

1 Basic rationale of low intensity treatments

2 Understanding BA from the perspective of learning theory and neuroscience

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Lecture plan (some of it might change)

1. Basic rationale of behavioural activation (BA) and other low intensity treatments
2. Understanding BA from the perspective of learning theory and neuroscience
3. The practical methodology of BA and other low-intensity skills
4. Evaluating efficacy and areas of clinical application
5. Implementation and dissemination, challenges and solutions
6. Discussion, Q&A with a Psychological Wellbeing Practitioner from the UK

Other low intensity interventions?

- **Problem solving**
- **Worry management**
- **Graded exposure**
- **Sleep management**
- **Motivational interviewing**
- **Physical exercise interventions**

Problem solving



- First outlined by D'Zurilla and Goldfried (1971)
- Step-by-step system to approach and solve problems
- Aim to empower patients with skills

adopted for the treatment of depression and anxiety across a variety of populations: older adults (Kirkham et al., 2016), veterans (Kasckow, et al., 2014), ethnic minorities (Unlu Ince et al., 2013) and patients with chronic-obstructive pulmonary disease (Lee et al., 2015) and cancer (Hopko et al., 2011)

Problem statement:

Over the last few months I have been feeling stressed and overwhelmed due to lots of pressures in everyday life. I have been working long hours to try to help this, but this has meant that I am constantly tired and irritable and I have been seeing much less of my family and spending less quality time with my children.

I have also been avoiding addressing problems elsewhere. As a result, I have thoughts of 'I can't cope' and 'I'm a bad parent'. This is impacting on my relationships with others.



Problem solving

1. Explain problem solving

2. Identify main problems

Worksheet 16.2 Jamie's problem list

Problem list			
Main problem area	Main problem area		
<i>Work</i>	<i>Financial</i>		
Specific problems <i>Not getting on with colleagues</i> <i>Having to cover for two colleagues who are off on long-term sick leave</i> <i>Current project is behind</i> <i>Getting to work</i>	Specific problems <i>Credit card payment is overdue</i> <i>Always running out of money towards the end of the month</i> <i>Car MOT</i>	Least difficult to solve	Least difficult to solve
		<i>Getting to work</i> <i>Having to cover for two colleagues who are off on long-term sick leave</i>	
Most difficult to solve	Most difficult to solve		
<i>Current project is behind</i> <i>Not getting on with colleagues</i>	<i>Always running out of money towards the end of the month</i>	Selected problem <i>Having to cover for two colleagues who are off on long-term sick leave</i>	
Medium difficulty solving	Medium difficulty solving		
	<i>Credit card payment is overdue</i> <i>Car MOT</i>		

Problem solving

- 1. Explain problem solving**
- 2. Identify main problems**
- 3. Generate potential solutions**

Problem-solving worksheet

Identify the problem

Having to cover for two colleagues who are off with long-term sickness

Potential solutions
(Generate as many as possible)

*Quit my job
Continue as I am currently – do nothing
Speak to manager and discuss difficulties managing workload
Refuse to do the extra work
Delegate more responsibilities
Ask colleagues for help
Organise a team night out to boost morale
Book some annual leave*

Problem solving

1. Explain problem solving
2. Identify main problems
3. Generate potential solutions
4. Evaluate pros and cons

Solution: <i>Quit my job</i>	
Advantages	Disadvantages
<i>Would no longer have the stress Would have lots of spare time</i>	<i>Don't have another job to go to Would be more stressed due to financial issues Could lose house if we can't pay the mortgage Would miss my job as it's something I am good at</i>
Solution: <i>Speak to manager and discuss difficulties managing workload</i>	
Advantages	Disadvantages
<i>They may not know how much work I currently have to do They may be able to take some of the responsibilities from me They could help with some of the tasks themselves</i>	<i>They may just expect me to continue working as I am I may be seen as less capable than colleagues</i>

Problem solving

1. Explain problem solving
2. Identify main problems
3. Generate potential solutions
4. Evaluate pros and cons
5. Select the solution that seems best

Chosen solution
Implementation plan What are you going to do? When are you going to do it?



Problem solving

- 1. Explain problem solving**
- 2. Identify main problems**
- 3. Generate potential solutions**
- 4. Evaluate pros and cons**
- 5. Select the solution that seems best**

- 6. Make a specific plan: what, where, when, with whom**



Problem solving

- 1. Explain problem solving**
- 2. Identify main problems**
- 3. Generate potential solutions**
- 4. Evaluate pros and cons**
- 5. Select the solution that seems best**
- 6. Make a specific plan: what, where, when, with whom**

- 7. Attempt the solution**



Problem solving

- 1. Explain problem solving**
- 2. Identify main problems**
- 3. Generate potential solutions**
- 4. Evaluate pros and cons**
- 5. Select the solution that seems best**
- 6. Make a specific plan: what, where, when, with whom**
- 7. Attempt the solution**

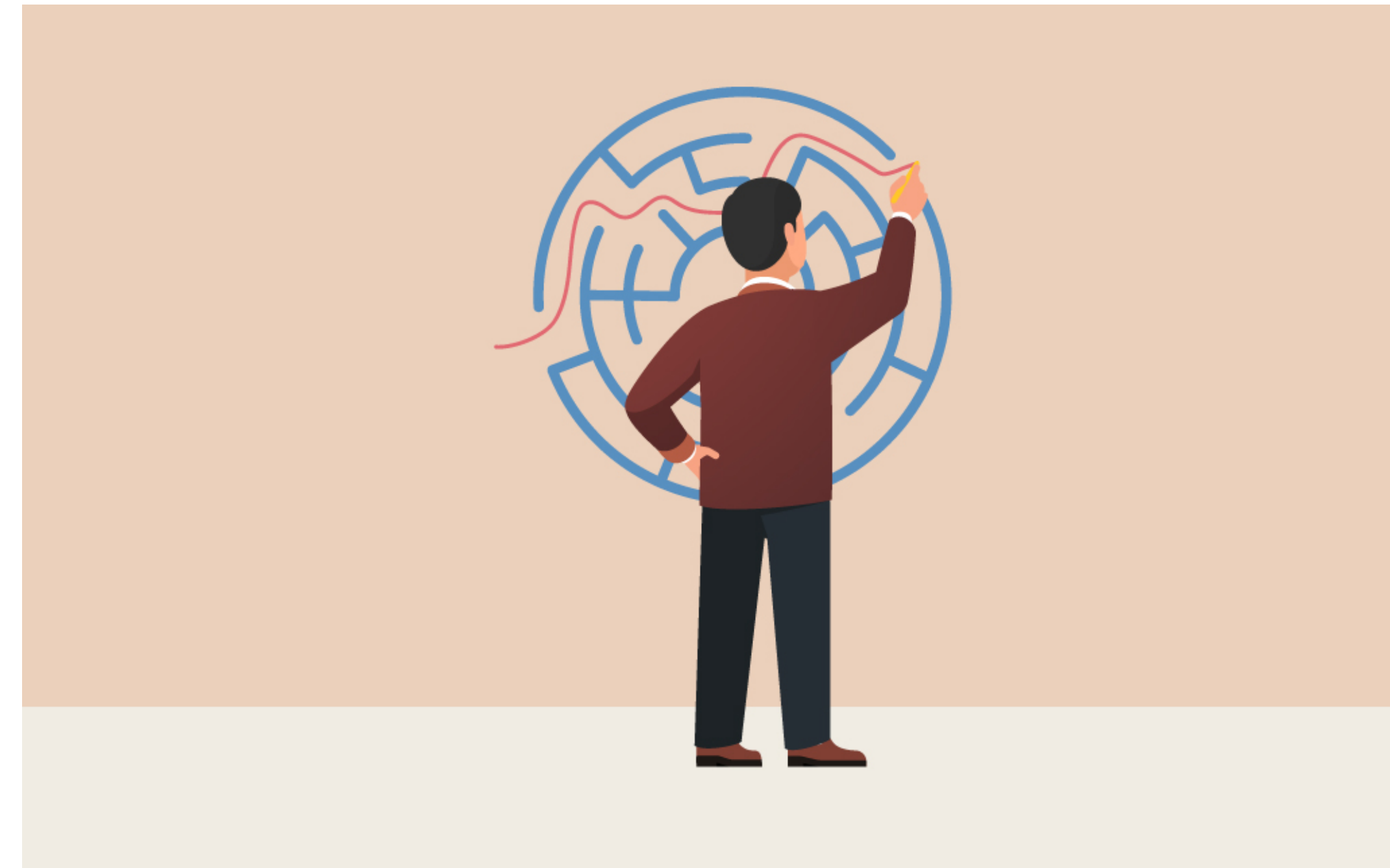
- 8. Review & problem solve**



Try it yourself!

Problem: Your friend is losing motivation to finish their degree

1. Explain problem solving
2. Identify main problems
3. Generate potential solutions
4. Evaluate pros and cons
5. Select the solution that seems best
6. Make a specific plan: what, where, when, with whom
7. Attempt the solution
8. Review & problem solve



Mynors-Wallis et al. (1995)

- **90 patients with major depression**
- **Randomised to 1) problem solving (6 short sessions over 12 weeks), 2) antidepressant or 3) placebo**
- **No significant difference found between problem solving (60% recovered) and antidepressant (50% recovered)**
- **High patient satisfaction after PS**
- **30% recovered on placebo**

The efficacy of problem solving therapy in reducing mental and physical health problems: A meta-analysis

John M. Malouff^{*}, Einar B. Thorsteinsson, Nicola S. Schutte

The meta-analysis, encompassing 2895 participants, showed that PST is significantly more effective than no treatment ($d = 1.37$), treatment as usual ($d = 0.54$), and attention placebo ($d = 0.54$), but not significantly more effective than other bona fide treatments offered as part of a study ($d = 0.22$).

**How many of you
have struggled or
know someone
who has struggled
with insomnia?**



Digital LI treatment for insomnia



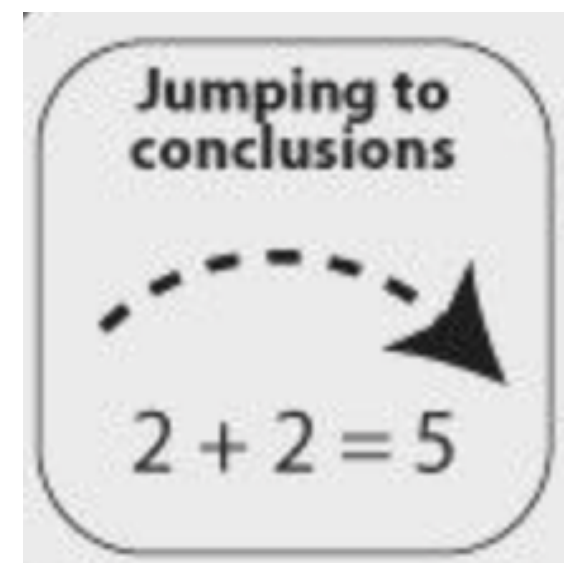
cognitive distortions



“If he doesn’t text back quickly he’s a bad boyfriend”



“He never texts me back quickly”



“I’m sure he wants to break up with me”



“This always happens to me”

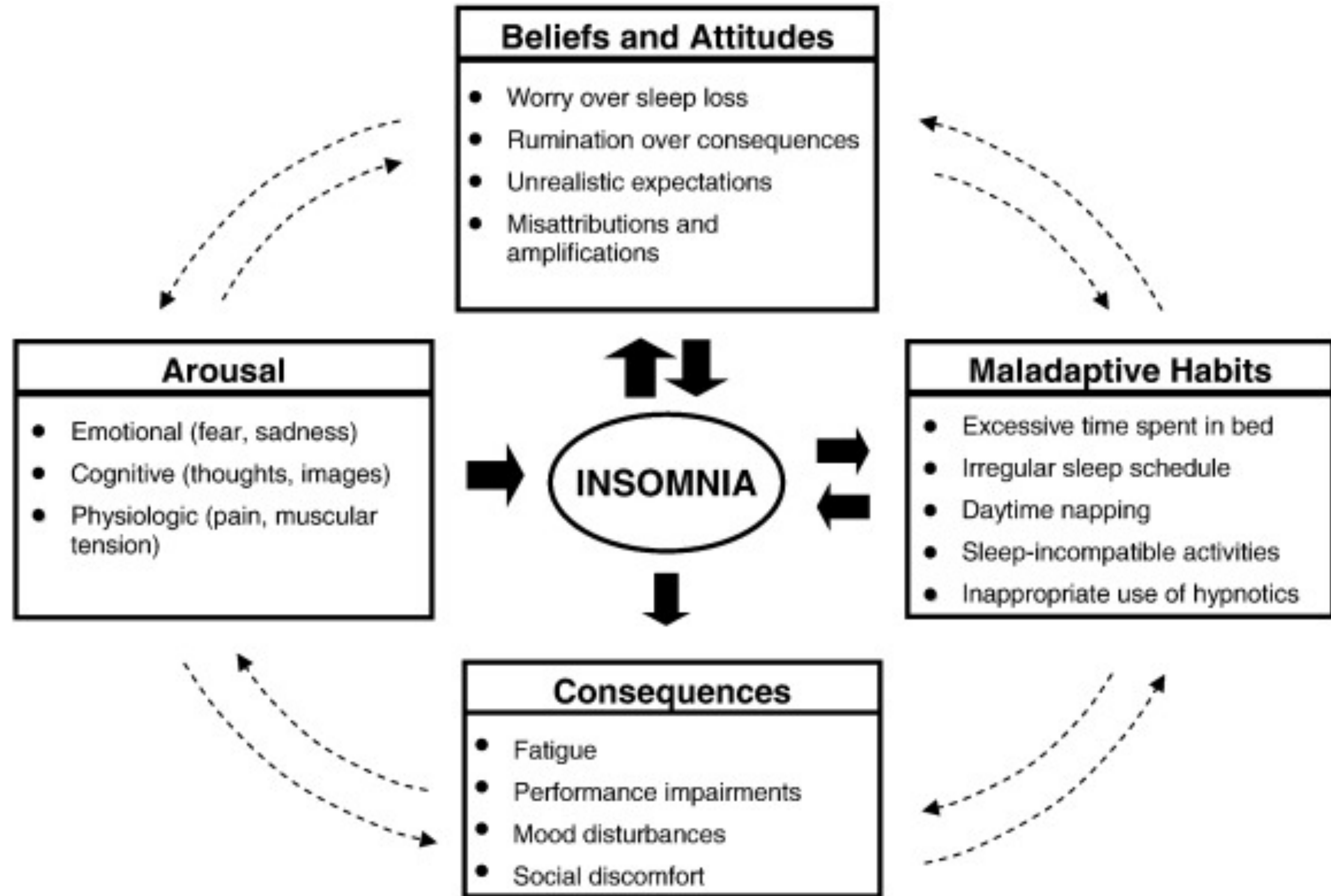


“I’m such an idiot”



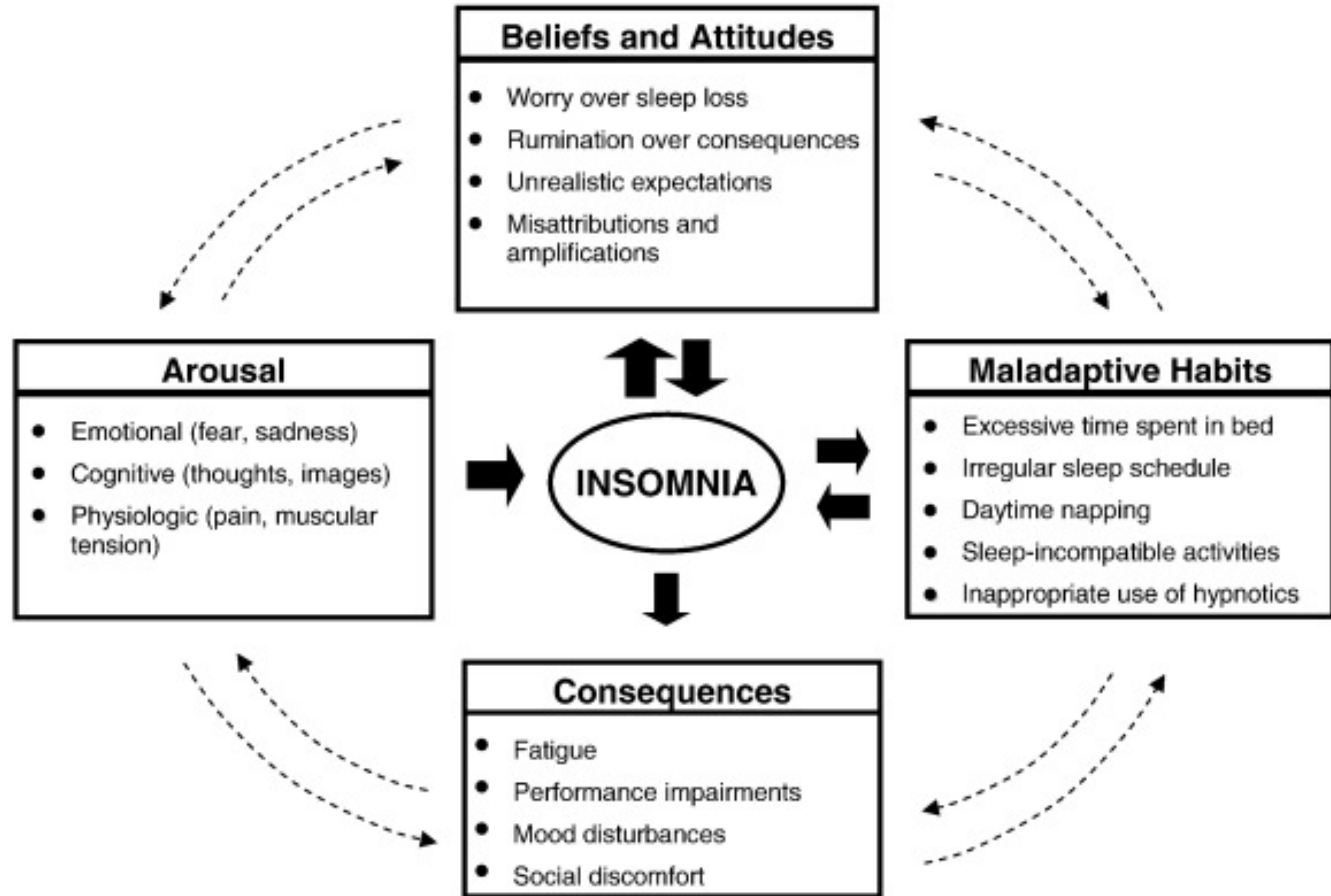
“He is probably mad at me”

CBT model of insomnia



CBT tools

- Examining sleep-related thoughts
- Correcting distortions
- Setting up realistic expectations
- Sleep restriction
- Sleep hygiene



Sleepio is a 6 week online program designed by sleep experts and based on cognitive and behavioral techniques.



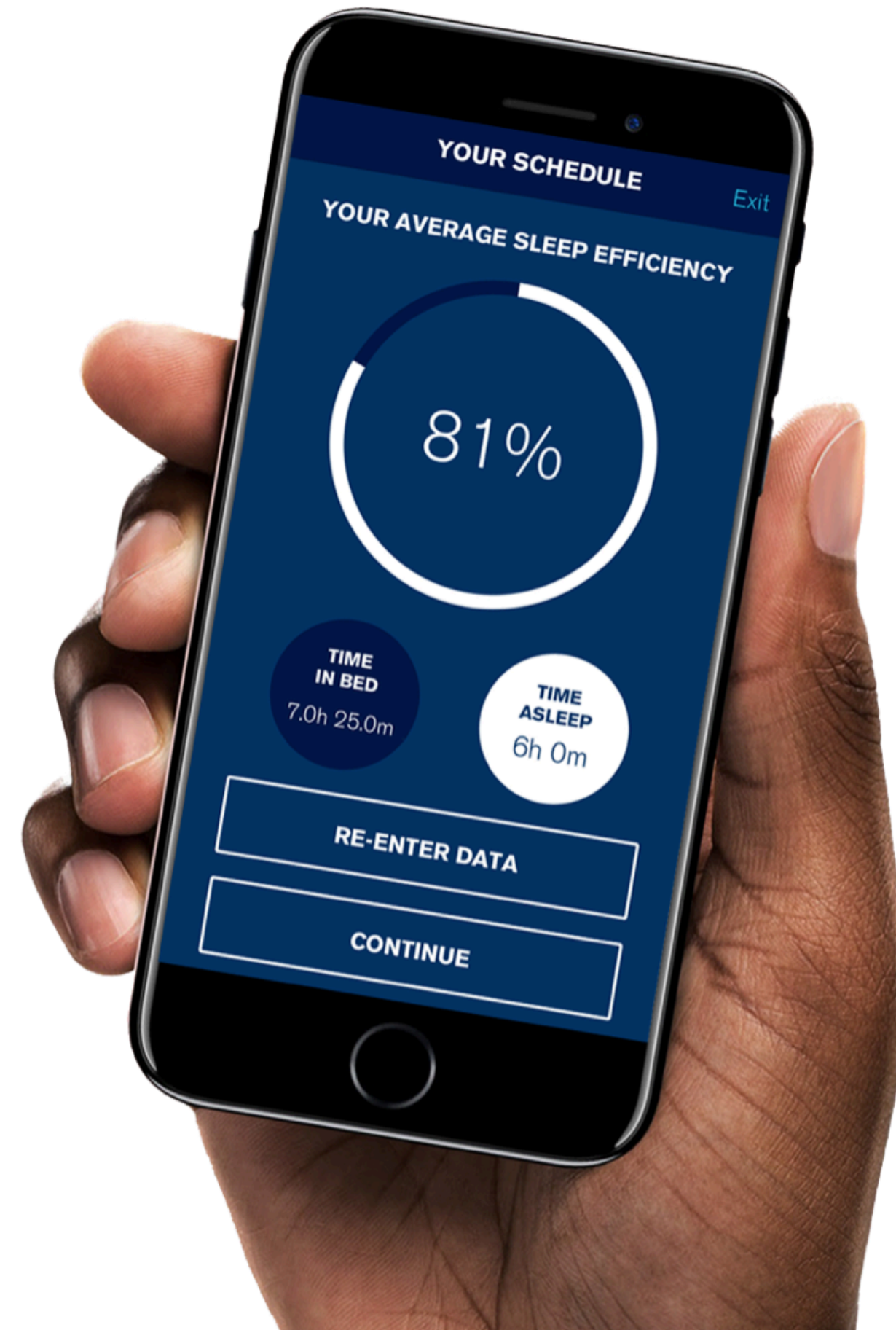
Sleep Restriction

The most powerful way to increase your sleep drive and reset your sleep schedule.



Stimulus Control

Rebuild a healthy association between your bed and sleep.



Cognitive Tools

Manage the worries and thoughts that make it difficult to sleep.



Sleep Hygiene Review

Optimize your environment and habits for better sleep.

- Fully automated
- Algorithms for personalised recommendations

How would you like to improve your sleep?

Select all that apply

Get to sleep more easily

Sleep right through the night without waking up

Stop waking up too early

Wake up feeling refreshed

None of the above

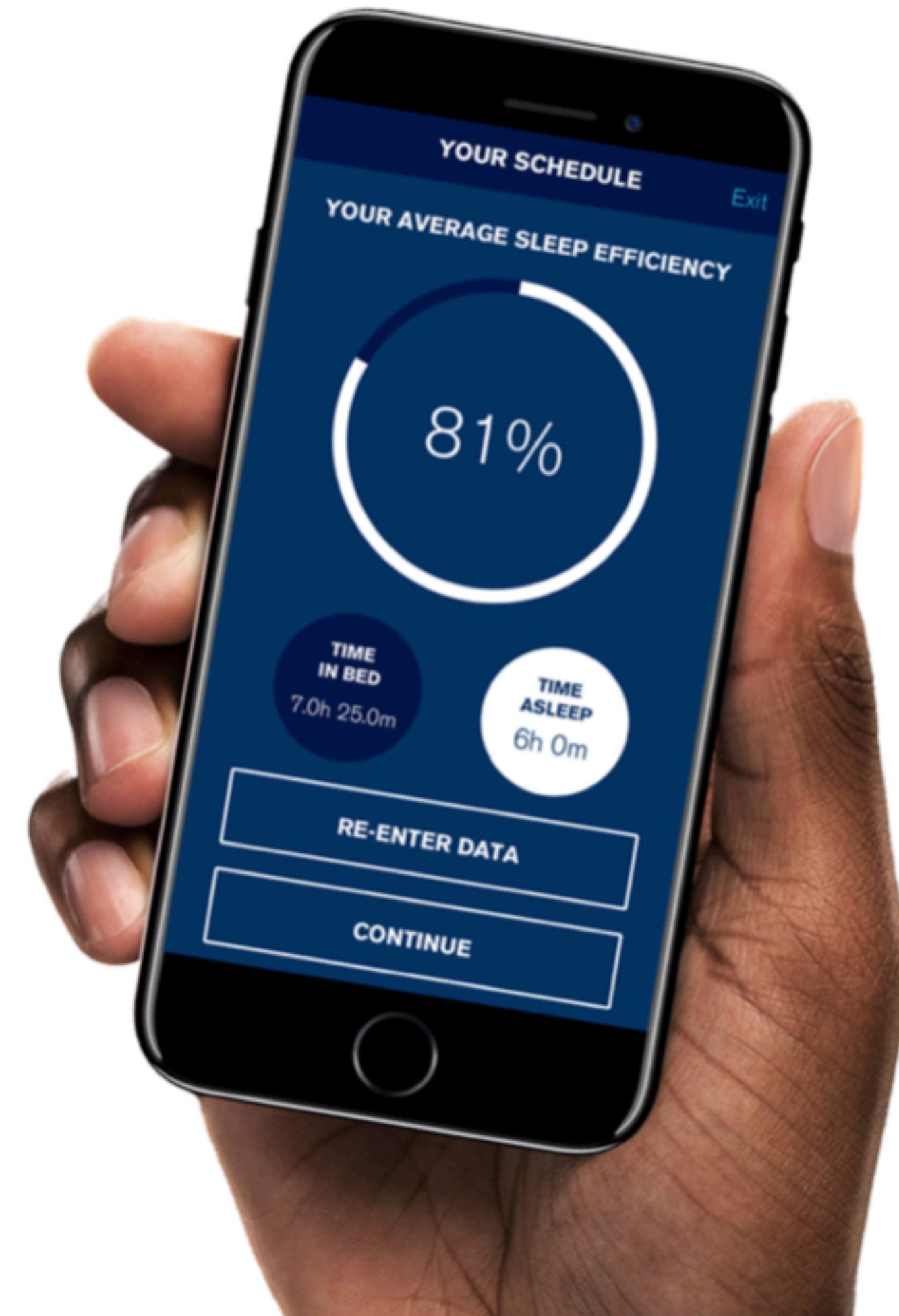
Session Two
**Your bedroom,
lifestyle,
and thoughts**

- 1 Your lifestyle
- 2 Your bedroom
- 3 The truth about sleep
- 4 Challenging negative thoughts
- 5 The Weekly Quiz

A cartoon character in a red jacket and glasses is walking in the background of the slide.

Espie et al. (2019)

- Over 1700 participants
- Randomised 12 weeks of Sleepio programme vs sleep hygiene education website (superiority trial)



Espie et al. (2019)

- Over 1700 participants
- Randomised 12 weeks of Sleepio programme vs sleep hygiene education website (superiority trial)
- Significantly improved sleep, physical health, wellbeing

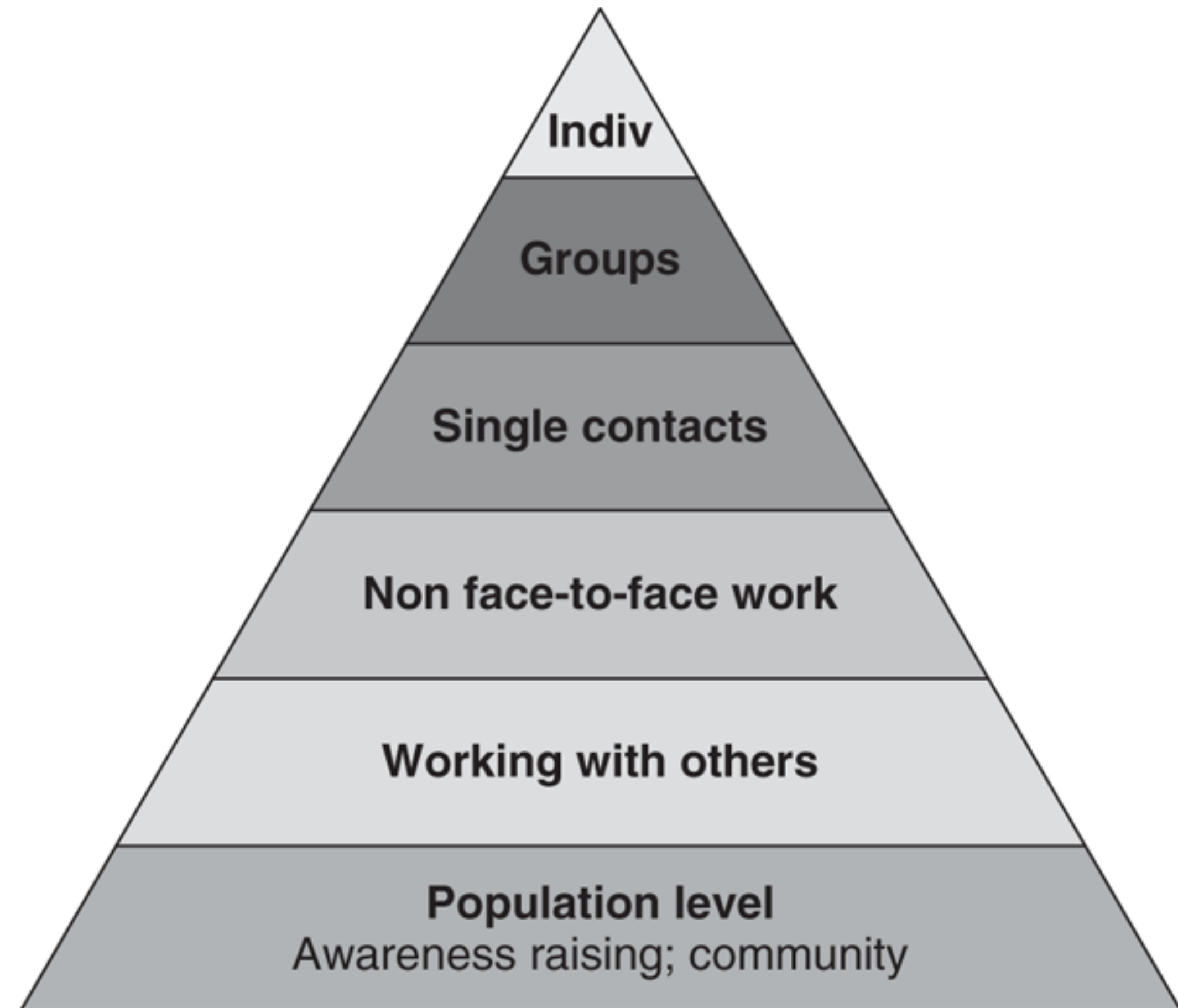
Assessment ^a	Unadjusted, Mean (SD)		Adjusted Difference (95% CI)	Cohen <i>d</i>	<i>P</i> Value
	SHE + TAU	dCBT + TAU			
PROMIS-10					
Week 4	32.52 (6.05)	33.84 (6.49)	0.90 (0.40 to 1.40)	0.16	<.001
Week 8	32.92 (6.18)	35.08 (6.65)	1.76 (1.24 to 2.28)	0.31	<.001
Week 24	33.10 (6.10)	35.24 (6.88)	1.76 (1.22 to 2.30)	0.31	<.001
WEMWBS					
Week 4	44.72 (8.21)	46.03 (8.55)	1.04 (0.28 to 1.80)	0.13	.007
Week 8	45.16 (8.77)	48.12 (8.82)	2.68 (1.89 to 3.47)	0.35	<.001
Week 24	45.31 (8.89)	48.62 (9.02)	2.95 (2.13 to 3.76)	0.38	<.001
GSII ^b					
Week 4	69.80 (23.64)	60.69 (26.20)	-8.76 (-11.83 to -5.69)	-0.69	<.001
Week 8	65.68 (25.86)	46.78 (29.90)	-17.60 (-20.81 to -14.39)	-1.38	<.001
Week 24	63.33 (27.26)	43.78 (31.25)	-18.72 (-22.04 to -15.41)	-1.46	<.001

Abbreviations: dCBT, digital cognitive behavioral therapy; GSII, Glasgow Sleep Impact Index; PROMIS-10, 10-item Patient-Reported Outcomes Measure; SHE, sleep hygiene education; TAU, treatment as usual; WEMWBS, Warwick-Edinburgh Mental Well-being Scale.

Integrating LI interventions into the healthcare system

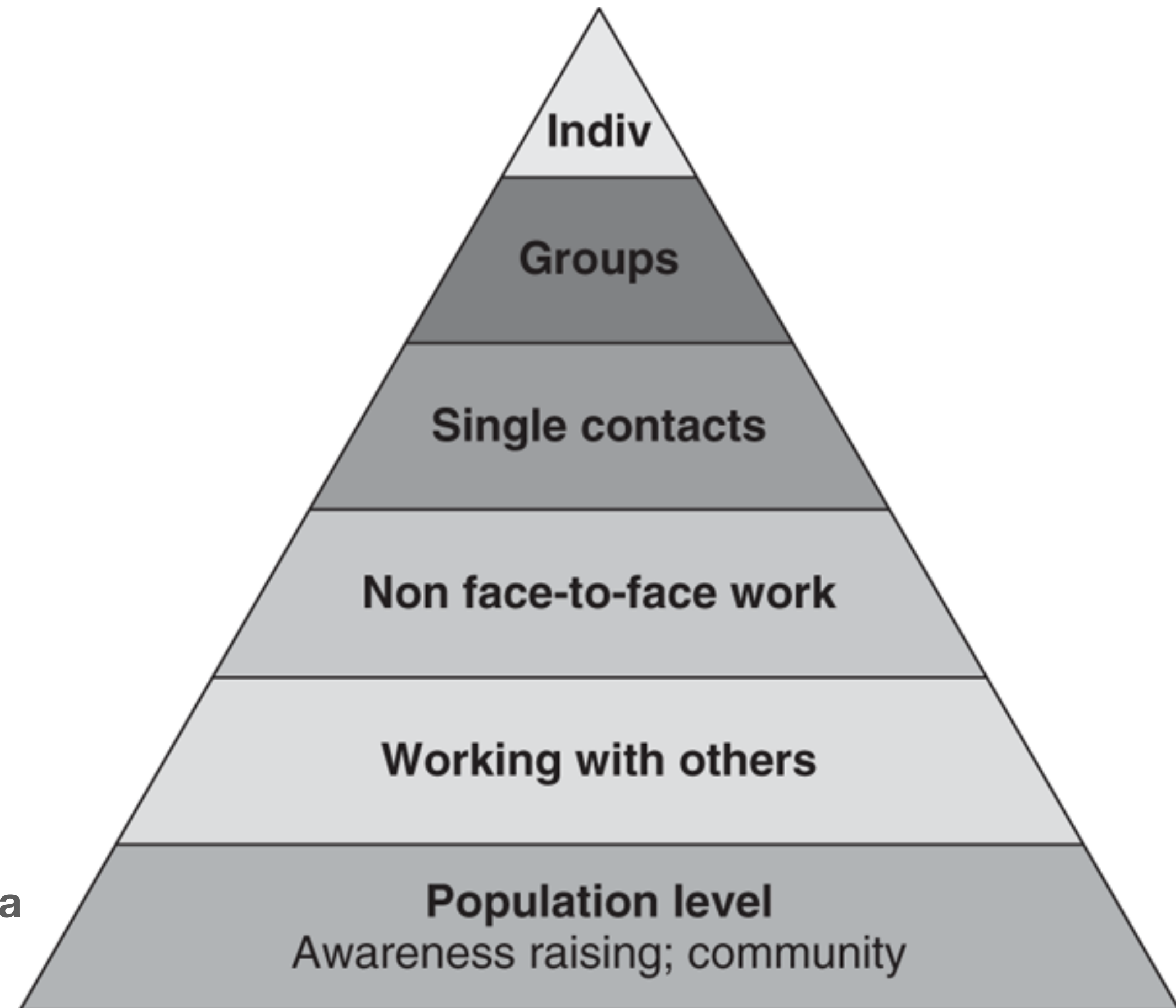
STEPS system

- intervene early
- support prevention
- distribute resources efficiently



STEPS system

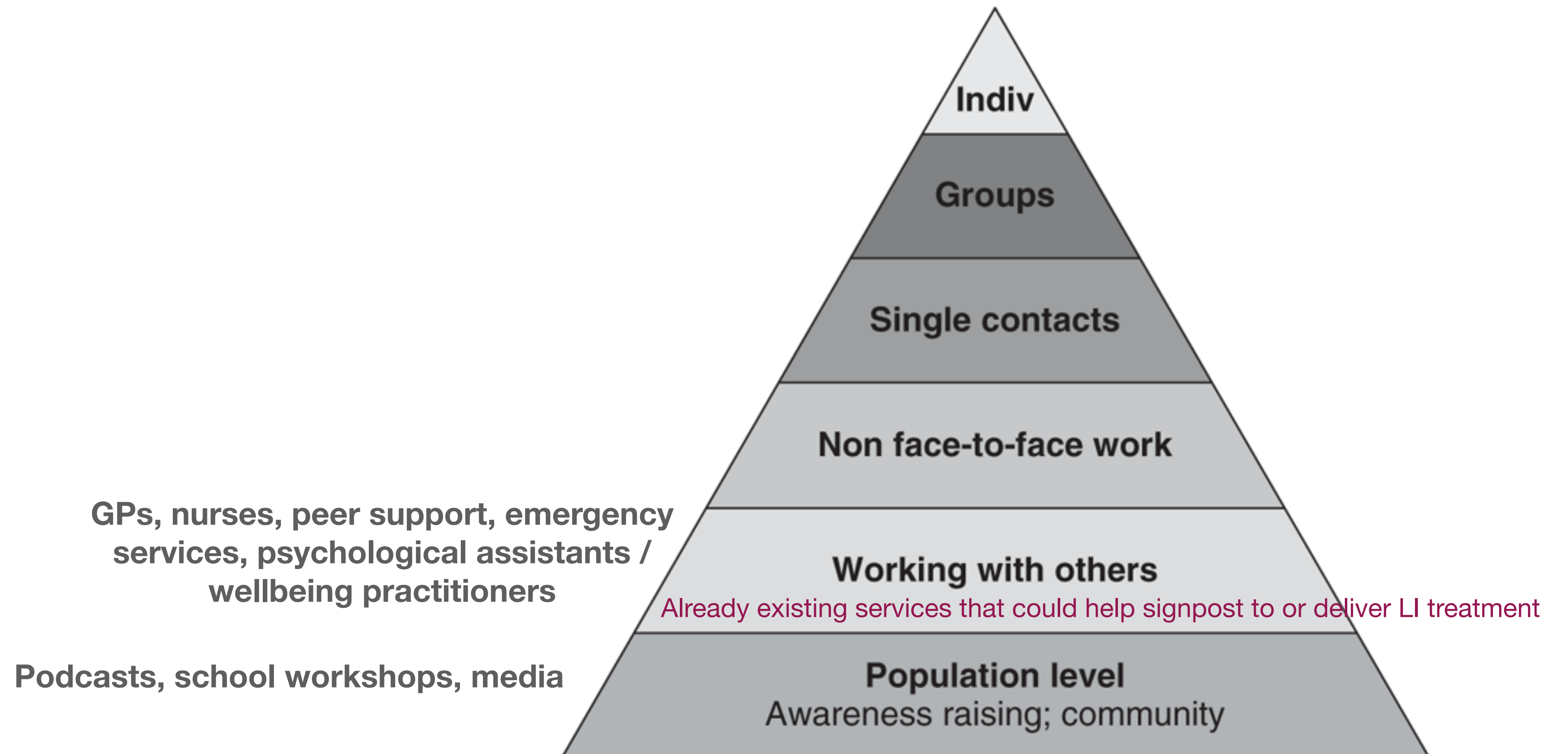
- intervene early
- support prevention
- distribute resources efficiently



Podcasts, school workshops, media

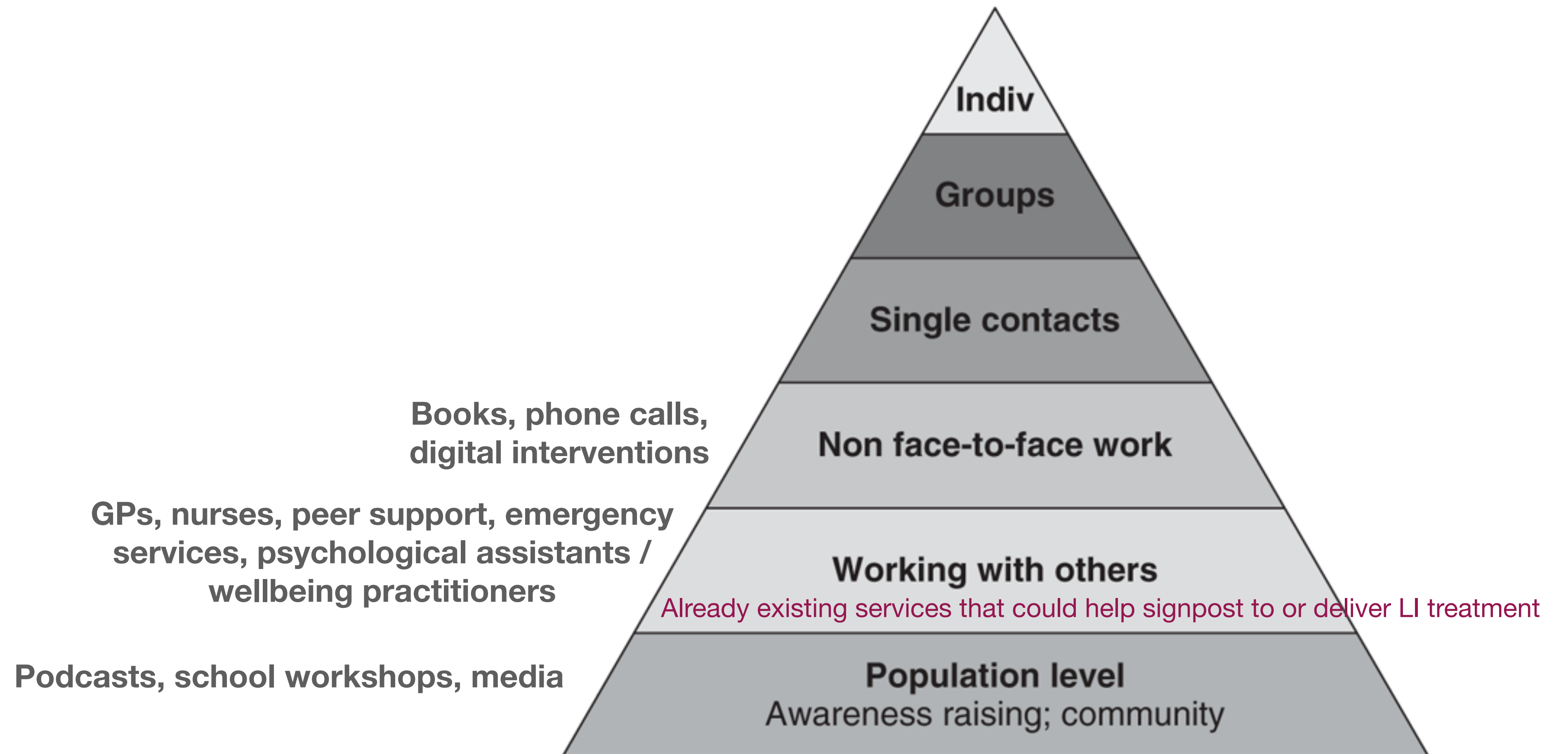
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- intervene early
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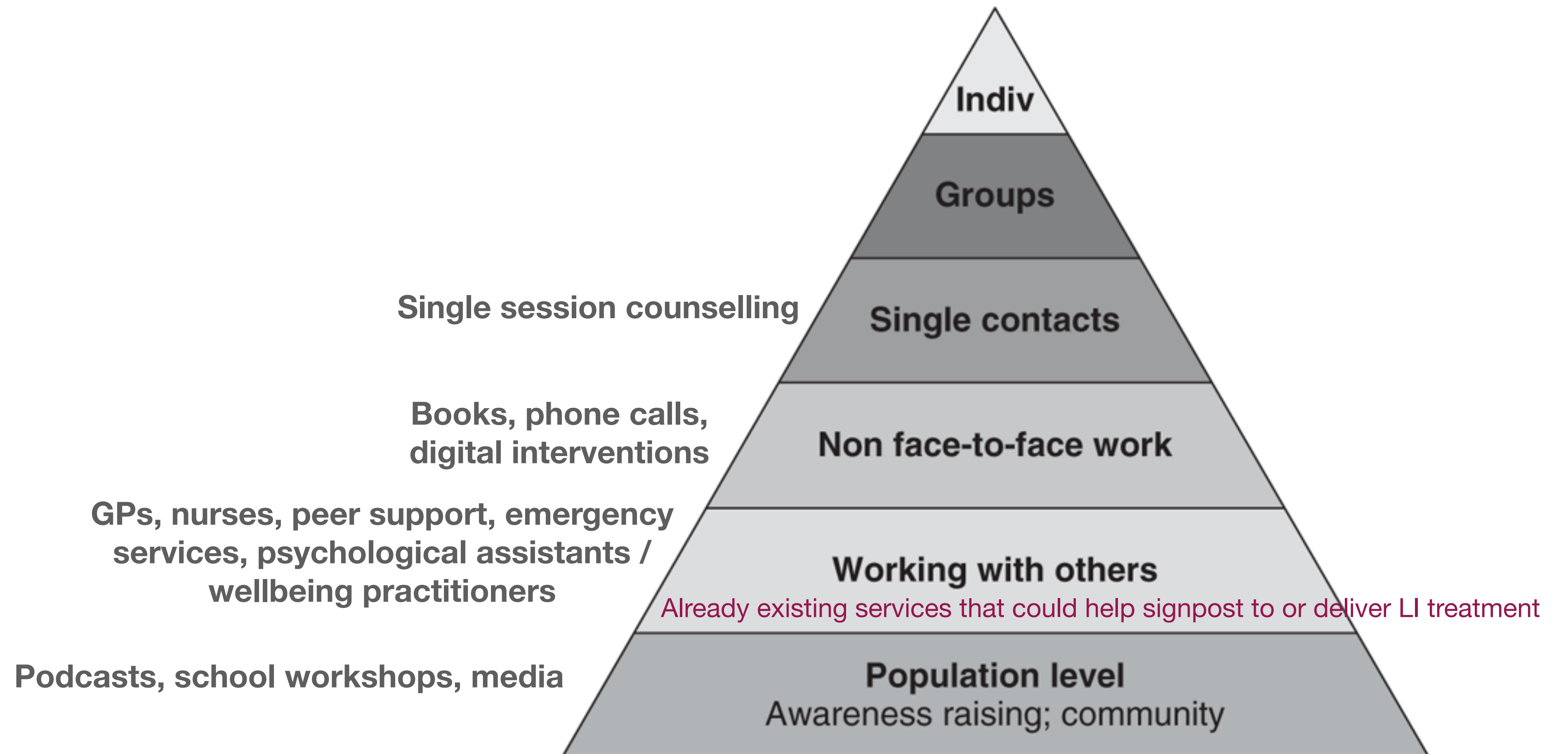
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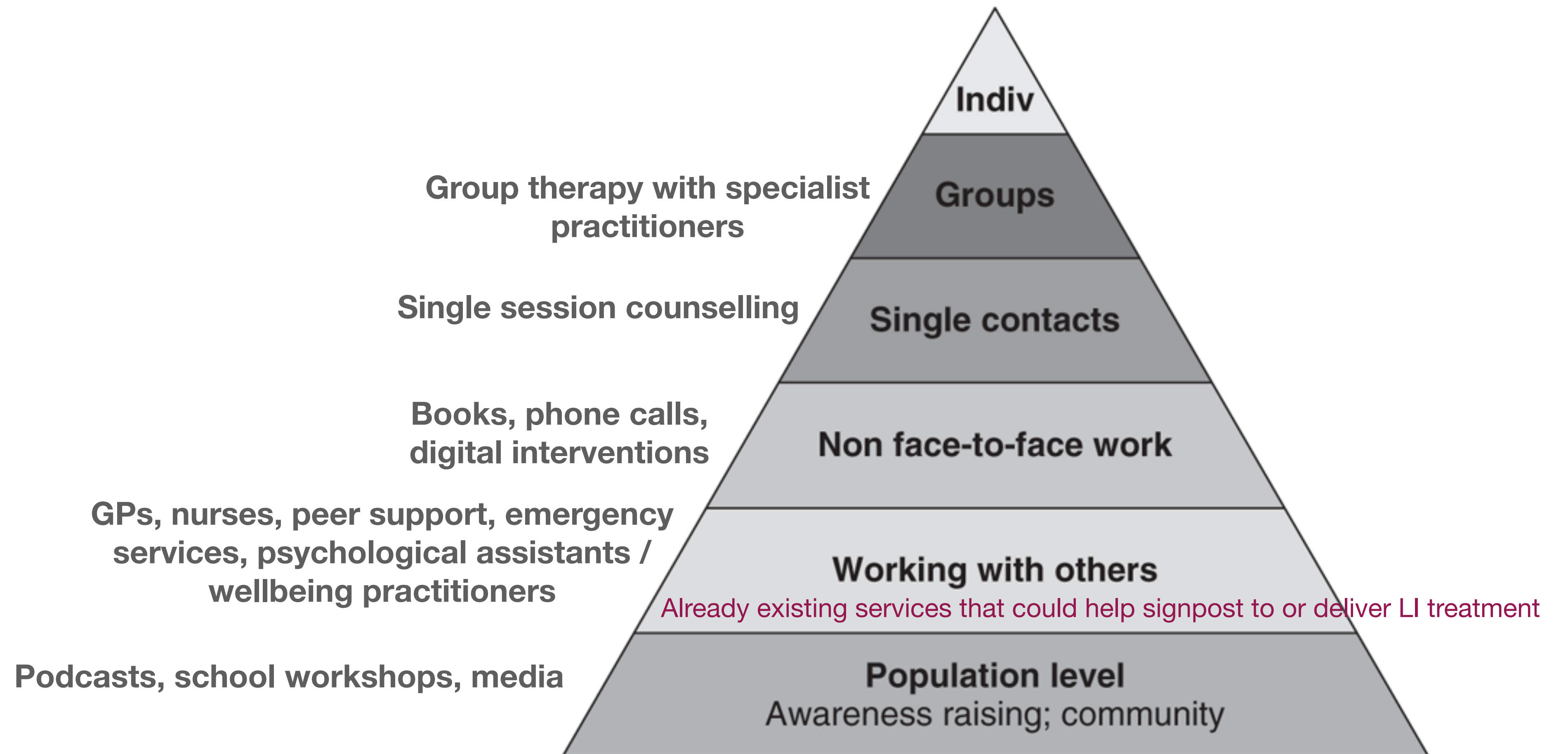
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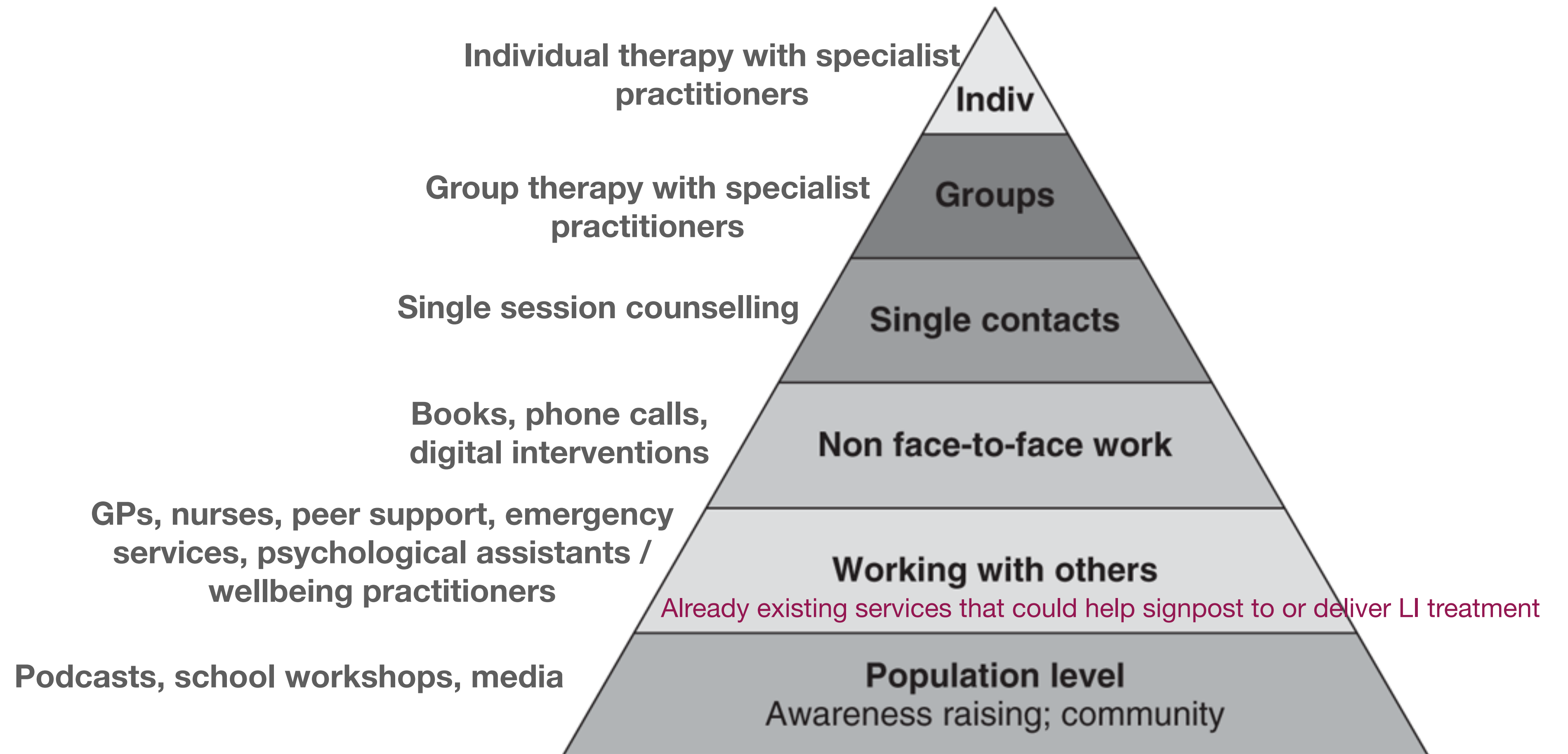
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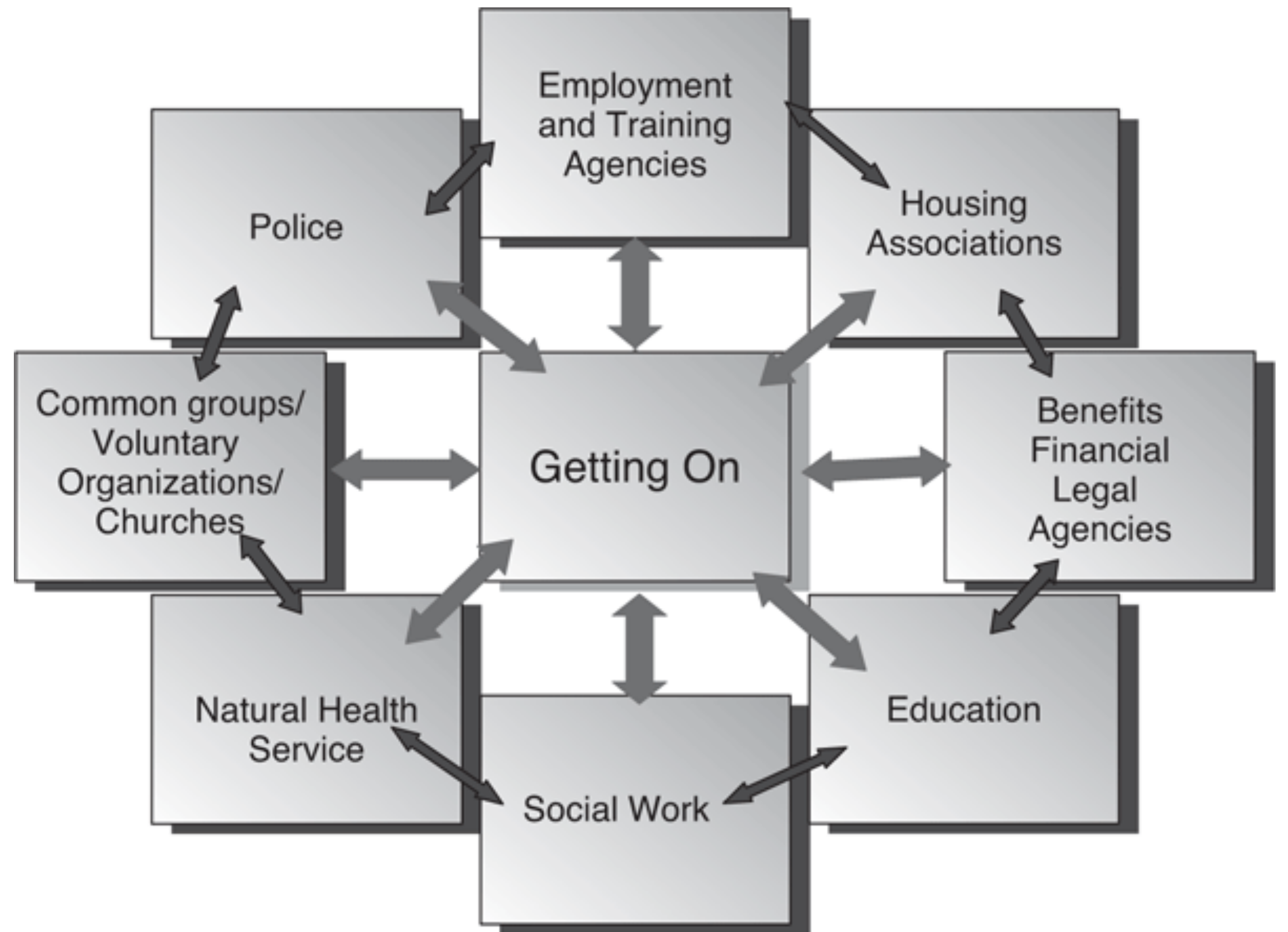


STEPS system

- intervene early
- support prevention
- distribute resources efficiently



Network



David Clark & Richard Layard

- In 2007, less than 5% of UK adults with anxiety and depression would access evidence-based psychotherapy
- Waiting lists often over a year long
- Survey showed public preferred psychological therapy to medication
- Similar situation (or worse) all around the world

NICE National Institute for
Health and Care Excellence



David Clark & Richard Layard

- Untreated depression and anxiety reduce GDP by 4% (absenteeism and presenteeism)
- Increased access to psychological therapy will have **a minimal net cost**

London School of Economics



THE DEPRESSION REPORT **A New Deal for Depression and Anxiety Disorders**

**The Centre for Economic Performance's
Mental Health Policy Group**

June 2006



David Clark & Richard Layard

- On World Mental Health Day in October 2007 the UK Government announced an unprecedented, large-scale initiative for **Improving Access to Psychological Therapies (IAPT)** for depression and anxiety disorders within the English National Health Service
- Between 2008 and 2011 investment in psychological therapies would rise to **£173 million per annum** above existing expenditure
- The extra investment would be used to train and employ at least **3600** new psychological therapists who will work in new IAPT clinical services offering evidence-based psychological therapies



Clark et al. (2009)

- Two pilot services in Doncaster and Newham during first 13 months
- Patients seen within 21 days
- Offering HI specialist therapy or LI (most commonly guided self-help)
- Self-referral or GP-referral
- Careful outcome monitoring
- 50-60% recovery if at least two or more sessions, compared with 20% spontaneous recovery
- 4-10% increase in employment

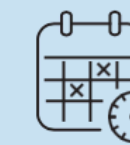


IAPT successes

- Trained 10 000 therapists
- Treats over 1 000 000 patients annually now
- Aims for 50% patients recovering and 75% improving
- Collects outcome data on 98% patients
- Similar services now implemented in Australia, Israel, Norway, Sweden
- Recent evaluation: <https://youtu.be/T1r3ZqZK4ig>



89.9% of referrals accessing IAPT within 6 weeks



8.1 sessions of treatment on average per referral

OPINION

For better mental-health care in Canada, look to Britain

DAVID GRATZER AND DAVID GOLDBLOOM

The New York Times

England's Mental Health Experiment: No-Cost Talk Therapy

LONDON — England is in the midst of a unique national experiment, the world's most ambitious effort to treat depression, anxiety and other common mental illnesses.

Therapy deficit

[*Nature*](#) **489**, 473–474 (2012)

“This programme represents a world-beating standard thanks to the scale of its implementation.”

Understanding BA from the perspective of learning theory and neuroscience

Behaviourists & depression

- **Science and human behaviour (Skinner, 1957)**
- **Functional analysis of depression (Ferster 1973)**

“A depressed person may sit silently for long periods, or perhaps even stay in bed all day.”



Driving forces of behaviour

... according to behaviourists

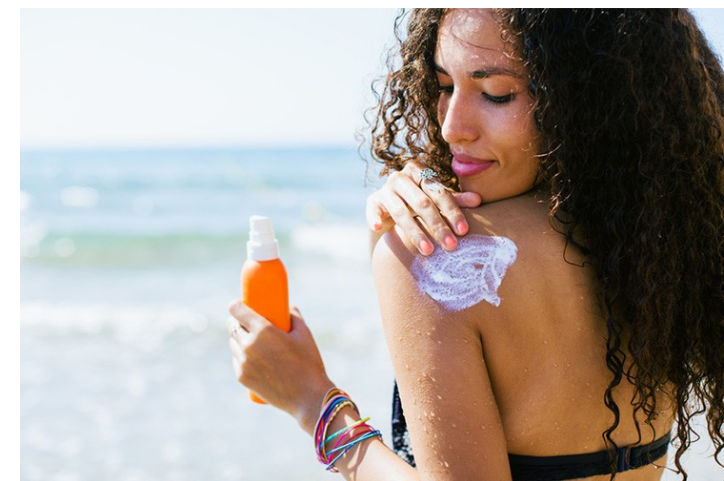
- **Reinforcement** = leads to increase in behaviour

- **Positive reinforcement**



behaviour => something good happens

- **Negative reinforcement**



behaviour => something bad doesn't happen

- **Punishment** = leads to decrease in behaviour

behaviour => something bad happens or something good doesn't happen



Driving forces of behaviour

... according to behaviourists

What driving force would explain this?

1. Rat presses a lever and gets an electric shock.
2. Wife doesn't get coffee with a male friend so that husband doesn't shout at her.
3. Shop assistant wears a face mask during a pandemic.
4. Man spends all day watching pornography.
5. Scientist works hard on his publication.

Behaviourists & depression

- **Depression is characterised by:**
 - Decrease in positive reinforcement
 - Increase in negative reinforcement
 - Increase in punishment
- **Examples?**



Behaviourists & depression

- **Depression is characterised by:**

- Decrease in positive reinforcement:

Less social connection, less work fulfilment, lower enjoyment from hobbies, exercise, lower income...

- Increase in negative reinforcement:

Avoidant behaviour - increase in watching TV, sleeping, substance use, social media scrolling, ignoring contact from friends...

- Increase in punishment? Feeling like effort was wasted?

Loss of a job, loss of a relationship, social rejection...

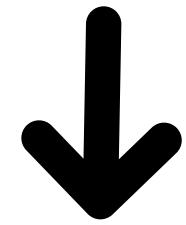


Can be both a cause and a consequence of depression

The mechanism of depression onset & maintenance

Something difficult happens

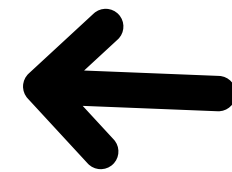
(that reduces positive reinforcement / increases negative reinforcement / increases punishment)



Sadness, lack of energy
Interrupted routine



Anhedonia
Lack of motivation



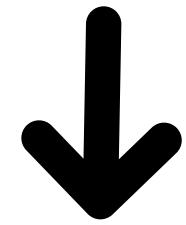
Lower activity



The mechanism of depression onset & maintenance

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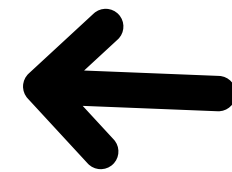
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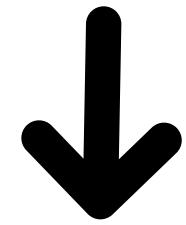
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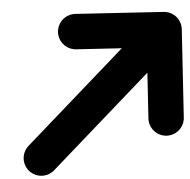
The mechanism of depression onset & maintenance

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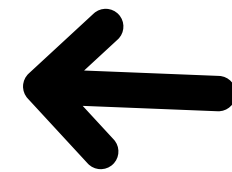
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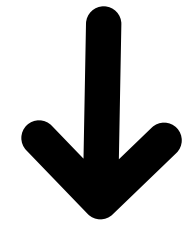
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The mechanism of depression onset & maintenance

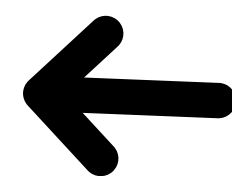
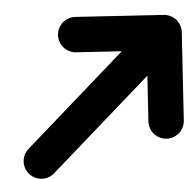
Something difficult happens **Primary cause**
(that reduces positive reinforcement / increases negative reinforcement / increases punishment)



Sadness, lack of energy
Interrupted routine



Anhedonia
Lack of motivation



Secondary cause
Lower activity
(also reduces positive reinforcement / increases negative reinforcement / increases punishment)



The mechanism of depression onset & maintenance

Something difficult happens **Primary cause**
(that reduces positive reinforcement / increases negative reinforcement / increases punishment)

Sadness, lack of energy
Interrupted routine

Anhedonia
Lack of motivation

Lower activity

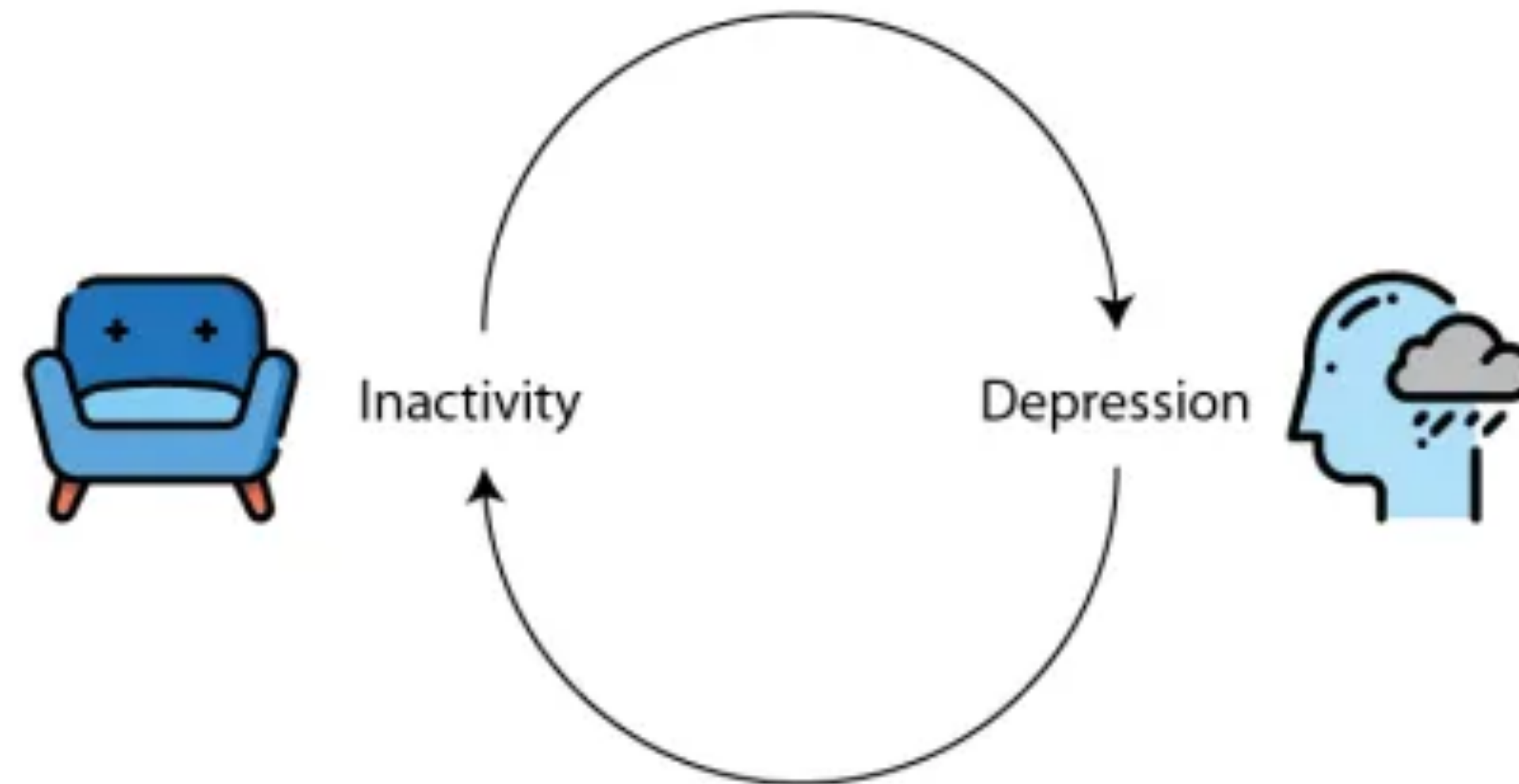
Secondary cause

(also reduces positive reinforcement / increases negative reinforcement / increases punishment)



John has recently gone through a breakup.

Primary cause

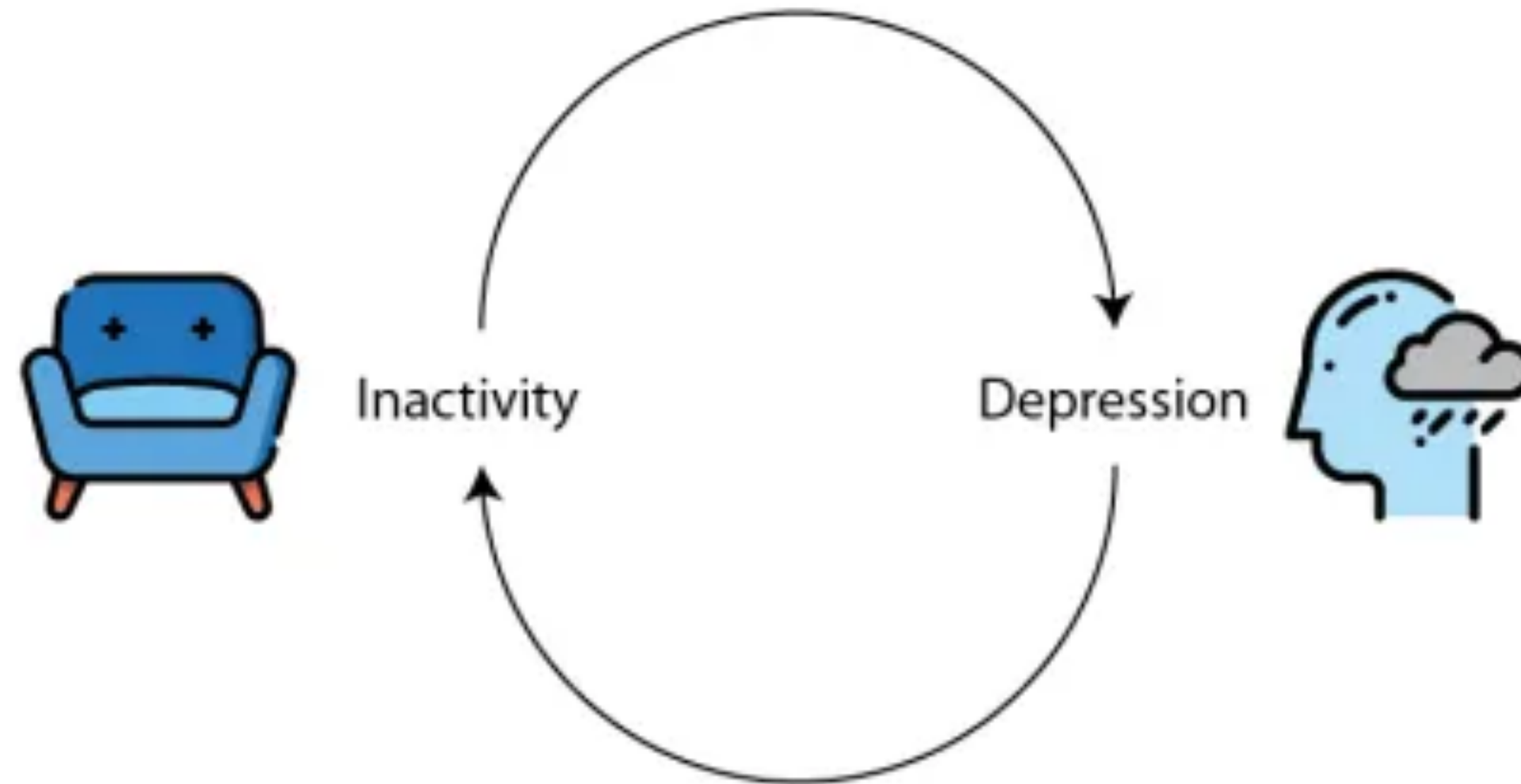


Secondary cause

John has become a lot more inactive.

Primary cause

John has recently gone through a breakup. He misses all the pleasant activities he used to do with his girlfriend, like going to the park or dancing together. He started avoiding places that remind him of her as well as mutual friends to avoid the pain. The grief he's experiencing makes him feel like his investment in the relationship has been wasted.

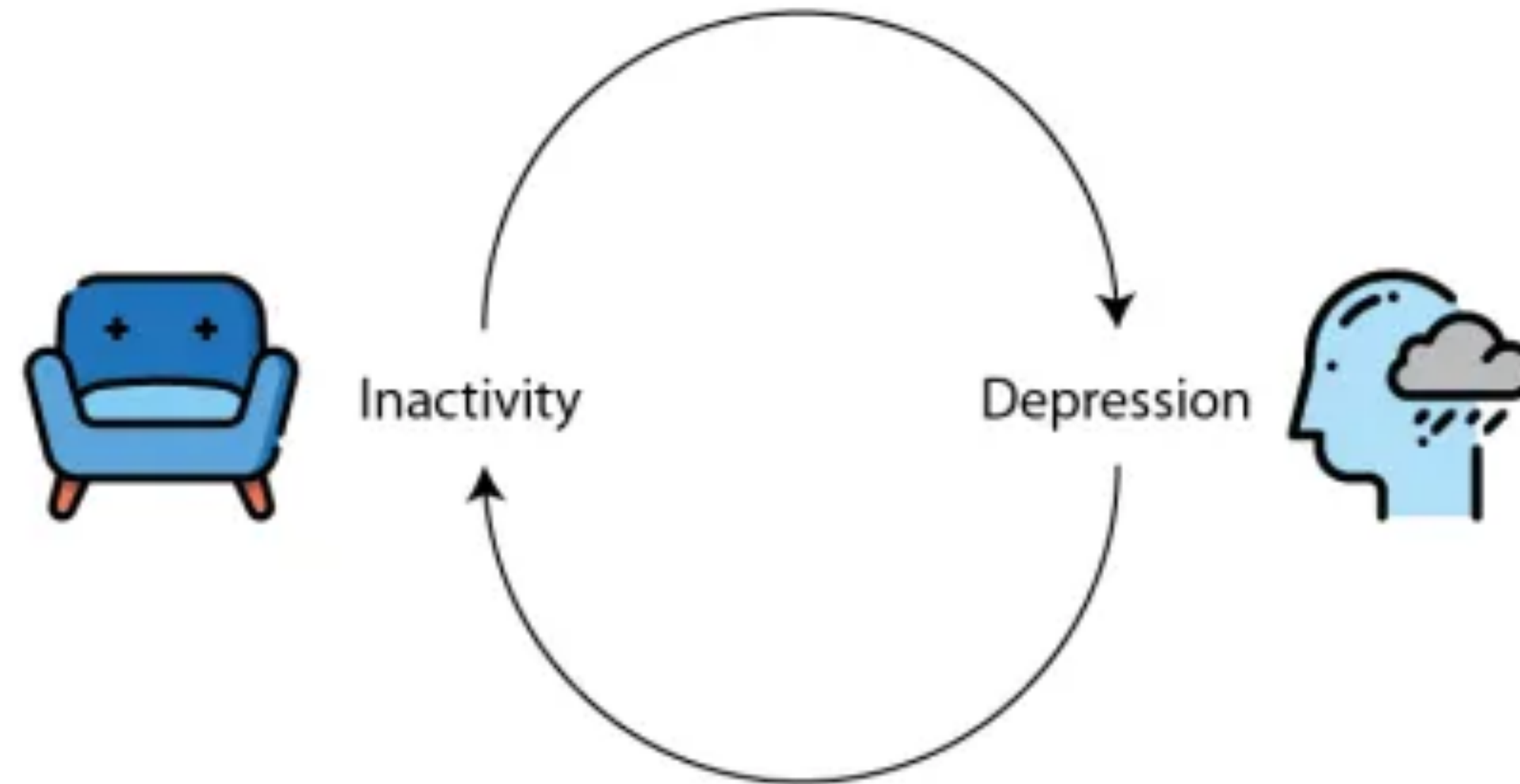


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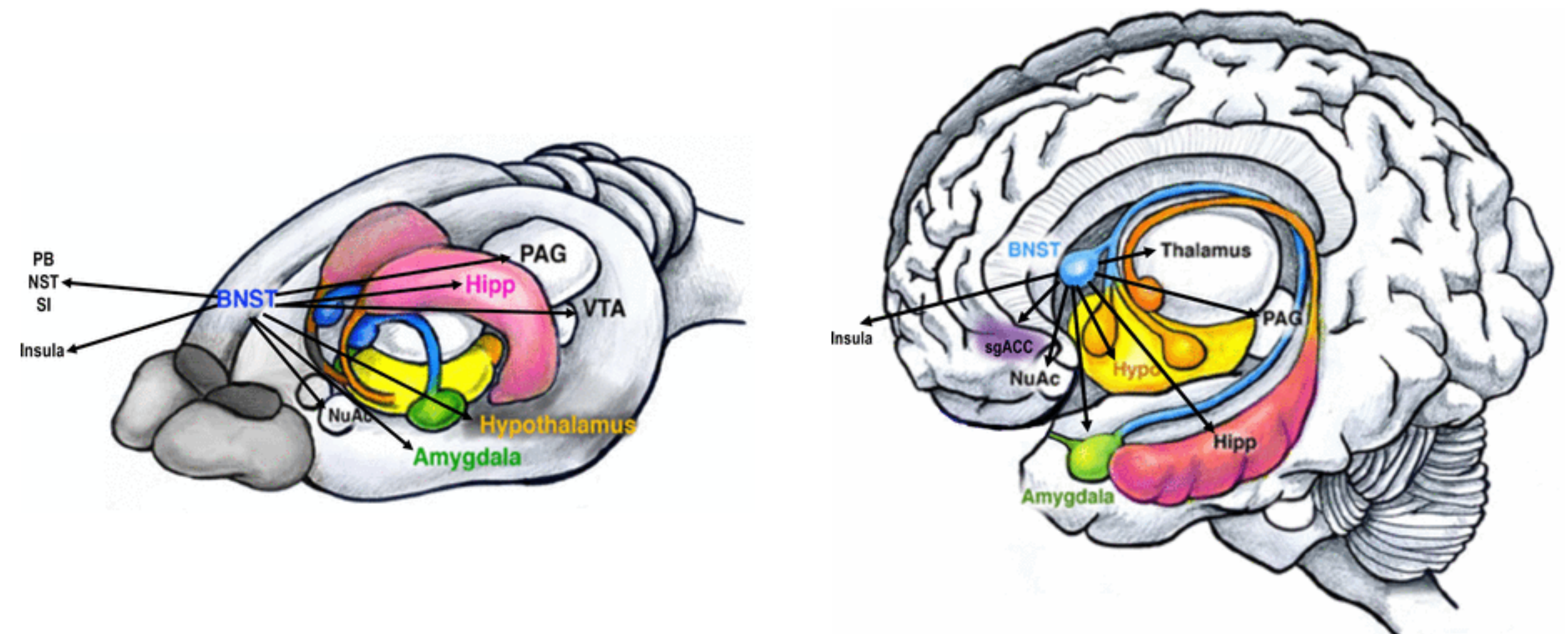
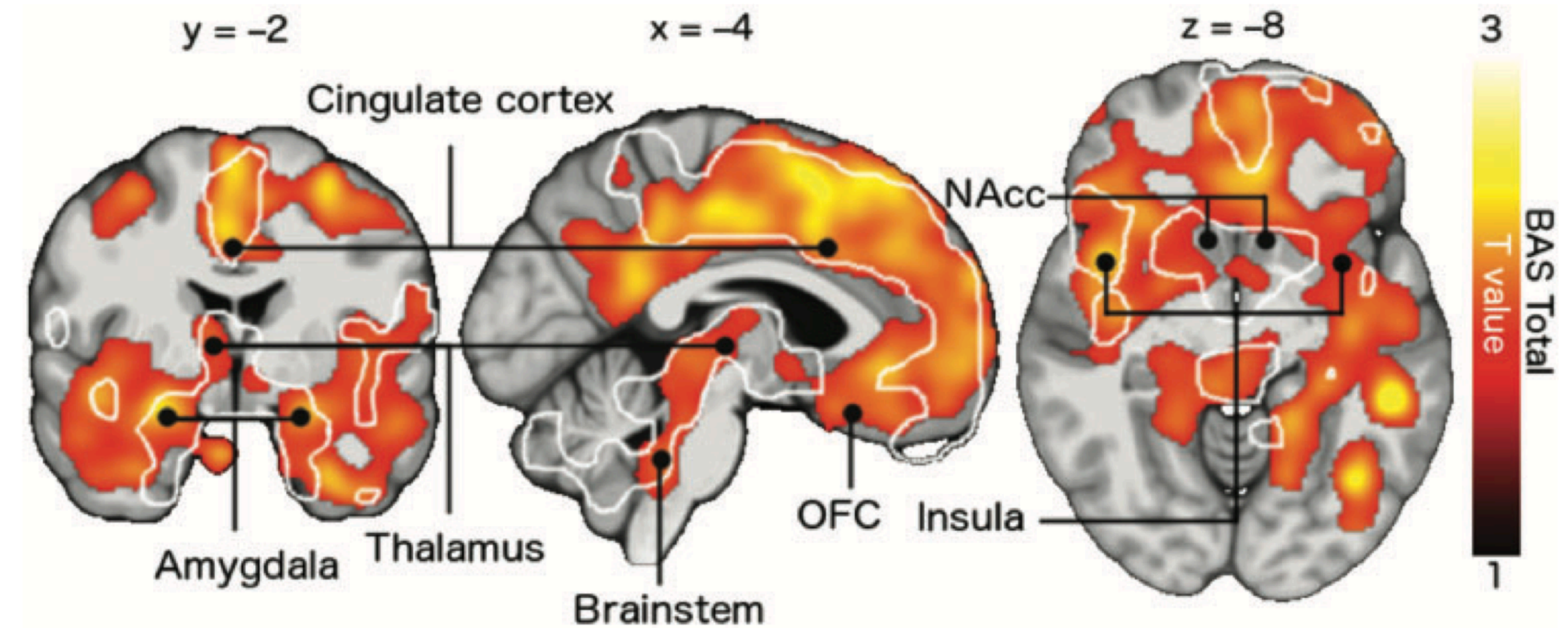
Secondary cause

John has become a lot more inactive. He stopped going to the gym and doesn't put as much effort into his work, because he doesn't feel motivated. He started playing computer games and sleeping more to escape negative feelings. His boss is starting to get upset with him for making mistakes.

Neuroscience of BA?

BIS & BAS

- Behavioural inhibition and activation (approach) systems
- Gray (1987) two major neurobiological systems responding to reward and punishment
- Carver and White (1994) BIS/BAS scale development
- Relate to personality factors like neuroticism and extraversion



BIS & BAS

Gray (1987) two major neurobehavioural systems responding to reward and punishment

Carver and White (1994) BIS/BAS scale development

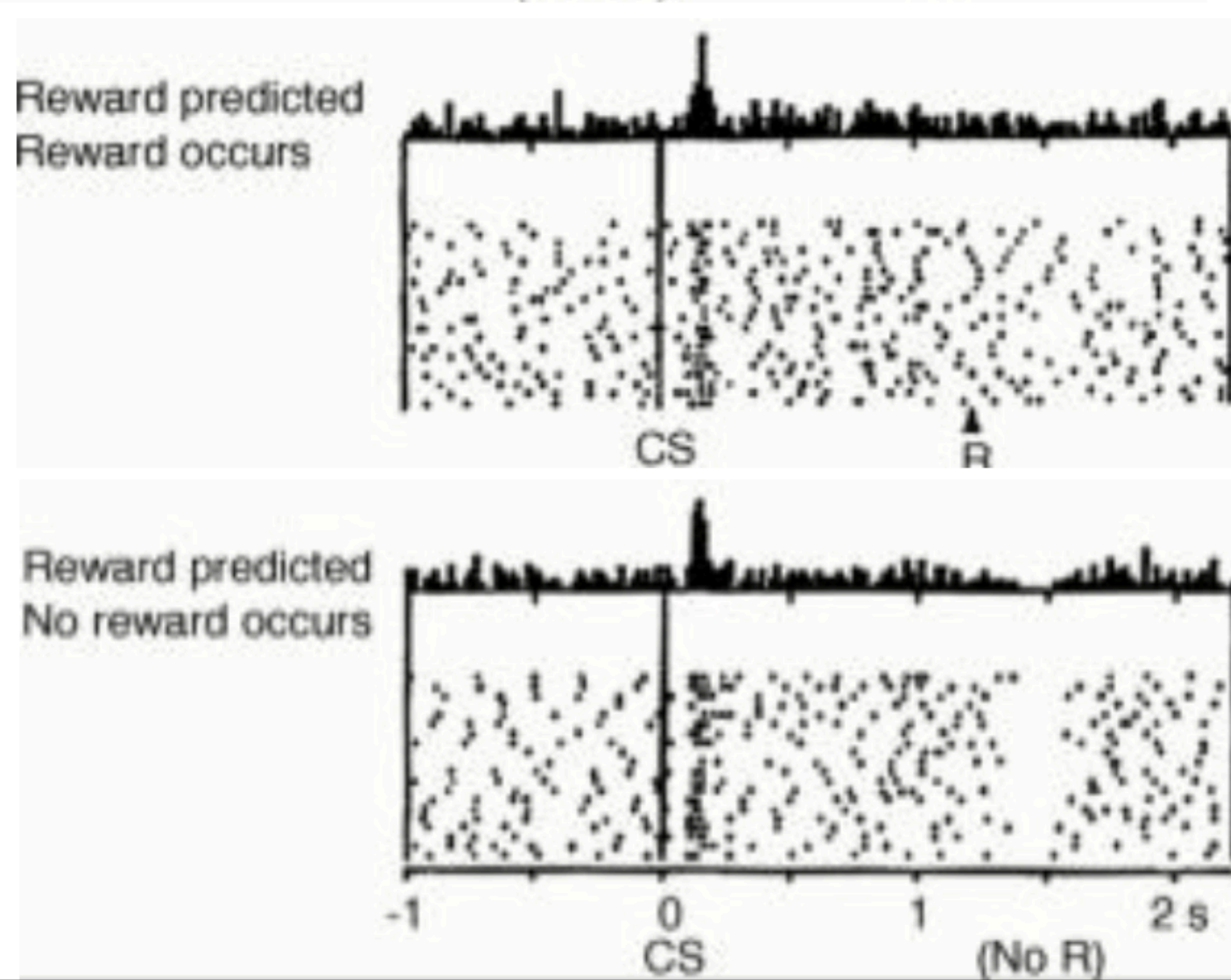
1. **BIS**
 - If I think something unpleasant is going to happen I usually get pretty “worked up.”
 - I worry about making mistakes.
 - Criticism or scolding hurts me quite a bit.
 - I feel pretty worried or upset when I think or know somebody is angry at me.
 - Even if something bad is about to happen to me, I rarely experience fear or nervousness.
 - I feel worried when I think I have done poorly at something.
 - I have very few fears compared to my friends.
2. **BAS Reward Responsiveness**
 - When I get something I want, I feel excited and energized.
 - When I’m doing well at something, I love to keep at it.
 - When good things happen to me, it affects me strongly.
 - It would excite me to win a contest.
 - When I see an opportunity for something I like, I get excited right away.
3. **BAS Drive**
 - When I want something, I usually go all-out to get it.
 - I go out of my way to get things I want.
 - If I see a chance to get something I want, I move on it right away.
 - When I go after something I use a “no holds barred” approach.
4. **BAS Fun Seeking**
 - I will often do things for no other reason than that they might be fun.
 - I crave excitement and new sensations.
 - I’m always willing to try something new if I think it will be fun.
 - I often act on the spur of the moment.

Behavioural inhibition system



- **punishment (innate & learnt)**
- **absence of expected reward (= disappointment, frustration)**
- **can be triggered by novelty (hyponeophagia in rodents)**
- **inhibits behaviour that may lead to negative outcomes**
- **hyperactive in depression**

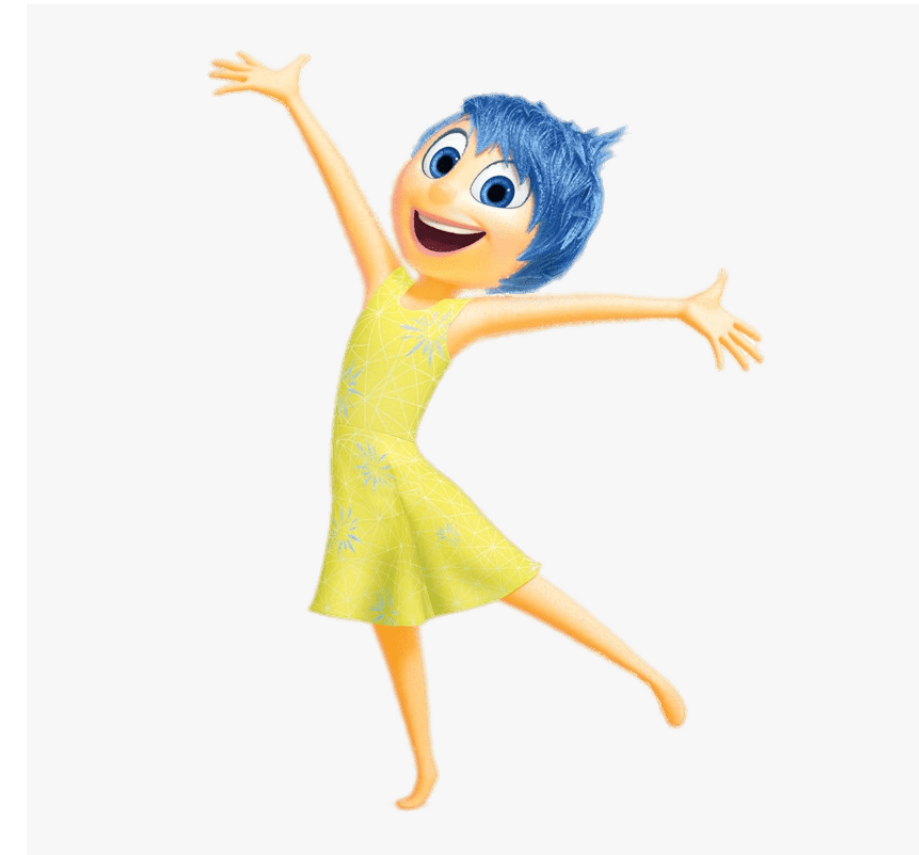
Sensitivity to punishment scale



**Schultz, Dayan, Montague
Science, 1997**

Behavioural activation (approach) system

- reward
- absence of punishment (= relief)
- hypoactive in depression - decreased approach towards rewarding behaviour



Sensitivity to reward scale

Pinto-Meza et al. (2006)



- **Participants with current MD, participants recovered from MD and healthy controls**
- **Current and recovered MD showed hyperactive BIS and hypoactive BAS**
- **Possible personality / physiological vulnerability marker that can be objectively measured**
- **May explain the mechanism of BA treatment**

What else could we research to better understand the mechanism of depression and its treatment?

Thank you!

- Please fill in feedback forms:
<https://forms.gle/xDaPaTfGyHb4FDre7>
- Any questions, email me at
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