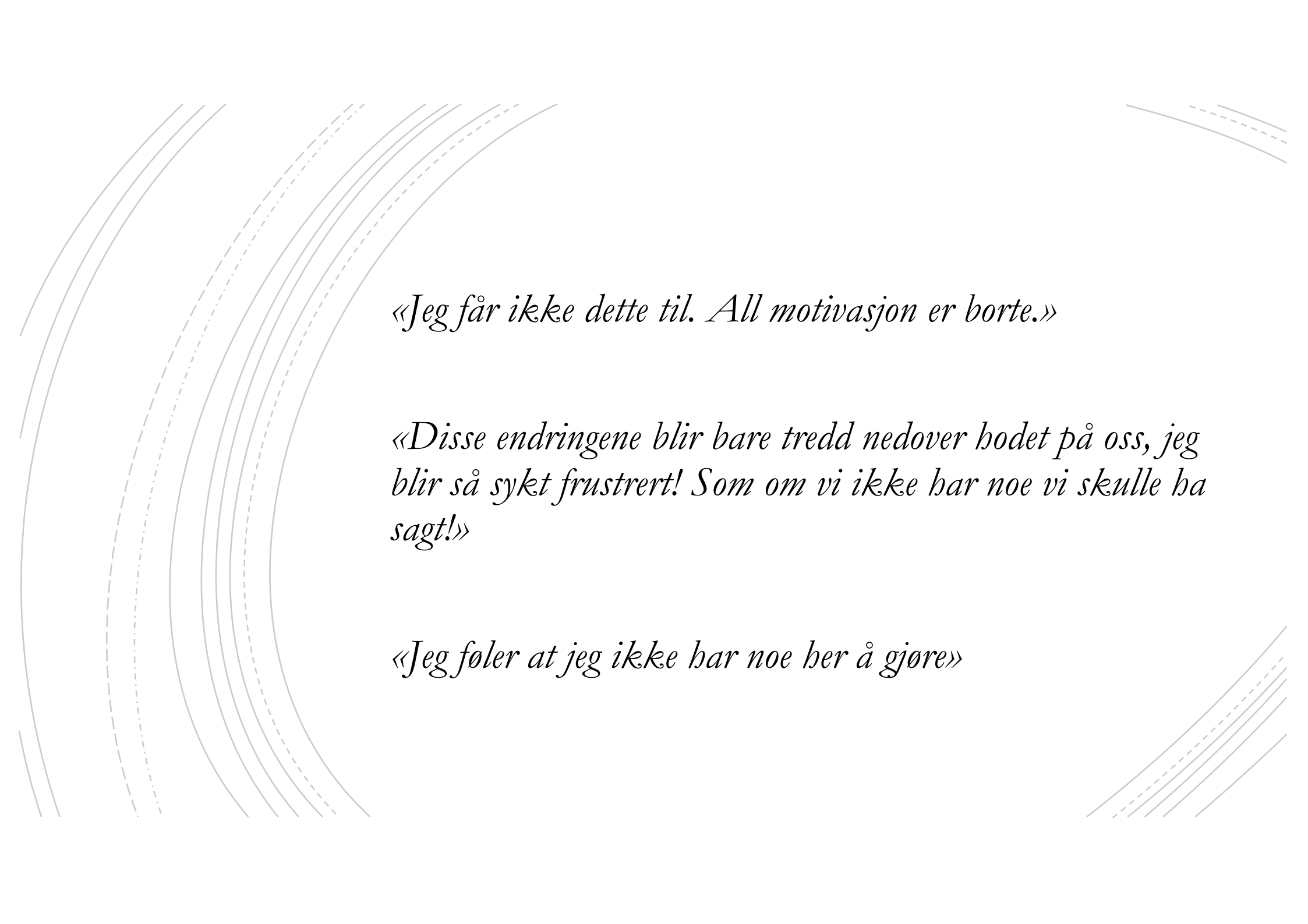
«Ja, det skjønner jeg, men det finnes jo jobber med litt mindre arbeidsbelastning, som kanskje kunne passet deg bedre?»



«Men ærlig talt! Du er ikke ubrukelig, du må bare skjerpe deg».

- selvreferering
- ordet «men»
- være en ekspert som skal løse problemet
- oppmuntre
- avfeie eller bagatellisere
- bli redd for sterke følelser





«Jeg får ikke dette til. All motivasjon er borte.»

«Disse endringene blir bare tredd nedover hodet på oss, jeg blir så sykt frustrert! Som om vi ikke har noe vi skulle ha sagt!»

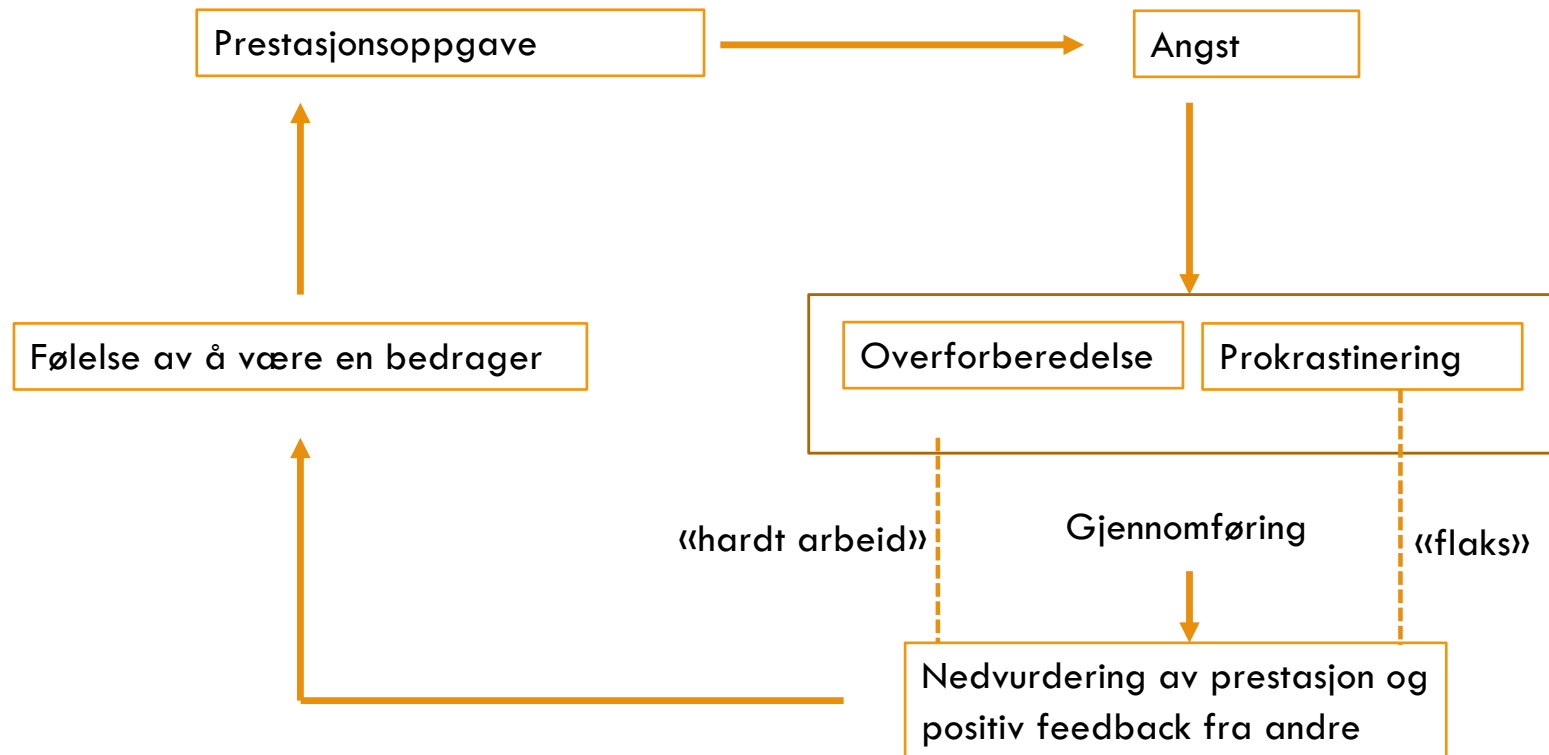
«Jeg føler at jeg ikke har noe her å gjøre»

NOEN HJELPEINSTANSER

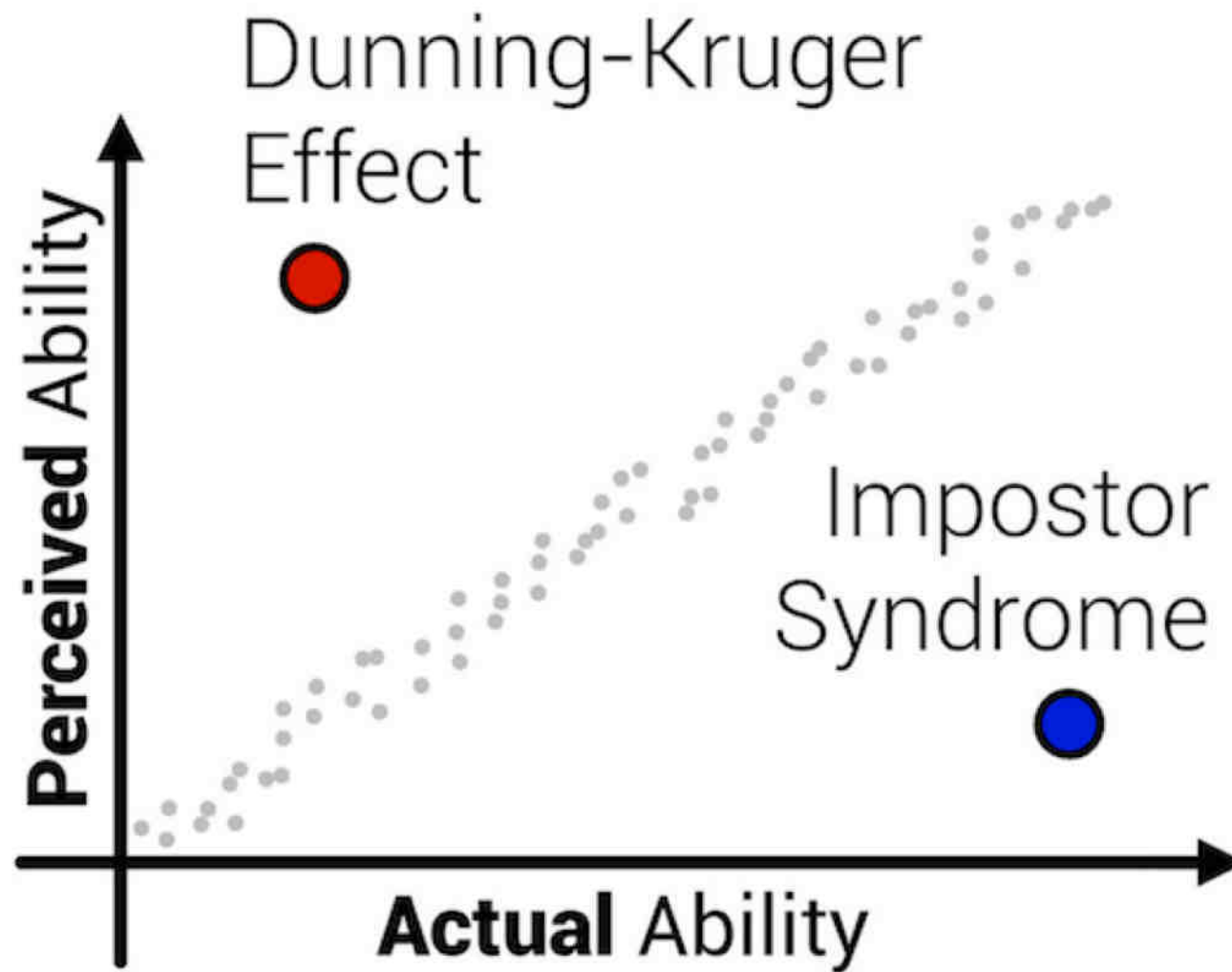
- Studiekonsulent
- Studentsamskipnaden SiO
- Hjelpetelefoner:
 - Studentttelefonen: 116 123
 - Kirkens SOS: 22 40 00 40
- Fastlegen
- Sosial og ambulant akuttjeneste: 23 48 70 90

Hva er
bedrager-
syndromet?

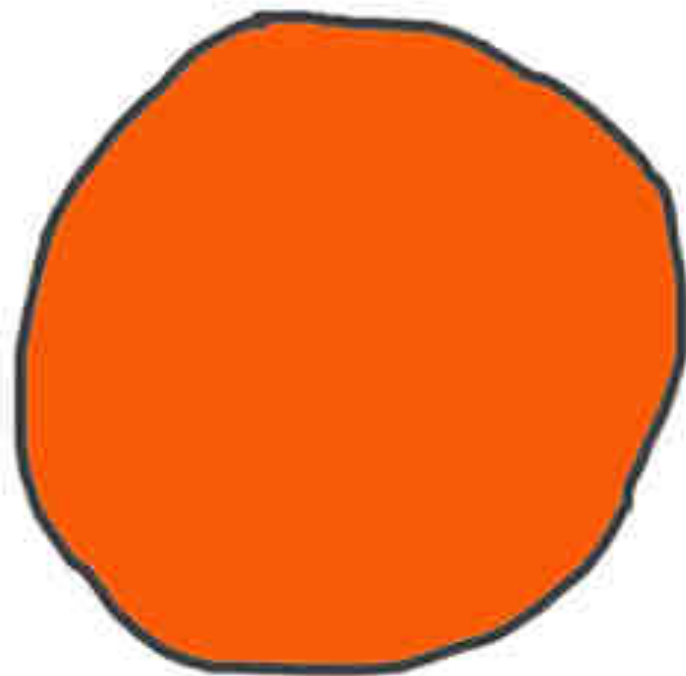




Fra Clance (1985)



TYPES OF PEOPLE WHO CAN HAVE IMPOSTOR SYNDROME:



- ALL THE SMART, SUCCESSFUL
PEOPLE THAT YOU THINK
HAVE THEIR SHIT TOGETHER

The background of the slide features several sets of thin, curved lines in a light gray color. These lines are arranged in a way that suggests a sense of movement or flow, with some lines being solid and others dashed. The lines are primarily located on the left and right sides of the slide, framing the central content.

Risikofaktorer

- Perfeksjonisme
- Nevrotisisme
- Familiebakgrunn og samfunnskontekst

The background features a series of concentric circles and curved lines in a light gray color, creating a sense of depth and movement. The lines are of varying thicknesses and some are dashed, adding to the abstract aesthetic.

Hvordan oppleves
bedragersyndromet?

stress og angst

overarbeid og utbrenthet

bekymring

og

grubling

«selvpining»

Konsekvenser

skyld og skam

høy
kompetanse?

sikter lavere?

The background features several sets of curved, concentric lines in a light gray color, creating a sense of depth and movement. These lines are more prominent on the left side and fade towards the right.

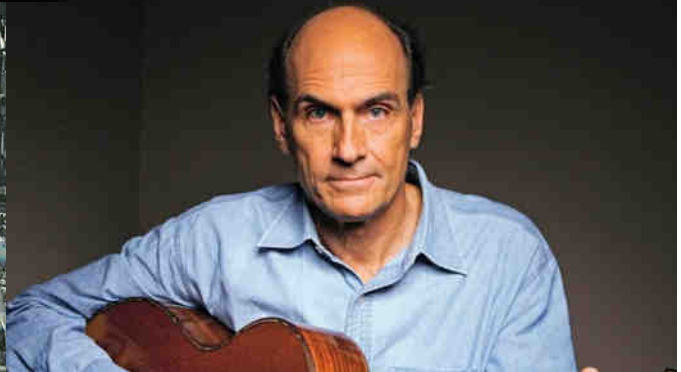
Hva hjelper?

- Normalisering og gjenkjenning
- Omfavne feil
- Utfordre egne tanker
- Åpenhet

The background of the slide features several sets of thin, curved lines in a light gray color. These lines are arranged in a way that suggests movement or a stylized representation of a globe or a network. They are primarily located on the left and right sides of the slide, framing the central content.

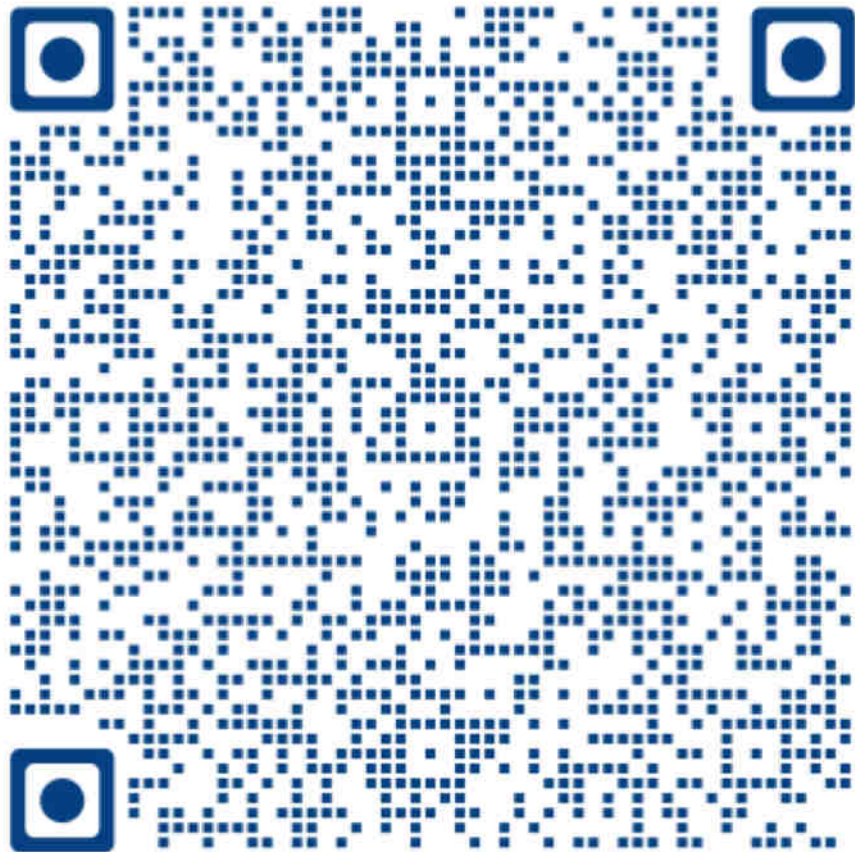
Til diskusjon

- Hvordan tenker du man kan håndtere bedragersyndromet?



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SCAN ME

GI MEG FEEDBACK!

Takk for meg!

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