Understanding Psychosis

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Conflicts of Interest:
Ownership shares in Safari Health Inc.
Consultant for ChatOwl Inc.

Outline for Talk

1. What is Psychosis?
   - Symptoms/Clinical features, Epidemiology
2. How does Psychosis develop?
   - Course of Illness, High risk period, Prognosis
3. What causes Psychosis?
   - Brain, genetics, environment; vulnerability-stress model…
4. What are treatment options?
   - CSC Model, EBPs, Case Management, Family Support

The one thing to remember from today….

Psychoeducation about psychosis is the FIRST intervention when working with clients & families.

The content of this talk reflects the content of psychoeducation you can give to clients & families.

Rationale for Psychoeducation

- In-depth, accessible, and recovery-oriented information about diagnoses, symptoms & treatments improves client's & family's motivation for treatment:
  - Validates client's experience
  - Connects personal experience to mental health language
  - Understanding rationale for treatment increases buy-in
- Psychoeducation forms the foundation of your "treatment house"
  - Forms the foundation for all interventions
  - When introducing a new intervention ALWAYS start with psychoeducation

Perkins et al. 2018, *The Lancet,* 5, 747 – 764; Claxton et al. 2017, *Frontiers in Psychology, 8*, 371

Elements of Psychoeducation

1. What is Psychosis?
   - Symptoms/Clinical features, Epidemiology
2. How does Psychosis develop?
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3. What causes Psychosis?
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4. What are treatment options?
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What is Psychosis?

Symptoms, Clinical Features, Epidemiology

Common Misconceptions

Split Personality?

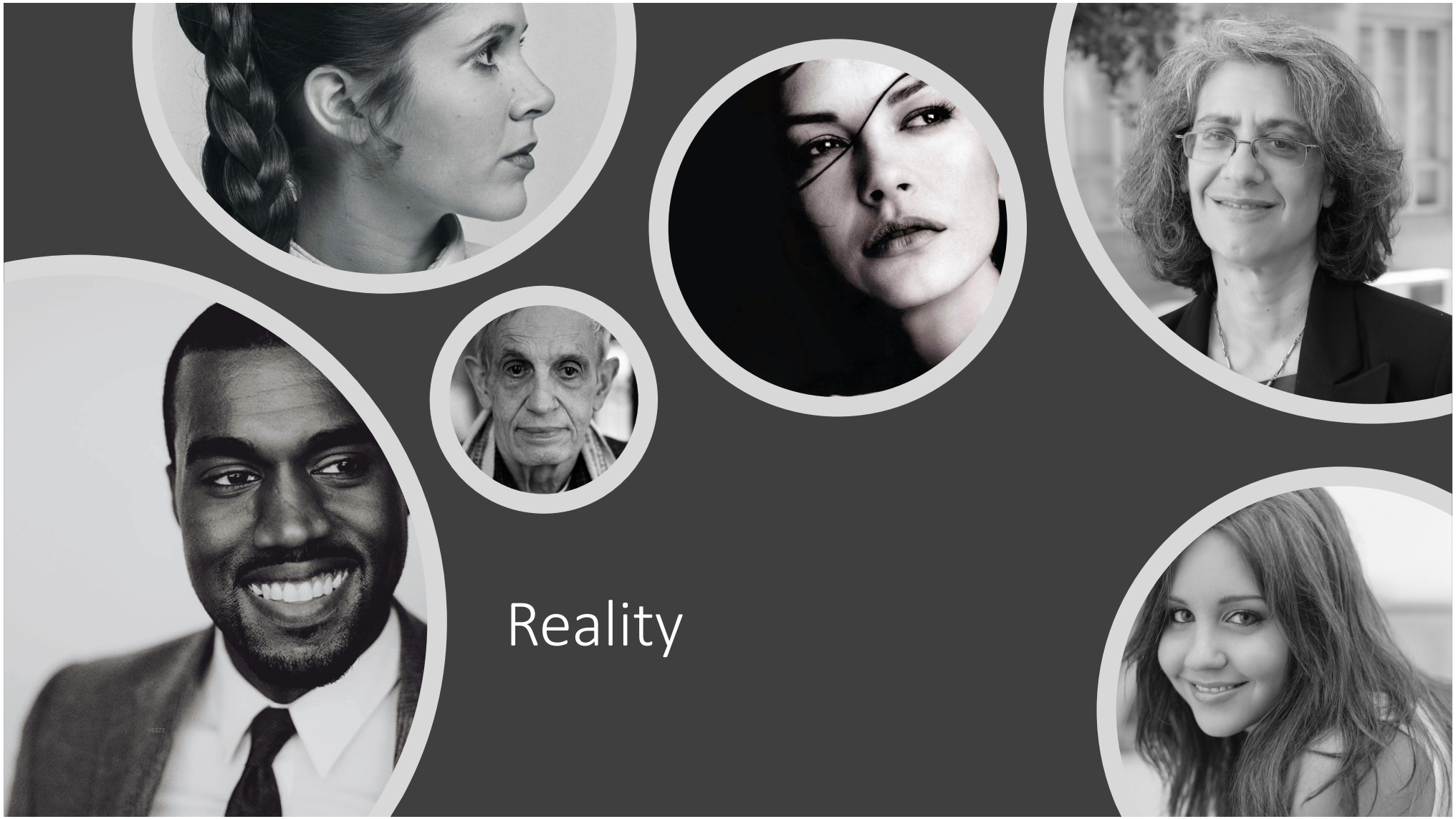
Only males?

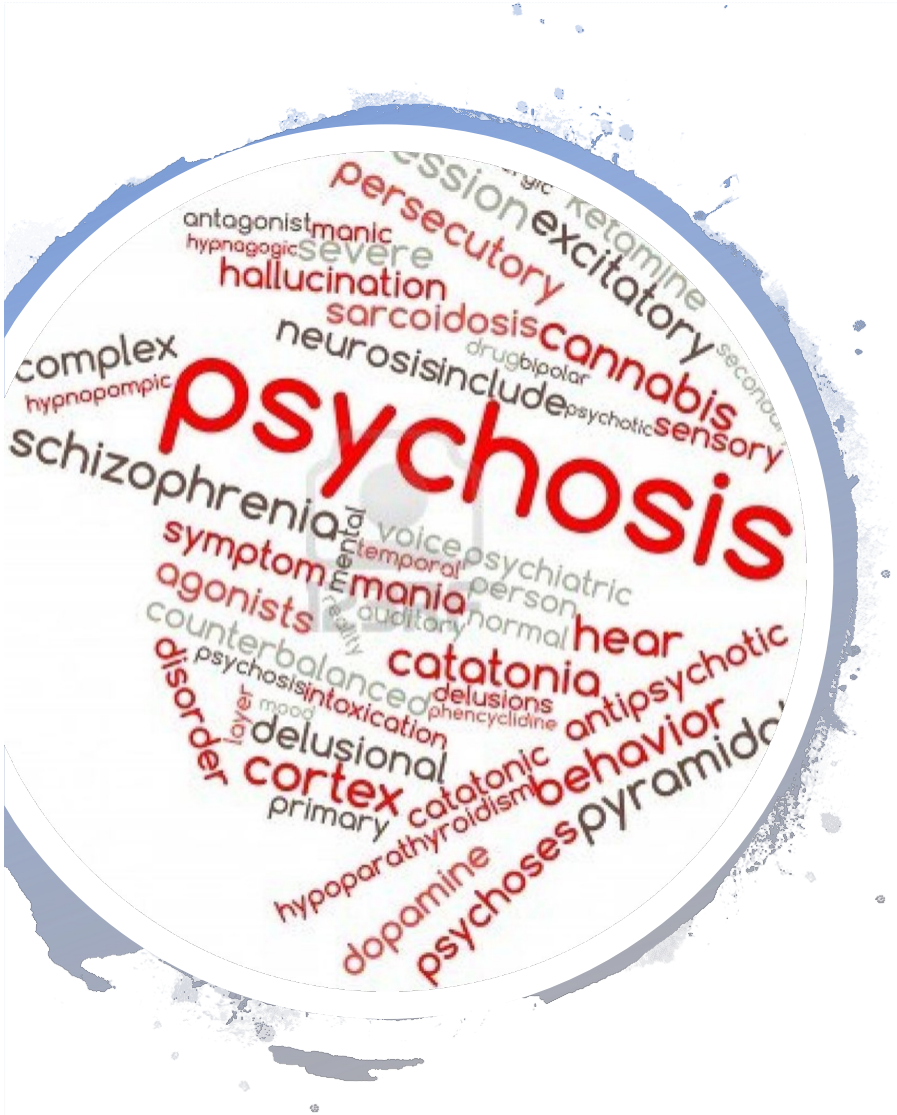
Can't function in society?

Homeless?

The mom's fault?

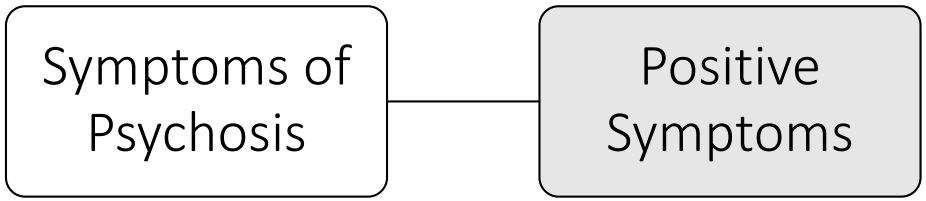
Violent?
Dangerous?


Reality



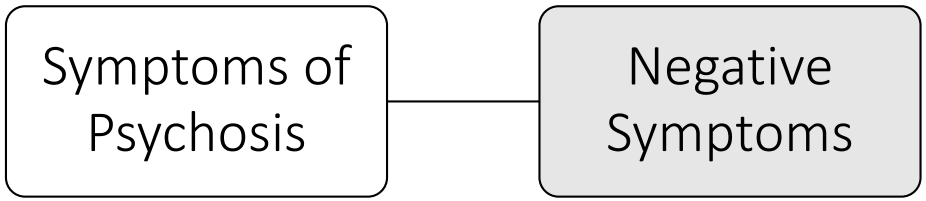
Symptoms of Psychosis

- Positive Symptoms
- Negative Symptoms
- Cognitive Symptoms
- Functional Impairments



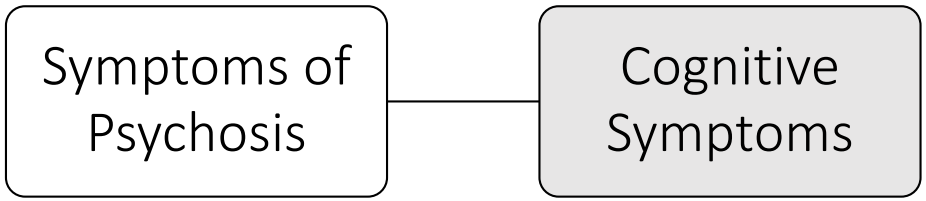
Exaggerations in normal human experience

- Hallucinations
- Delusions/Unusual Thoughts



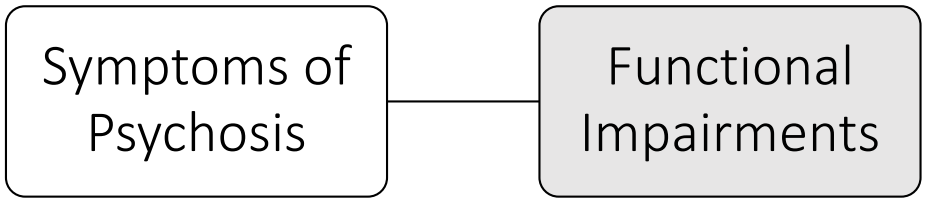
Loss or withdrawal of qualities that make us emotionally-connected and motivated human beings

- Anhedonia (loss of interest)
- Avolition (lack of motivation)
- Flat Affect (reduced expression of emotion)
- Poverty of speech



Difficulties with:

- Attention
- Learning
- Memory
- Problem-Solving



Difficulties in:

- School / Work (Role)
- Friends / Relationships (Social)

Related to severity of negative & cognitive symptoms

Functioning prior to onset predicts long term outcome

Psychosis affects both males and females

Male-to-Female ratio of Schizophrenia: 1.4 to 1

There can be sex differences in:

- When symptoms start (earlier in males)
- What symptoms are experienced (more paranoia in females)
- What co-occurring symptoms are present (more mood symptoms in females)

Limitation:

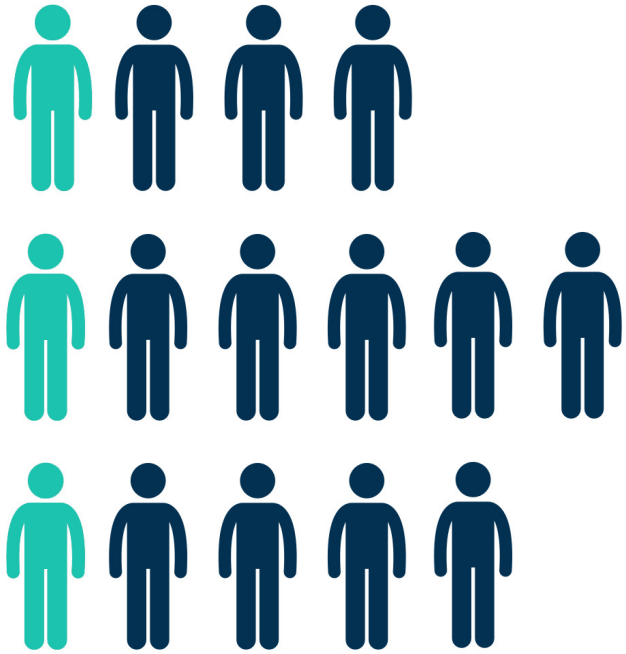
- Research to date has focused on sex assigned at birth and not gender identity

Abel KM, Drake R, Goldstein JM. Sex differences in schizophrenia. *Int Rev Psychiatry*. 2010;22(5):417-428.

Psychotic Symptoms Occur within Many Diagnoses

Non-Affective Psychosis	Affective Psychosis	Other
Schizophrenia	Bipolar Disorder w/psychotic features	Dementias/Alzheimer's
Schizophreniform	Depression w/psychotic features	Borderline Personality
Schizoaffective	PTSD	Substance Induced
Delusional Disorder		Organic – Head injury, seizures, etc
Brief Psychotic Disorder		
Unspecified Psychotic Dx		

Psychotic Symptoms are Common



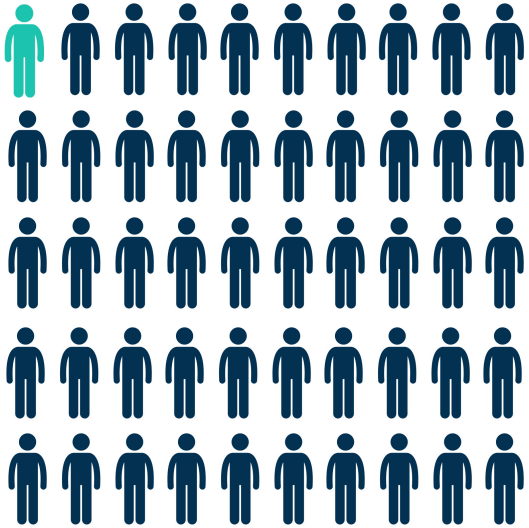
1 in 4 **endorsed psychosis-screening questions o**n the national comorbidity survey

1 in 6 **endorse psychotic-like experiences** in the absence of a diagnosis

1 in 5 presenting for treatment at primary care centers **report one or more psychotic symptoms**, most commonly auditory hallucinations

Kendler et al. 1996; Olfson et al. 2002; van Os et al. 2009

Diagnoses of Psychotic Disorders are Less Common



- Psychotic disorders are found in **1 in 50** individuals worldwide (~2%)
- Approximately 272 per 100,000 new cases per year (Medicaid data, Radigan et al 2019)
- Average age of onset is 20 (range 15 – 30)

Radigan et al. *Psychiatric Services* 70.8 (2019): 665-673.

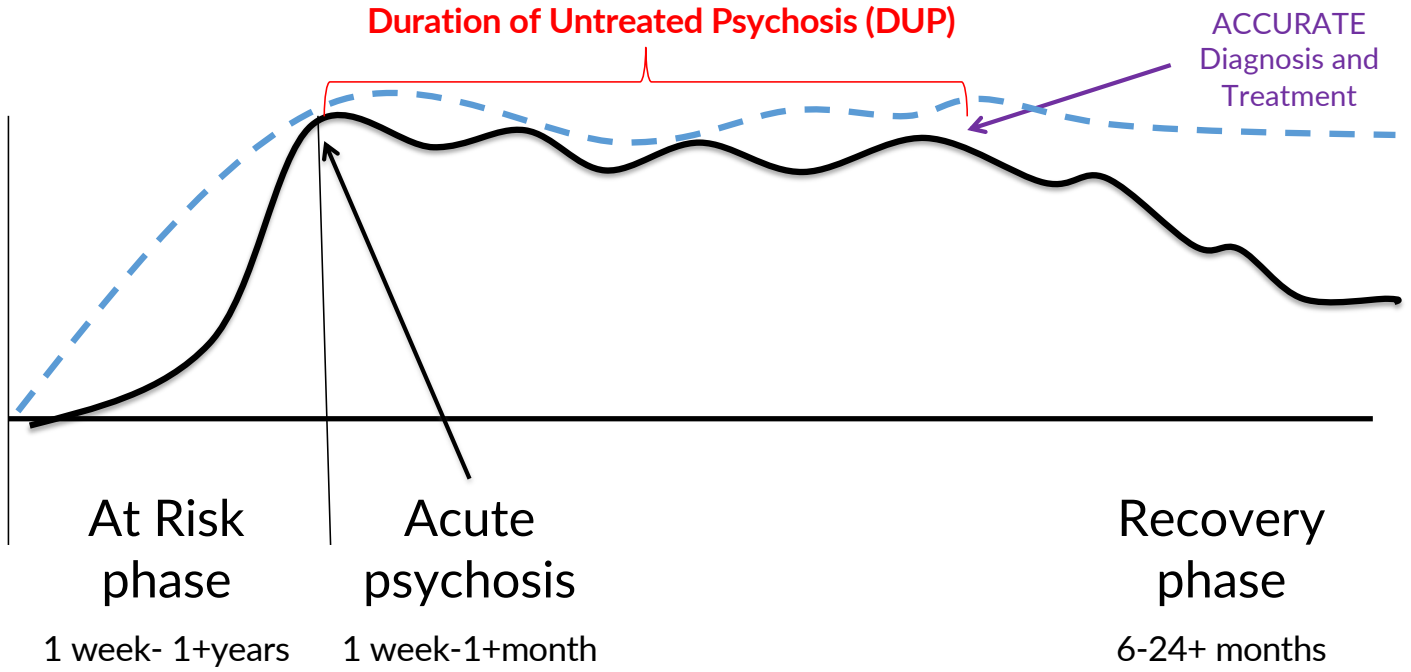
How does psychosis develop?

Course of Illness, High risk period, Prognosis

Symptoms Start Before Diagnosis

Positive symptoms = Hallucinations, Delusions, Thought Disorder

Negative symptoms = Lack of motivation, interest in pleasurable activities, flat affect, paucity of speech



Austin et al. (2015). *Schizophrenia research*, *168*(1-2), 84-91.

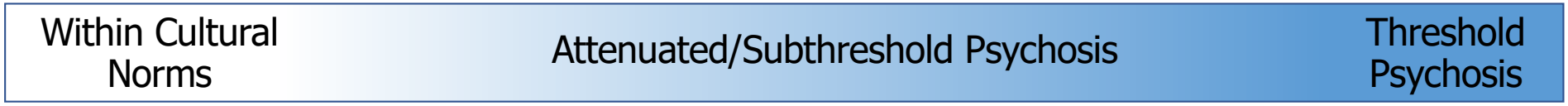
When Do Early Signs of Psychosis Occur?

- Early warning signs (subthreshold symptoms = “at risk phase”) can appear 1-3 years prior to full psychosis
  - Likely association with brain maturation

- Psychotic Symptoms exist on a continuum from subthreshold to threshold psychosis
  - Early signs present as changes in thoughts, experiences, behavior and functioning
  - Perceptual abnormalities, unusual beliefs, uncharacteristic behaviors

Kempton et al. 2015 *JAMA Psychiatry* 72(6),622-623

Symptoms occur on a continuum ranging from common experiences to psychotic symptoms



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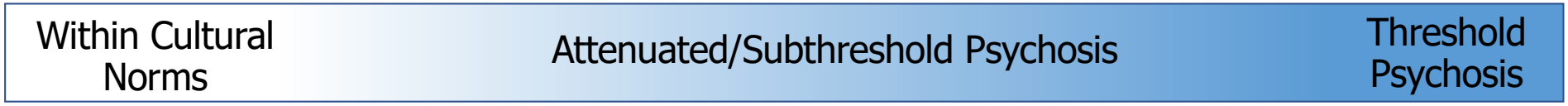
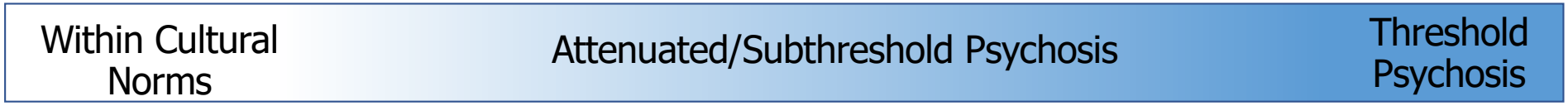


- No Distress
- Infrequent/rare
- No effect behavior/functioning
- Consistent with cultural beliefs

Saw a ghost → One time, thought it was loved one who had recently passed, felt comforted, no change on behavior, consistent with family's beliefs

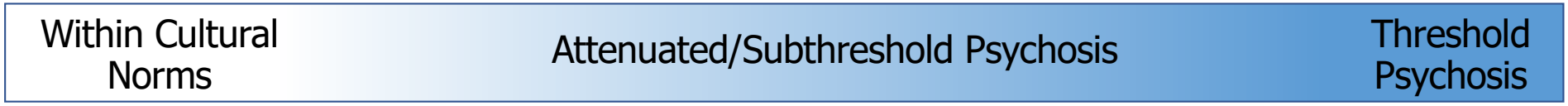
Symptoms occur on a continuum ranging from common experiences to psychotic symptoms



- Increasing frequency (weekly)
- Some distress, bothers them
- Able to question reality
- Little effect on behavior

See ghosts → A few times a month, not sure why – doesn't think its real, scared/nervous, hard to fall asleep, NOT consistent with family's beliefs

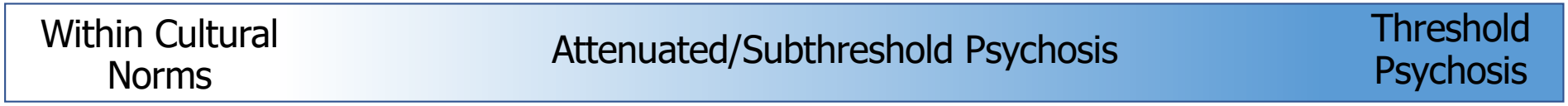
Symptoms occur on a continuum ranging from common experiences to psychotic symptoms



- Increasing frequency (weekly→ daily)
- Increasing distress
- Seems real, but not convinced
- Starting to affect behavior or impact functioning

See ghosts → A few times a WEEK, MIGHT be the dead trying to communicate, very scared OR maybe special gift, stays awake to see them/trying to talk to them, NOT consistent with family's beliefs

Symptoms occur on a continuum ranging from common experiences to psychotic symptoms



- Significant Distress
- Frequent (weekly, daily)
- Convinced it is real
- Effects behavior
- Impairs functioning

See ghosts → regularly/daily, believe the dead trying to communicate, terrified OR gifted, communicate day and night, distracted at work/school, family concerned

Important Issues to Consider:

- Developmental norms
  - Metacognition (thinking about their thinking) is hard for young children → need to be concrete in your questions, look at effect on behavior
  - Some behaviors are normal for younger children but not adolescents (e.g., imaginary friends)

- Cultural or familial context of the experience
  - e.g., belief in ghosts by the family, or religious experiences

- Environmental factors
  - e.g., bullying at school, unsafe neighborhood
  - Do symptoms occur outside of these contexts, like at the grocery?

How to Ask About Symptoms

- Typical questions most clinicians use to ask about psychosis:
  - Do you ever see or hear things that others don't see or hear?
  - Do you ever think people are out to get you?

- **BETTER** questions to ask:
  - Do you feel like your mind is playing tricks on you?
  - Do you feel like your eyes/ears are playing tricks on you?
  - Are there ever times when you don't feel safe?
  - These questions are broad, non-threatening and can take you in many directions (OCD, abuse, etc.) but will also pick up on attenuated psychosis if its there.
- **ALWAYS FOLLOW UP** regarding frequency, distress, effect on behavior & functioning

Course of Illness & Prognosis

- High rates of disability – 20+% of Social Security benefits are used to care for individuals with SZ (Cloutier et al. 2013; Desai et al. 2013)
- 25-50% of individuals with SZ will attempt suicide, ~5-10% die by suicide (Addington et al, 2004; Palmer et al. 2005)
  - *Highest risk during early phase of illness* (Dutta et al. 2010)
- **Recovery is possible!**
  - Not just about controlling symptoms (typically with meds)
  - Focus on hope, wellness, independence, citizenship, and pursuit of meaningful goals and roles (Ahmed et al., 2016)
  - Associated with engagement from family and support persons in treatment model

Cloutier et al. 2013, *The Journal of clinical psychiatry.* 2016;77(6):764-771; Desia et al. 2013, *Journal of Pharmaceutical Health Services Research 4*(4), 187-194; Addington et al 2004, *Acta Psychiatrica Scandinavica*, *109*(2), 116-120; Dutta et al. 2010, *Archives of general psychiatry*, *67*(12), 1230-1237; Ahmed et al. 2016, *Psychiatric Clinics of North America.*

Predictors of Outcome

- Duration of Untreated Psychosis (DUP) → single best predictor of long-term outcome
  - Median delay between symptom onset and starting treatment in U.S. = 18.5 months (Addington et al., 2015)
  - EARLY IDENTIFICATION IS KEY

- "Early" Psychosis = first 5 years after onset of symptoms.
  - "Critical period" during which treatment has biggest impact
  - Often focus on MAINTAINING functioning, rather than recovering functioning that was lost

Addington et al. 2015 *Psychiatric Services* 66(7), 753-756

What causes psychosis?

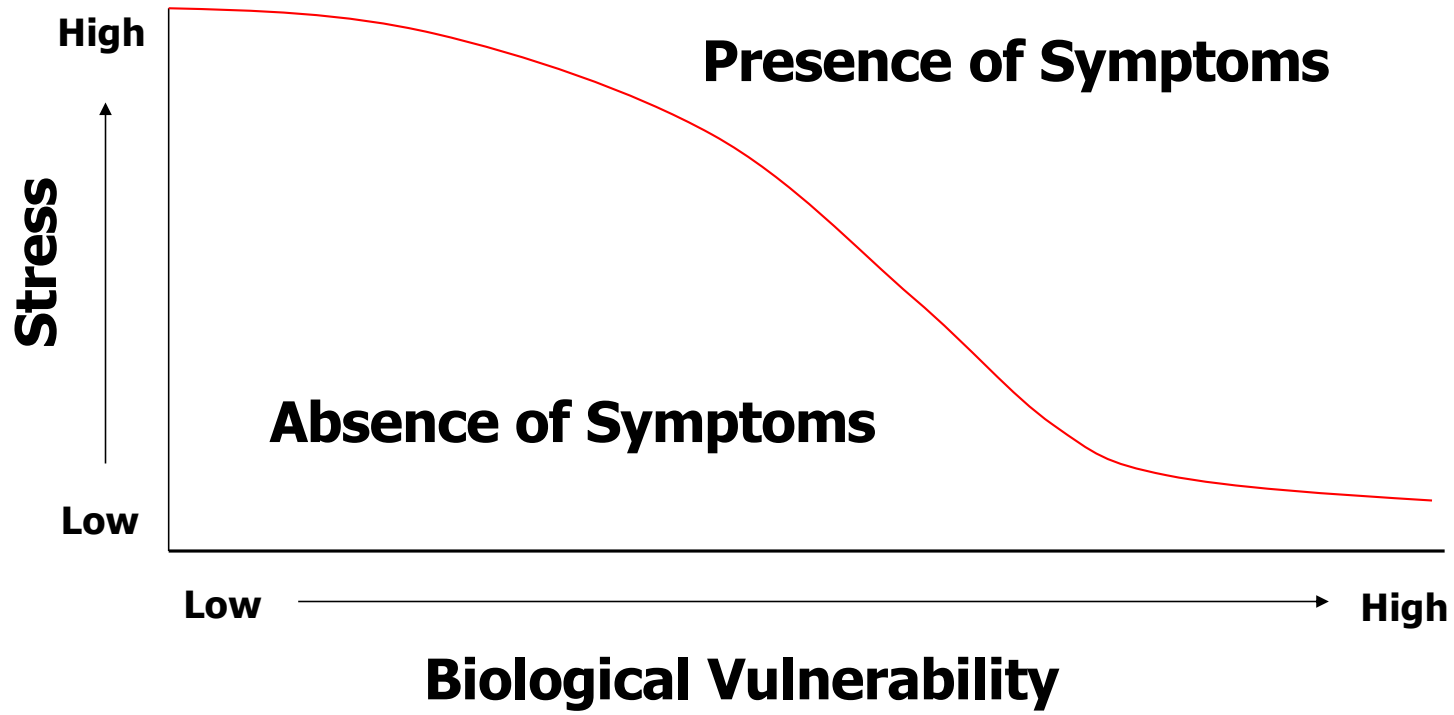
Brain, genetics, environment; vulnerability-stress model

The Vulnerability-Stress Model

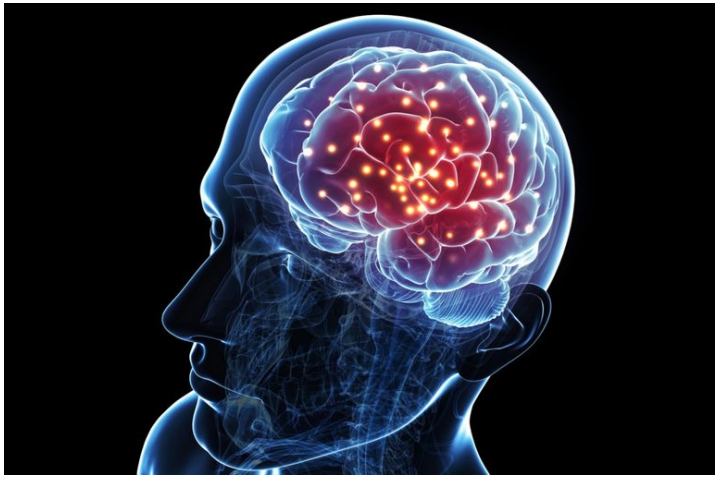
The onset of psychotic illness is triggered by interaction between **biological vulnerability** and **environmental stressors**

Murray et al 2017 *Schizophrenia Bulletin* 43(6),1190-1196

Vulnerability-Stress Model



What is “biological vulnerability”?



Genes/Family History

- 10% risk if 1st degree relative has SZ
- 50% concordance in identical twins

Disruptions in brain structure & function:

- Prefrontal Cortex
- Dopamine system

Is there a gene for psychosis?

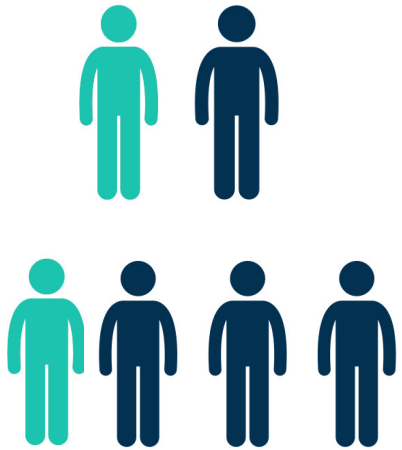
- No, we inherit genetic vulnerability only; development of psychosis is NOT certain
  - There is no single risk gene (not like Huntington's)
  - There is no genetic test for psychosis
- Multiple genes give vulnerability through multiple pathways:
  - Genes that disrupt brain chemistry
  - Genes that disrupt brain structure
  - Genes that disrupt brain "plasticity"
- Unaffected first-degree relatives may have some of these disruptions but no symptoms of psychosis

Types of Environmental Factors

- Prenatal Factors
  - Birth Complications → Hypoxia
  - Malnutrition
  - Viral Infections → 2nd Trimester
- Social Factors
  - Adverse social and economic conditions
  - Trauma
- Family Factors
  - High stress, poor communication, problem solving, etc.
- Drug Use…

Cannabis use is common in psychosis

- 20 – 45% of clients with first episode psychosis report cannabis use



~1 in 2 report lifetime use

~1 in 4 meet criteria for cannabis use disorder

Hasan et al. 2020, *European Archives of Psychiatry and Clinical Neuroscience* (270) 403–412

How does cannabis use impact psychosis?

Increases risk for developing psychosis

- Using marijuana before age 15 makes you 4 times more likely to develop psychosis as adult
- Using high potency cannabis (high THC) makes you 3 times more likely to develop psychosis at any age

AND

Can make psychosis symptoms worse

- Increased anxiety and paranoia
- Increased auditory/visual hallucinations

Di Forti et al., 2019, *Lancet, 6,* 427-36.

What are treatment Options?

CSC Model, EBPs, Case Management, Family Support

Boost Protective Factors

Treat symptoms
- Anxiety, depression, sleep, psychosis

Maintain Physical Health
- Sleep, diet, exercise
- Limit or eliminate alcohol & drugs

Limit Stress
- Adapt educational, occupational, and family responsibilities

Improve Coping Skills
- Symptom management
- Problem-solving in family

Increase Social Support
- Clinicians, clergy, extended family

Use Evidenced-Based Treatments

Biological	• Medication • Substance Use Management (harm reduction approach)
Psychological/ Cognitive	• Cognitive Behavioral Therapy (CBT) • Cognitive Remediation (e.g., brain games) • Social Skills Training • Supported Education/Employment • Peer/Family Support
Environment/ Family	• Case Management & Linkage • Multifamily group • Family Psychoeducation

CSC Model for Early Intervention & Prevention (1)

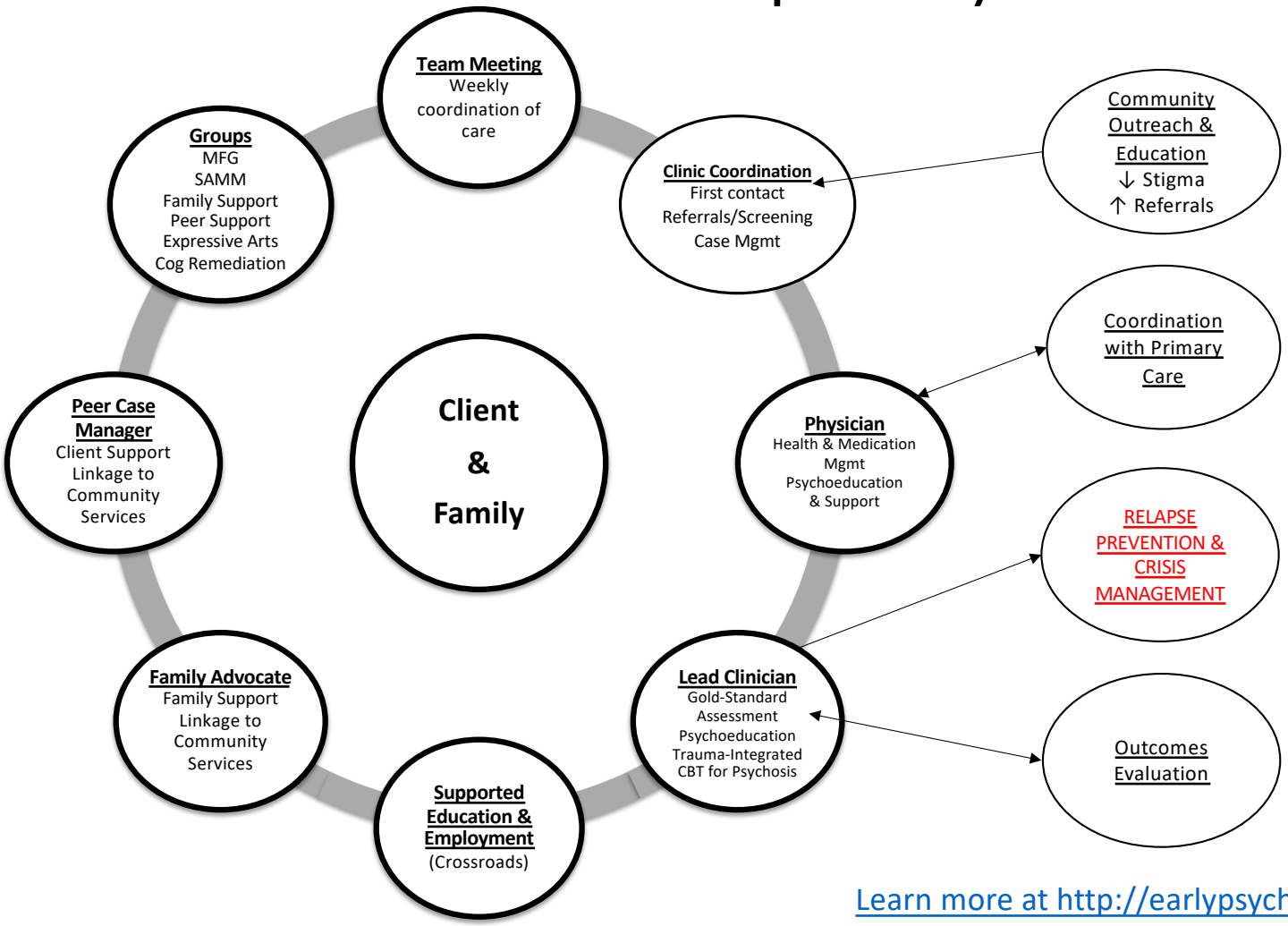
- Coordinated Specialty Care (CSC) Model[1] developed and broadly implement across UK, Australia, Canada, Scandinavia, & now the U.S.
- Typically includes community outreach & education, early identification, and combination of evidence-based treatments for psychosis
- Focus on intervention in the first 2-5 years of psychosis onset
- Variations of CSC across the United States:
  - PIER Program[2]
  - NAVIGATE[3,4]
  - OnTrack NY[5]
  - EDAPT[6]

[1]Heinssen et al, 2014, NIMH; [2]McFarlane et al. 2010; *Psychiatric Services*, *61*(5), 512-515; [3]Mueser et al. 2015; *Psychiatric Services*, *66*(7), 680-690; [4]Kane et al. 2016 *Psychiatric Services*, *66*(7), 680-690; [5]Mascayano et al. 2019 *Psychiatric Services*, *66*(7), 680-690; [6]Niendam et al. 2019

CSC Model for Early Intervention & Prevention (2)

- U.S. Programs differ in:
  - Age of Clients Served
    - OnTrackNY: 16-30
    - EDAPT: 12-40
    - PIER: 14-40
    - NAVIGATE: 15-40
  - Stage of Psychosis Served:
    - Both high risk & first-episode folks: EDAPT, PIER
    - First-Episode folks only: NAVIGATE, OnTrackNY
  - Specific psychosocial interventions provided
    - Individual Resiliency Training (IRT) [NAVIGATE] vs. CBT [EDAPT, PIER]
    - Family Education [NAVIGATE] vs. Multi-Family Group [PIER, EDAPT]

UC Davis EDAPT Coordinated Specialty Care Model



Learn more at http://earlypsychosis.ucdavis.edu

Managing Cannabis Use in Early Psychosis

How can the treatment team help?

For folks with psychosis, cannabis use is often a method of trying to tolerate distressing symptoms (e.g., anxiety) and emotion dysregulation

BUT cannabis use often has other negative consequences (increased positive symptoms, legal & physical health consequences)

Treatment recommendation is to develop “replacement skills” that help clients manage symptoms / tolerate distress but do not have negative consequences

Treatment team can support clients in navigating social situations around cannabis use (e.g., developing the “allergen” story to reduce peer pressure to use & not having to share their mental health history)

Treatment Options

- Harm reduction approach is best. Use motivational interviewing techniques to support change strategies.
- We recommend offering a substance use management group for clients (psychoeducation, distress tolerance skills & harm reduction approach)
- If substance use services are outside of scope for your clinic, identify community partners who could provide support services
- Rural settings vs. urban settings may have different needs
- Discuss the best options for substance use management treatment with your leadership!

What is Harm Reduction?

A set of principles and strategies aimed at reducing negative consequences of substance use

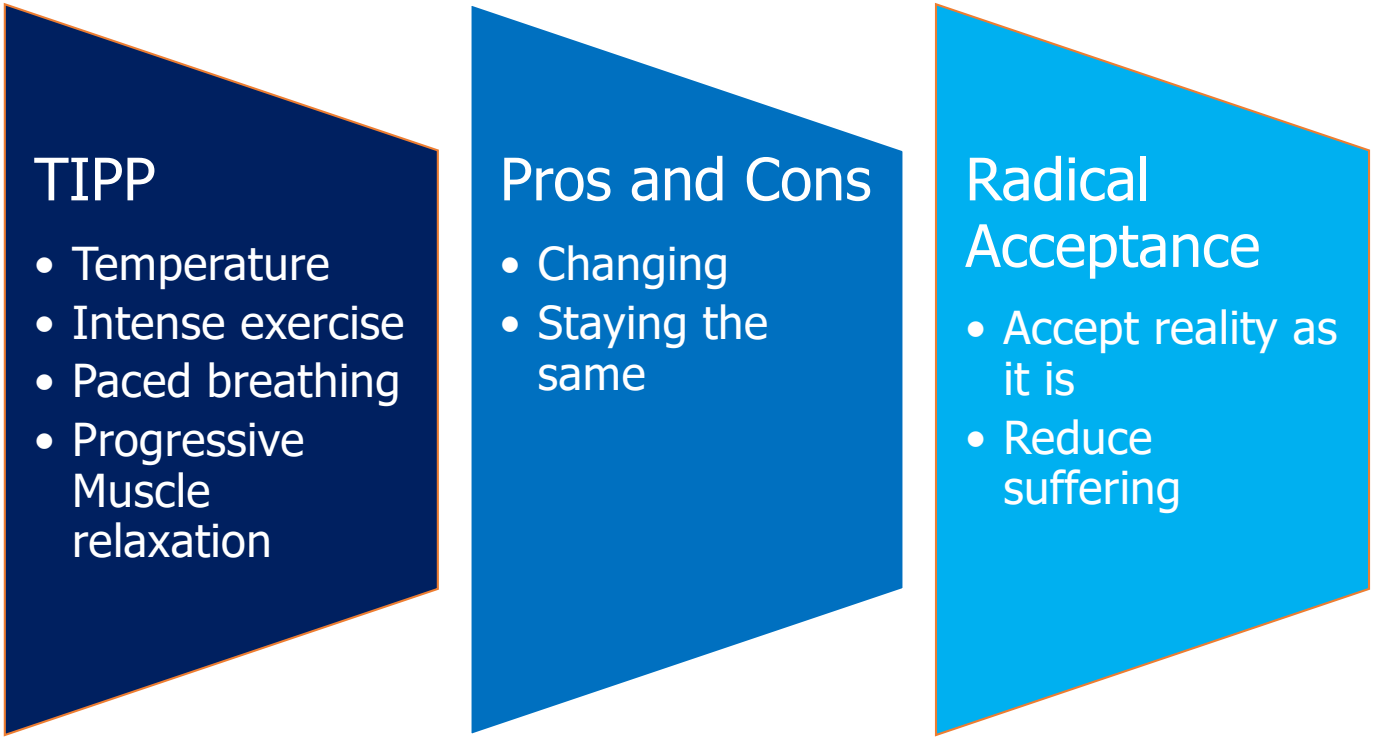
Different from abstinence-only approach to substance use treatment.

Recognizes that some ways of using drugs are clearly safer than others

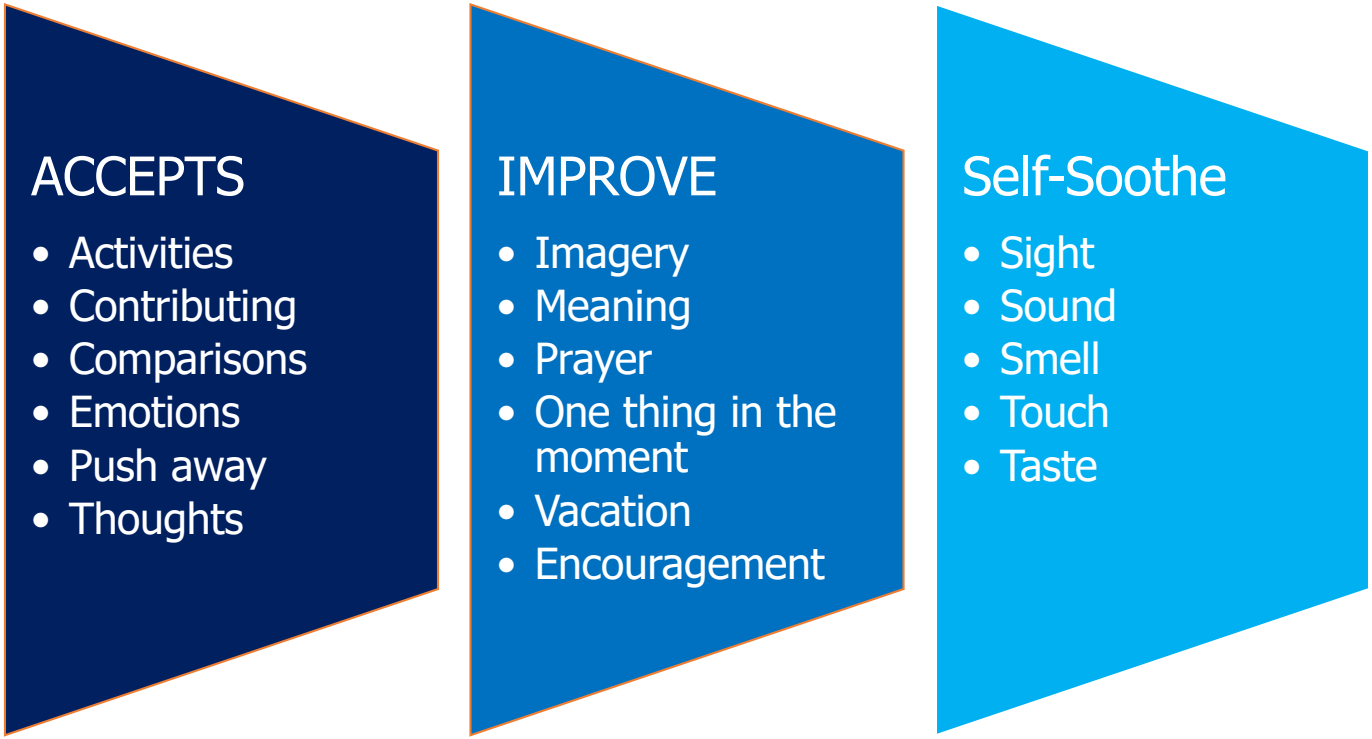
Examples of harm reduction strategies for cannabis use

Change type of cannabis	Change from high THC cannabis products to low THC cannabis products
Reduce Safety risks	identify safe & legal ways of obtaining cannabis to prevent negative consequences (e.g., legal, high-risk environments)
Reduce health risks	Identify ways to consume cannabis that reduce risk of negative health consequences (e.g., reduce smoking >> reduce cancer risk)
Involve Support Buddies	Involve support buddies in social situations where substance use will be happening to reduce use / prevent use

DBT Distress Tolerance Skills for Substance Use (1)



DBT Distress Tolerance Skills for Substance Use (2)



Useful Links

- UC Davis EDAPT: http://earlypsychosis.ucdavis.edu/
- OnTrackNY: https://www.ontrackny.org
- PIER: https://mmcri.org/?page_id=25601
- NAVIGATE: https://navigateconsultants.org

- Learn more: https://www.nimh.nih.gov/health/topics/schizophrenia/raise/state-health-administrators-and-clinics.shtml
- Find an Early Psychosis Program near you: https://med.stanford.edu/peppnet/interactivedirectory.html

Thank you!

QUESTIONS?

References (1)

1. Abel KM, Drake R, Goldstein JM. Sex differences in schizophrenia. *Int Rev Psychiatry.* 2010;22(5):417-428.
2. Addington, J., Williams, J., Young, J., & Addington, D. (2004). Suicidal behaviour in early psychosis. *Acta Psychiatrica Scandinavica*, *109*(2), 116-120.
3. Addington, J., Heinssen, R. K., Robinson, D. G., Schooler, N. R., Marcy, P., Brunette, M. F., ... & Robinson, J. A. (2015). Duration of untreated psychosis in community treatment settings in the United States. *Psychiatric Services*, *66*(7), 753-756.
4. Ahmed, A. O., Marino, B. A., Rosenthal, E., Buckner, A., Hunter, K. M., Mabe, P. A., & Buckley, P. F. (2016). Recovery in schizophrenia: What consumers know and do not know. *Psychiatric Clinics of North America*.
5. Austin, S. F., Mors, O., Budtz-Jørgensen, E., Secher, R. G., Hjorthøj, C. R., Bertelsen, M., ... & Nordentoft, M. (2015). Long-term trajectories of positive and negative symptoms in first episode psychosis: a 10 year follow-up study in the OPUS cohort. *Schizophrenia research*, *168*(1-2), 84-91.
6. Claxton, M., Onwumere, J., & Fornells-Ambrojo, M. (2017). Do family interventions improve outcomes in early psychosis? A systematic review and meta-analysis. *Frontiers in Psychology*, *8*, 371.
7. Di Forti et al., (2019). The contribution of cannabis use to variation in the incidence of psychotic disorders across Europe (EU-GEI). *Lancet, 6,* 427-36.
8. Dutta, R., Murray, R. M., Hotopf, M., Allardyce, J., Jones, P. B., & Boydell, J. (2010). Reassessing the long-term risk of suicide after a first episode of psychosis. *Archives of general psychiatry*, *67*(12), 1230-1237.
9. Kane, J. M., Robinson, D. G., Schooler, N. R., Mueser, K. T., Penn, D. L., Rosenheck, R. A., ... & Marcy, P. (2016). Comprehensive versus usual community care for first-episode psychosis: 2-year outcomes from the NIMH RAISE early treatment program. *American Journal of Psychiatry*, *173*(4), 362-372.

References (2)

10. Kempton, M. J., Bonoldi, I., Valmaggia, L., McGuire, P., & Fusar-Poli, P. (2015). Speed of psychosis progression in people at ultra-high clinical risk: a complementary meta-analysis. *JAMA psychiatry*, *72*(6), 622-623.

11. Mascayano, F., Nossel, I., Bello, I., Smith, T., Ngo, H., Piscitelli, S., ... & Dixon, L. (2019). Understanding the implementation of coordinated specialty Care for Early Psychosis in New York state: A guide using the RE-AIM framework. *Early intervention in psychiatry*, *13*(3), 715-719.

12. McFarlane, W. R., Cook, W. L., Downing, D., Verdi, M. B., Woodberry, K. A., & Ruff, A. (2010). Portland identification and early referral: a community-based system for identifying and treating youths at high risk of psychosis. *Psychiatric Services*, *61*(5), 512-515.

13. Mueser, K. T., Penn, D. L., Addington, J., Brunette, M. F., Gingerich, S., Glynn, S. M., ... & Cather, C. (2015). The NAVIGATE program for first-episode psychosis: rationale, overview, and description of psychosocial components. *Psychiatric Services*, *66*(7), 680-690.

14. Murray, R. M., Bhavsar, V., Tripoli, G., & Howes, O. (2017). 30 years on: how the neurodevelopmental hypothesis of schizophrenia morphed into the developmental risk factor model of psychosis. *Schizophrenia bulletin*, *43*(6), 1190-1196.

15. Niendam, T. A., Sardo, A., Savill, M., Patel, P., Xing, G., Loewy, R. L., ... & Melnikow, J. (2019). The rise of early psychosis care in California: an overview of community and university-based services. *Psychiatric Services*, *70*(6), 480-487.

16. Palmer, B. A., Pankratz, V. S., & Bostwick, J. M. (2005). The lifetime risk of suicide in schizophrenia: a reexamination. *Archives of general psychiatry*, *62*(3), 247-253.

17. Perkins, A., Ridler, J., Browes, D., Peryer, G., Notley, C., & Hackmann, C. (2018). Experiencing mental health diagnosis: a systematic review of service user, clinician, and carer perspectives across clinical settings. *The Lancet Psychiatry*, *5*(9), 747-764.

18. Radigan, M., Gu, G., Frimpong, E. Y., Wang, R., Huz, S., Li, M., ... & Dixon, L. (2019). A new method for estimating incidence of first psychotic diagnosis in a Medicaid population. *Psychiatric Services*, *70*(8), 665-673.