Live Webinar

Alcohol Use Disorder Part 2

Addressing the Special Needs of Women and Understanding Recovery Trajectories and Relapse



Dr. Shelly Greenfield
Harvard Medical School



Dr. John F. Kelly
Recovery Research Institute



Dr. Redonna Chandler
Addiction Policy Forum

29 October, 2026

1:00 - 2:30 PM ET

Online

ADDICTION POLICY FORUM

Mass General Brigham
McLean

Women and Alcohol: Science to Practice

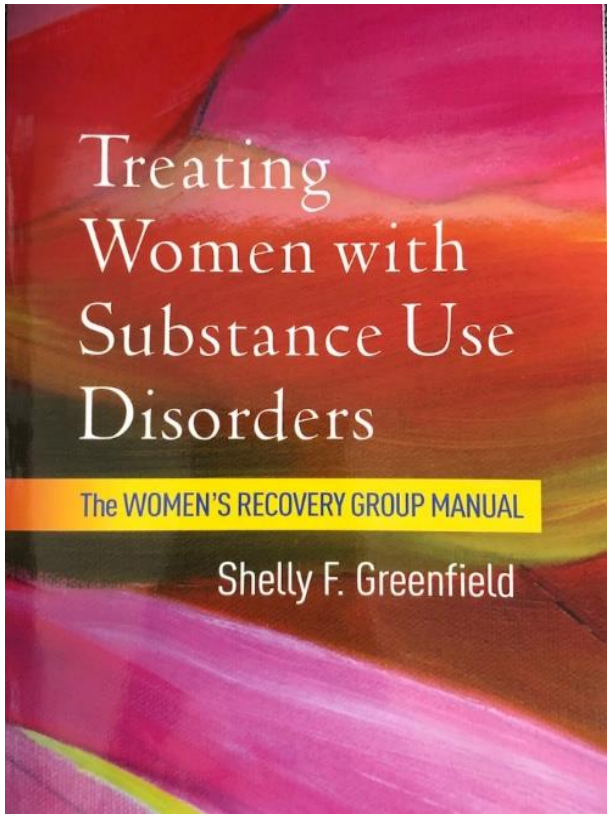
Addiction Policy Forum
October 29, 2026

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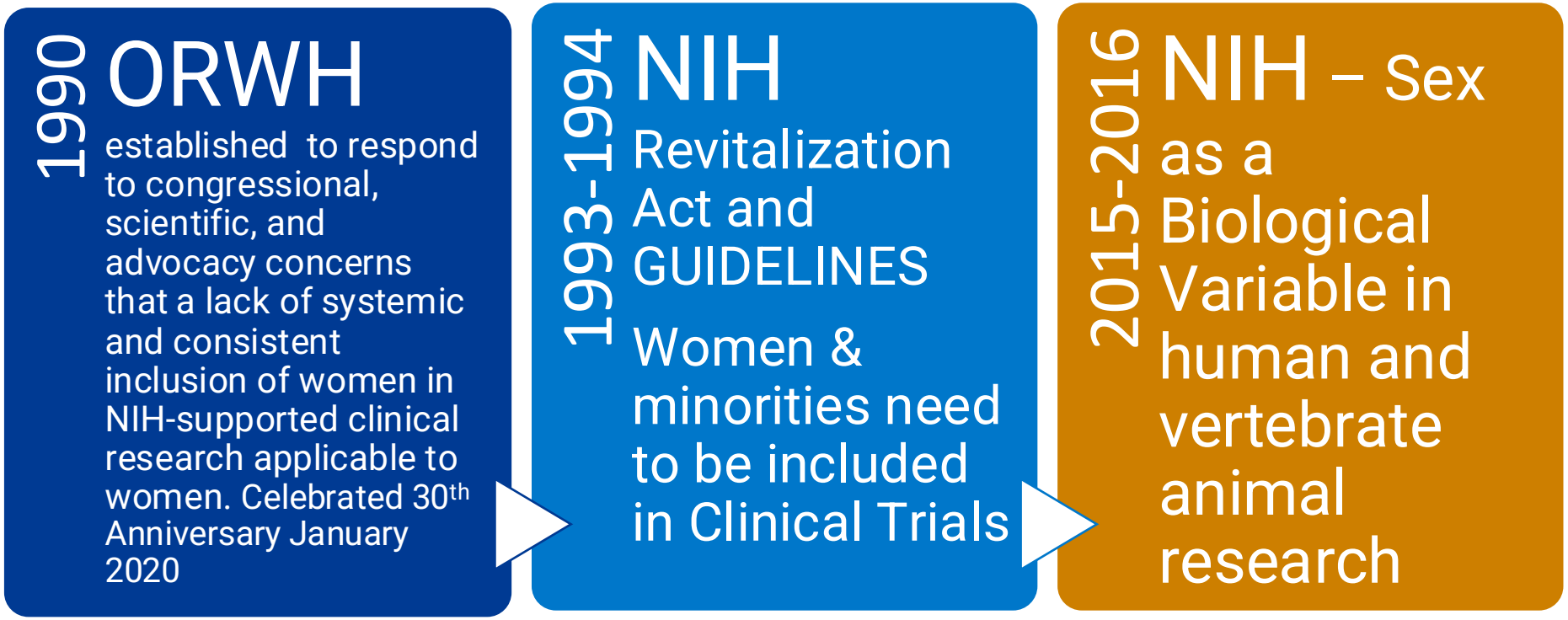
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TEACHING HOSPITAL

Acknowledgements

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- Dr. Greenfield is the author of *Treating Women with Substance Use Disorders: The Women's Recovery Group Manual* (Guilford Press, 2016).
- Support for some of this work from Grants R01 DA 015434 and K24 DA019855 and UG1DA01583 from the National Institute on Drug Abuse (NIDA)



Research on Gender/Sex Differences Focus on Women: 1990 -



Advancing Knowledge in these areas is vital for all human health



The NEW ENGLAND JOURNAL of MEDICINE

Perspective

Undermining Women's Health Research — Gambling with the Public's Health

Amanda N. Kallen, M.D.,[1,2] Shannon Whirledge, Ph.D.,[2] Kara N. Goldman, M.D.,[3] and Joshua Johnson, Ph.D.[1,4]

Sixty-four years ago, the story goes, Eunice Kennedy Shriver went sailing with her brother, then-President John F. Kennedy, on Nantucket Sound, off the coast of Massachusetts. During this trip, Shriver suggested to her brother that his wife Jacqueline's recent pregnancy losses might have been caused by underlying medical issues. Shriver, a compassionate humanitarian who pursued social reform and social justice, is often remembered as the founder of the Special Olympics and as a dedicated advocate for people

Kennedy Shriver National Institute of Child Health and Human Development (NICHD). But today, that vision is under threat. Actions by the Trump administration have placed in grave jeopardy the future of women's health, a central focus of research funded by the NICHD.

The term "women's health" refers not only to conditions that

NICHD has funded thousands of studies on a wide range of topics, including Parkinson's disease, preterm birth, prevention of medical errors in neonatal intensive care units, intimate partner violence, septic shock, cigarette smoking, postpartum depression, and safe infant sleep.

The benefits of this research haven't been limited to women — they have extended to men, children, and families. For example, cardiovascular disease is the leading cause of death among men in the United States, and studying

Kallen AN, et al NEJM May 28 2025

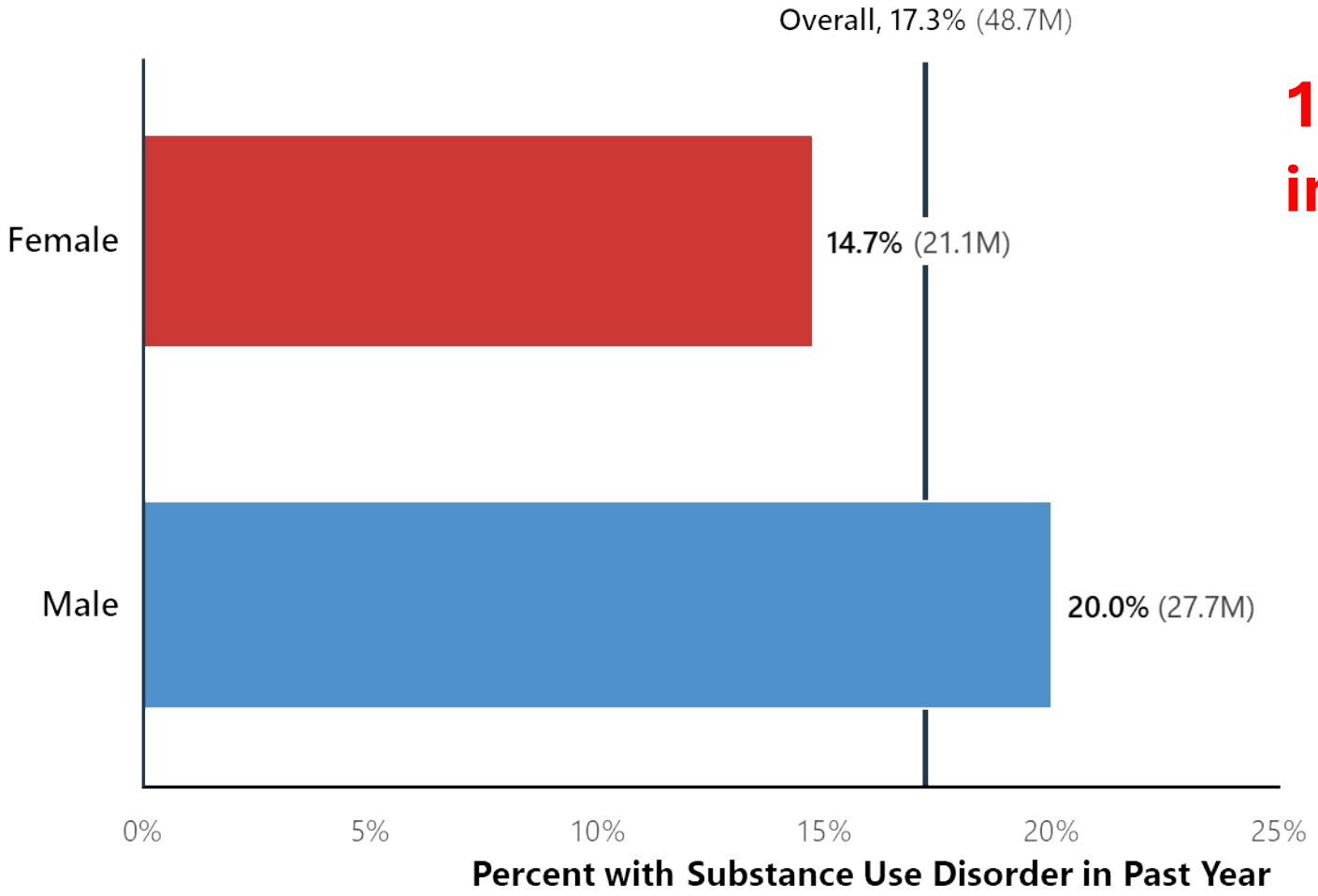
- As of 2015, 20 year's after the Revitalization Act mandated women be included in clinical trials, the majority of studies did not report sex-specific results (Geller SE et al, Acad Med 2018;93:630-5)
- Including research on alcohol and drug use disorders.

- Women's use of substances and SUD are on the rise in the U.S.
- And they are less likely to receive treatment than their male counterparts (Greenfield et al 2024; and others)

Narrowing Gender Gap in Prevalence of Substance Use Disorders in the United States

- Over the last 3 decades in the U.S., there has been a narrowing gender gap in substance use and substance use disorders in the U.S. with rising rates of alcohol and drug use disorders in adult women.
- Significantly, the prevalence of past year substance use disorders is now greater in 12-17 year old girls than boys.

Substance Use Disorder in the Past Year by Gender: Among People Aged 12 or Older (NSDUH 2022) – Narrowing Gender Gap



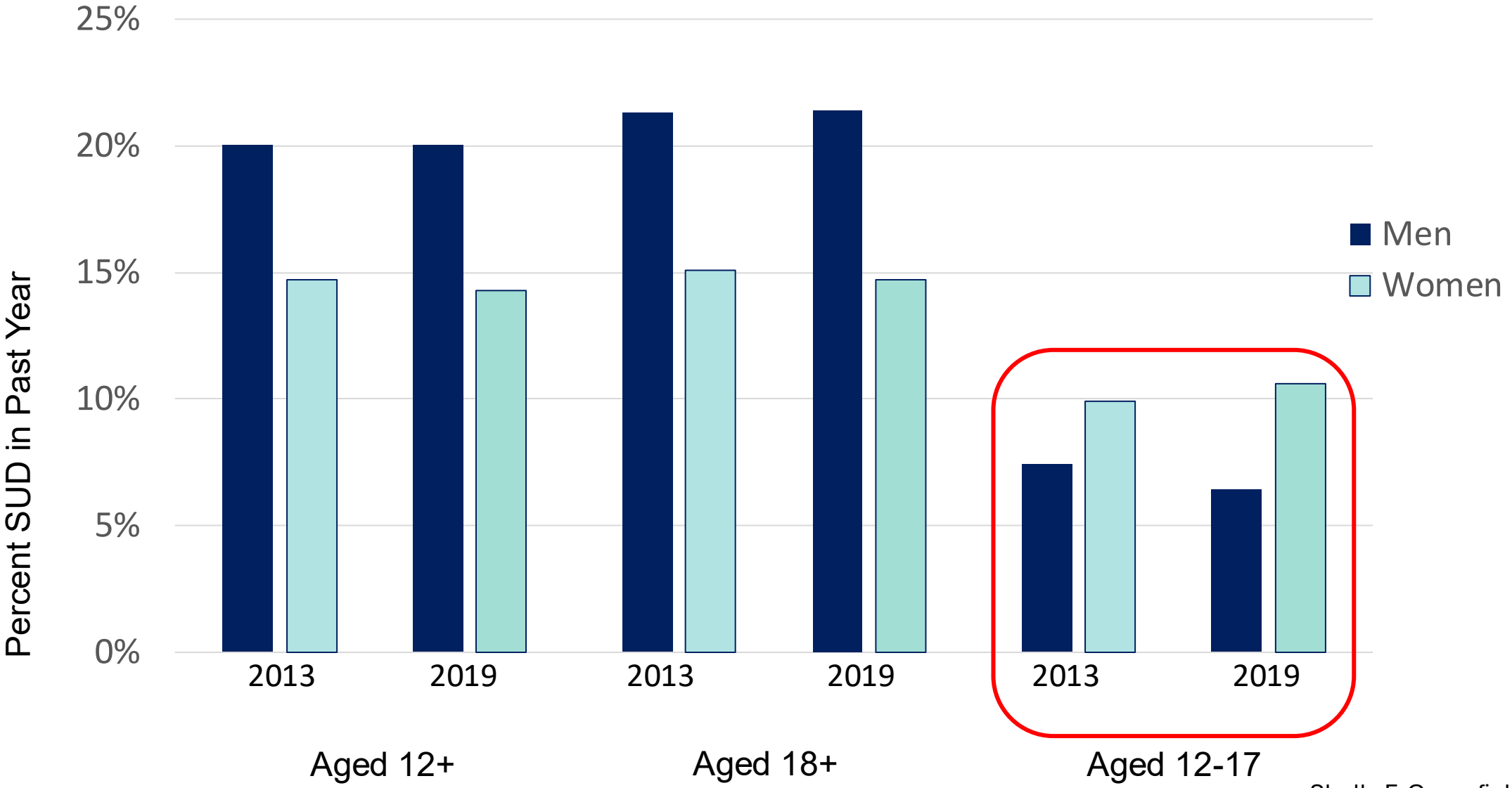
1.3:1 male to female ratio in 2021

- Males were more likely to have a substance use disorder than females

2.6:1 male to female ratio in 2001

NSDUH 2022; Compton et al 2007; Hasin et al 2007

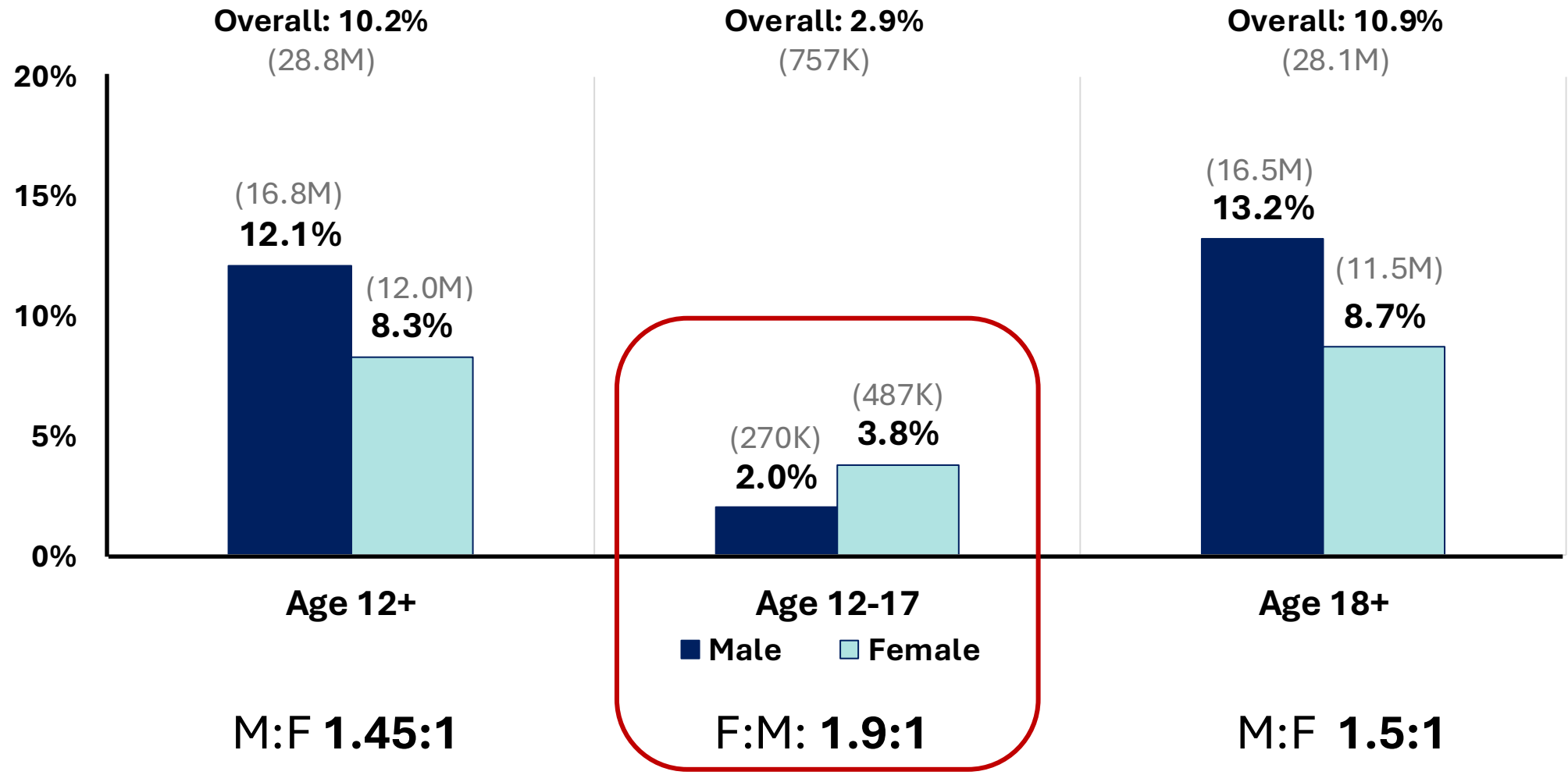
Past Year Substance Use Disorders 2013 and 2019 ages 12-17 years



Data from SAMHSA 2013 and 2019 National Survey on Drug Use and Health

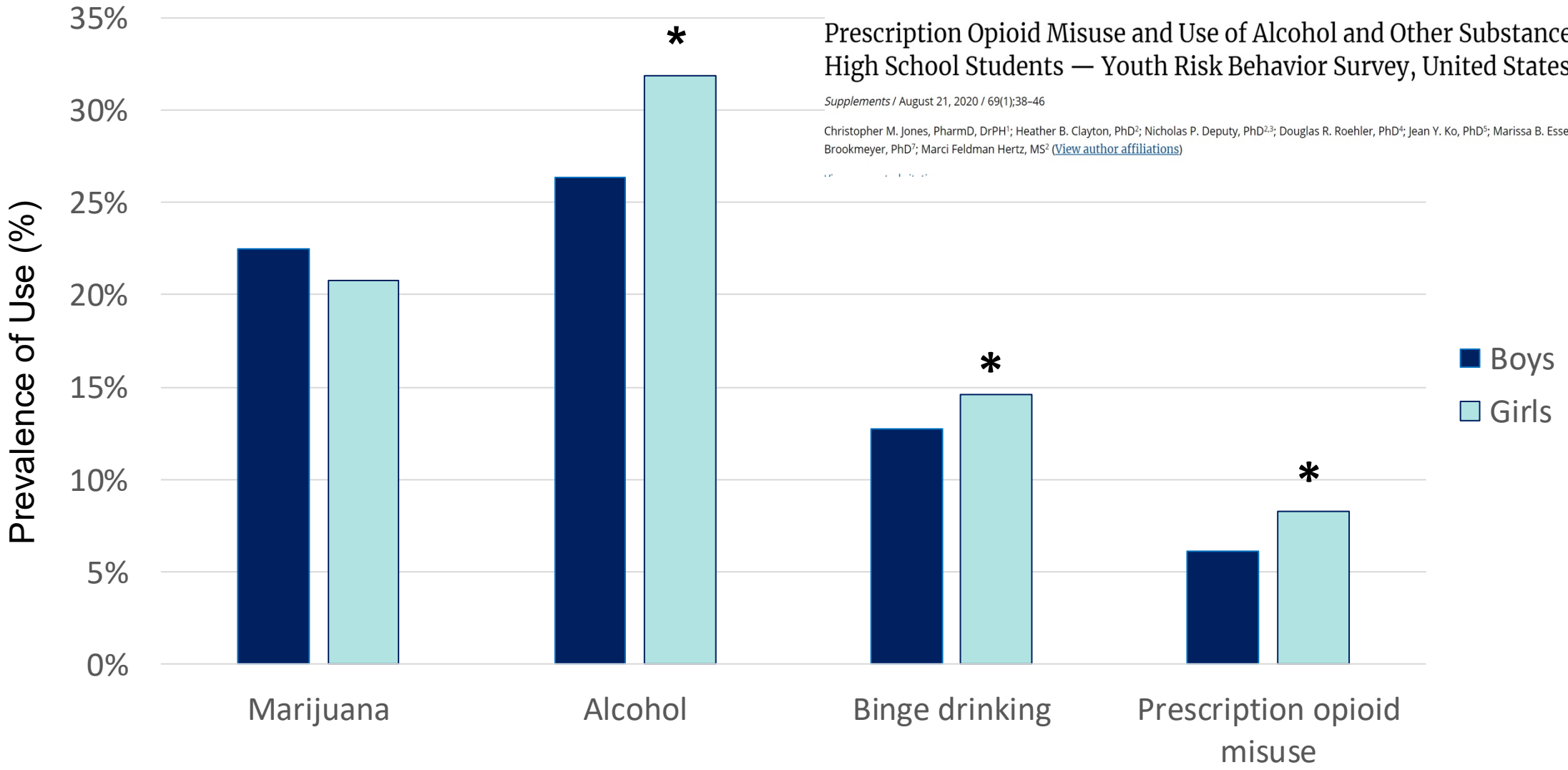
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Alcohol Use Disorder in the Past Year by Gender (NSDUH 2023)



Shelly F. Greenfield MD, MPH

Current Substance Use – High School Students



Morbidity and Mortality Weekly Report (*MMWR*)

CDC

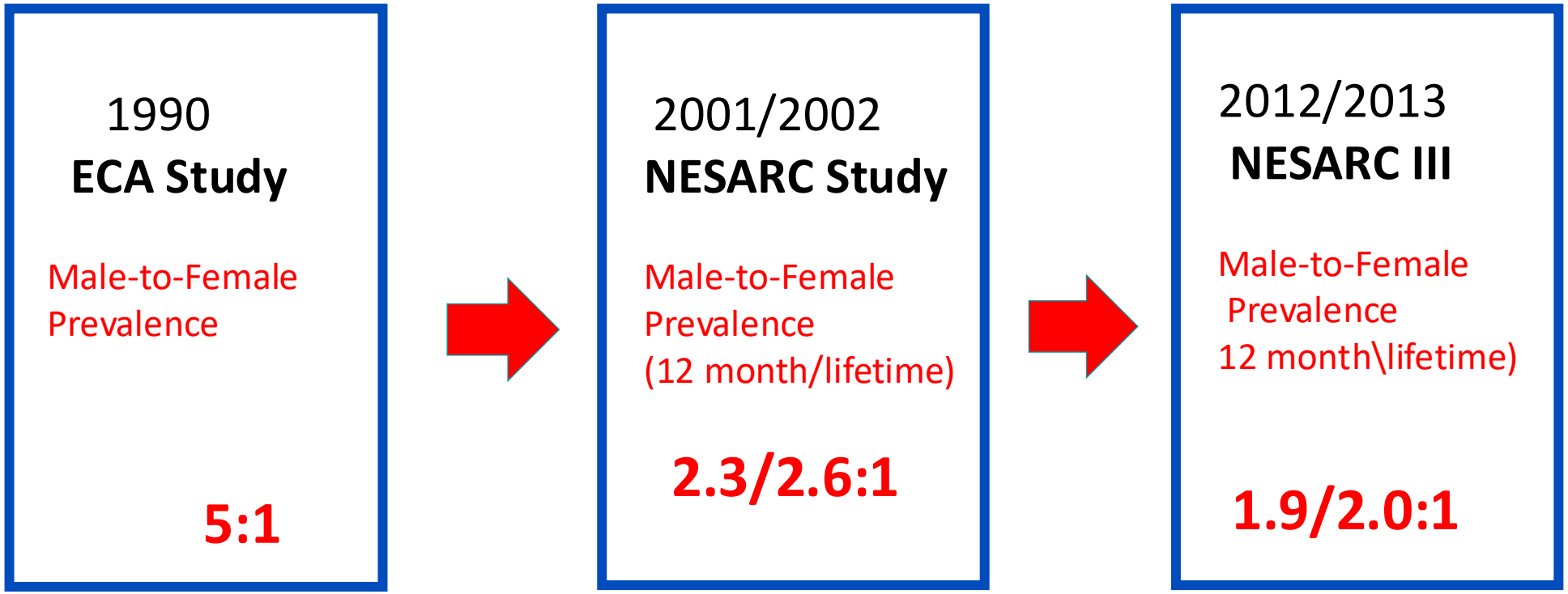
Prescription Opioid Misuse and Use of Alcohol and Other Substances Among High School Students — Youth Risk Behavior Survey, United States, 2019

Supplements / August 21, 2020 / 69(1);38–46

Christopher M. Jones, PharmD, DrPH[1]; Heather B. Clayton, PhD[2]; Nicholas P. Deputy, PhD[2,3]; Douglas R. Roehler, PhD[4]; Jean Y. Ko, PhD[5]; Marissa B. Esser, PhD[6]; Kathryn A. Brookmeyer, PhD[7]; Marci Feldman Hertz, MS[2] (View author affiliations)

** Significantly different from male students, based on t-test (p<0.05)*

Alcohol Use Disorders in the U.S.



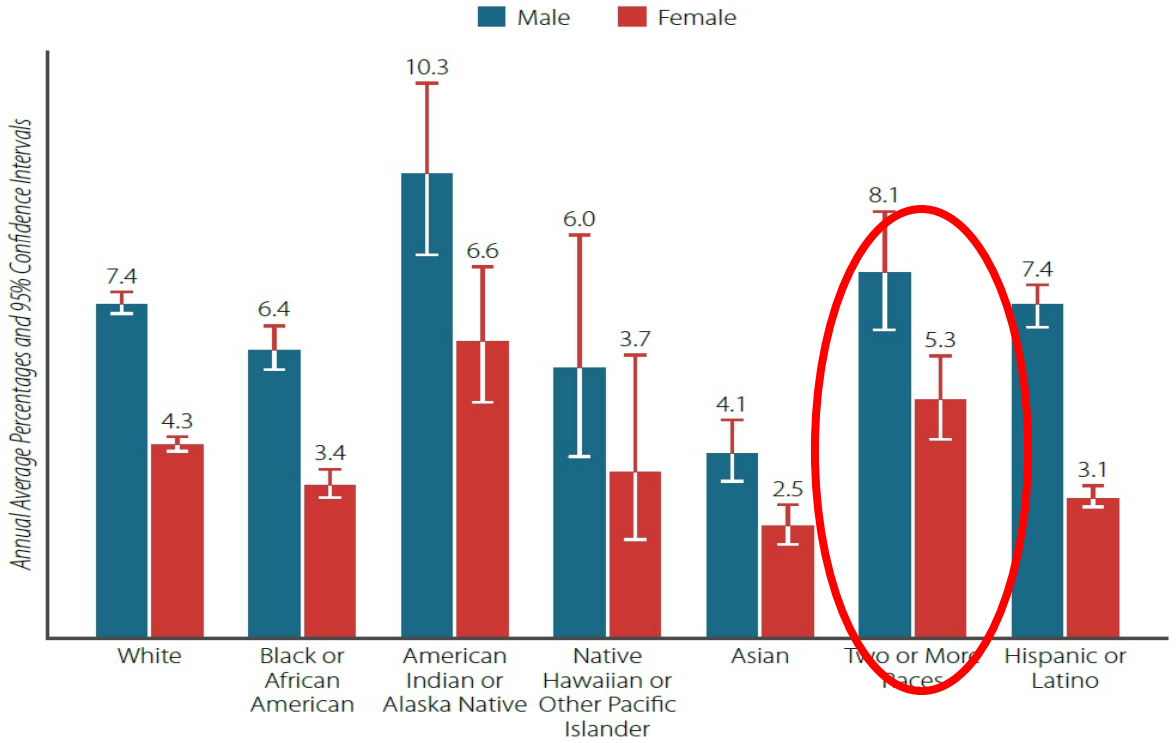
Women born after World War II have lower levels of abstaining from alcohol, and higher levels of alcohol use disorders compared with earlier birth cohorts born prior to World War II (Grucza et al, 2008); and this gap narrows with successive birth cohorts end of twentieth and into the 21st century

Intersection of Gender and Race/Ethnicity SAMHSA 2015-2019 Data



Shelly F. Greenfield MD, MPH

FIGURE 4.5 Alcohol Use Disorder in the Past Year among People Aged 12 or Older, by Race/Ethnicity and Gender: 2015–2019, Annual Averages



Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015–2019.

Male to female ratios:
Hispanic or Latino: 2.4:1
Black or African Am: 1.9:1
White: 1.7:1
Asian: 1.6:1
American Indian or Alaska Native: 1.6:1
Native Hawaiian or Other Pacific Islander: 1.6:1
Two or more races: 1.5:1

- The pattern of past year alcohol use disorder by race/ethnicity varied for males and females aged 12 or older (Figure 4.5).
- Among males aged 12 or older, American Indian or Alaska Native males had the highest estimate of past year alcohol use disorder (10.3 percent) compared with males in all other racial/ethnic groups except those reporting two or more races (8.1 percent).
- Asian males had the lowest estimate of past year alcohol use disorder (4.1 percent) compared with males in all other racial/ethnic groups except Native Hawaiian or Other Pacific Islander (6.0 percent).
- The estimate of past year alcohol use disorder was higher for American Indian or Alaska Native females (6.6 percent) than the estimates for females in all other racial/ethnic groups except those reporting two or more races (5.3 percent).
- White females had a higher estimate of past year alcohol use disorder (4.3 percent) than Black, Hispanic, and Asian females (3.4, 3.1, and 2.5 percent, respectively).
- Asian females had the lowest estimate of past year alcohol use disorder compared with females in all other racial/ethnic groups except Native Hawaiian or Other Pacific Islander (3.7 percent).

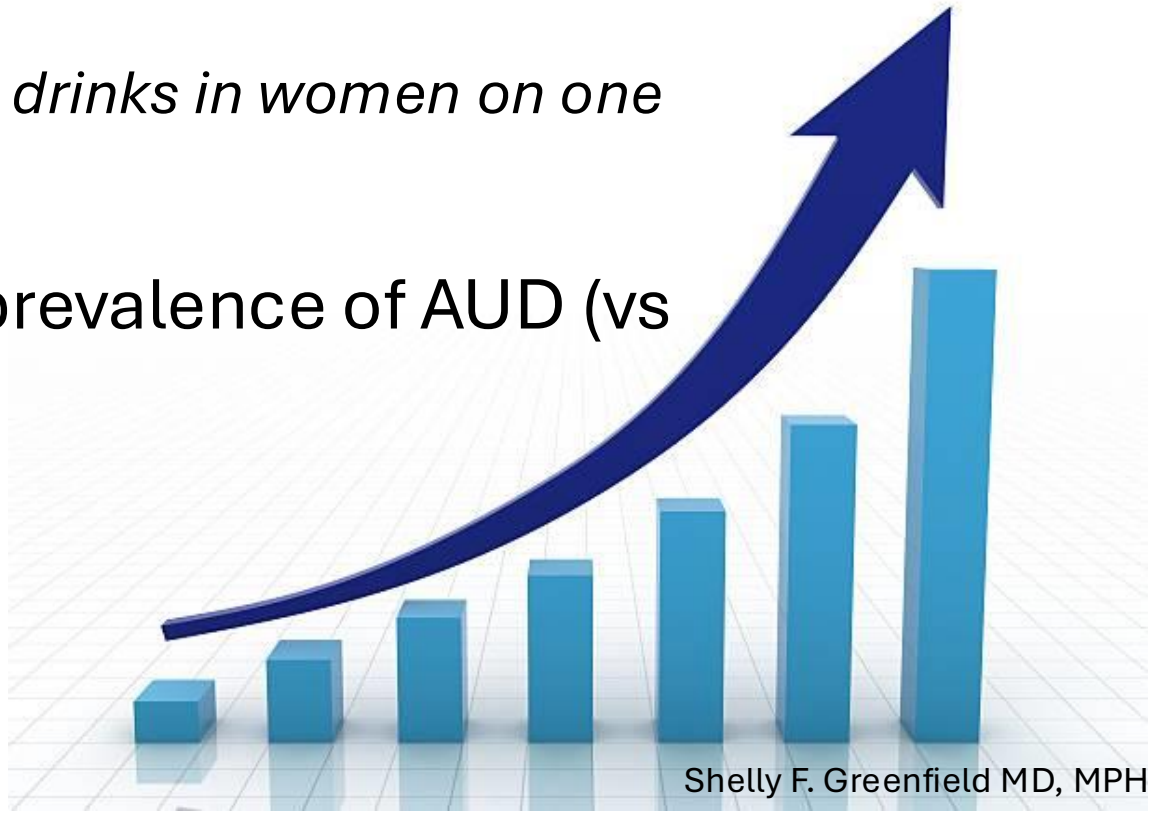
Shelly F. Greenfield MD, MPH

Prevalence of Alcohol Use Disorders in Men and Women in the US

In the decade between 2001/02 and 2012/13:

- **16%** increase in the proportion of women who drink alcohol
- **58%** increase in women's high-risk drinking* (vs 16% in men)

  **High-risk drinking = 5+ drinks in men & 4+ drinks in women on one occasion once/week*
- **84%** increase in women's one-year prevalence of AUD (vs 35% in men)



Grant BF...Hasin DS. JAMA Psychiatry 2017;74:911-923

Women and Alcohol

Alcohol-Related Health Risks Through the Lifespan:

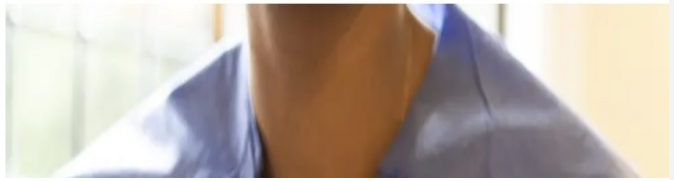
The New York Times

Breast Cancer Rates Climb Among Younger Women

A new report points to a notable increase among U.S. women under 50. Experts point to a few likely causes.

Listen to this article · 7:28 min Learn more

Share full article



Alcohol and Cancer Risk 2025

The U.S. Surgeon General's Advisory

U.S. PUBLIC HEALTH SERVICE 1798

Clinical Gastroenterology and Hepatology 2024;22:798–809

Chronic Liver Disease and Cirrhosis Mortality Rates Are Disproportionately Increasing in Younger Women in the United States Between 2000-2020

Yazan Abboud,[1] Anna G. Mathew,[2] Mohamad Aghaie Meybodi,[1] Esli Medina-Morales,[1] Saqr Alsakarneh,[3] Catherine Choi,[4] Yi Jiang,[5] and Nikolaos T. Pyrsopoulos[4]

[1]Department of Internal Medicine, Rutgers New Jersey Medical School, Newark, New Jersey; [2]Rutgers New Jersey Medical School, Newark, New Jersey; [3]Department of Internal Medicine, University of Missouri-Kansas City, Kansas City, Missouri; [4]Division of Gastroenterology and Hepatology, Rutgers New Jersey Medical School, Newark, New Jersey; and [5]Karsh Division of Gastroenterology and Hepatology, Cedars-Sinai Medical Center, Los Angeles, California

BACKGROUND & AIMS: Previous studies show that mortality from chronic liver disease (CLD) and cirrhosis is increasing in the United States. However, there are limited data on sex-specific mortality trends by age, race, and geographical location. The aim of this study was to conduct a comprehensive time-trend analysis of liver disease–related mortality rates in the National Center of Health Statistics (NCHS) database.

METHODS: CLD and cirrhosis mortality rates between 20002020 (age-adjusted to the 2000 standard U.S. population) were collected from the NCHS database and categorized by sex and age into older adults (≥55 years) and younger adults (<55 years), race (Non-Hispanic-White, Non-Hispanic-Black, Hispanic, Non-Hispanic-American-Indian/Alaska-Native, and Non-Hispanic-Asian/Pacific-Islander), U.S. state, and cirrhosis etiology. Time trends, annual percentage change (APC), and average APC (AAPC) were estimated using Joinpoint Regression using Monte Carlo permutation analysis. We used tests for parallelism and identicalness for sex-specific pairwise

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Telescoping Course of Alcohol Use Disorders

Phenomenon known as "telescoping":

- Women who drink progress more rapidly to serious alcohol related physical and social consequences than their male counterparts
- Shorter time between landmarks of illness progression
- This happens at lower doses of alcohol consumed less frequently
- Some evidence with other substances: stimulants, opioids, nicotine

(Randall et al, 1999; Piazza et al, 1989; Lewis & Nixon, 2014)



Physiological Basis of Telescoping in Alcohol Use Disorders

Compared with men, women have:

- Less alcohol dehydrogenase (ADH) in gastric mucosa
- Decreased first-pass metabolism; Greater absorption ETOH
- More adipose tissue & lower total body water
- For each ounce alcohol of consumed, ↑ blood alcohol concentration
- Heightened vulnerability to adverse physical consequences (e.g., brain, heart, skeletal muscle, pancreas, liver, breast)
- Similar findings for other substances including opioids, nicotine, stimulants

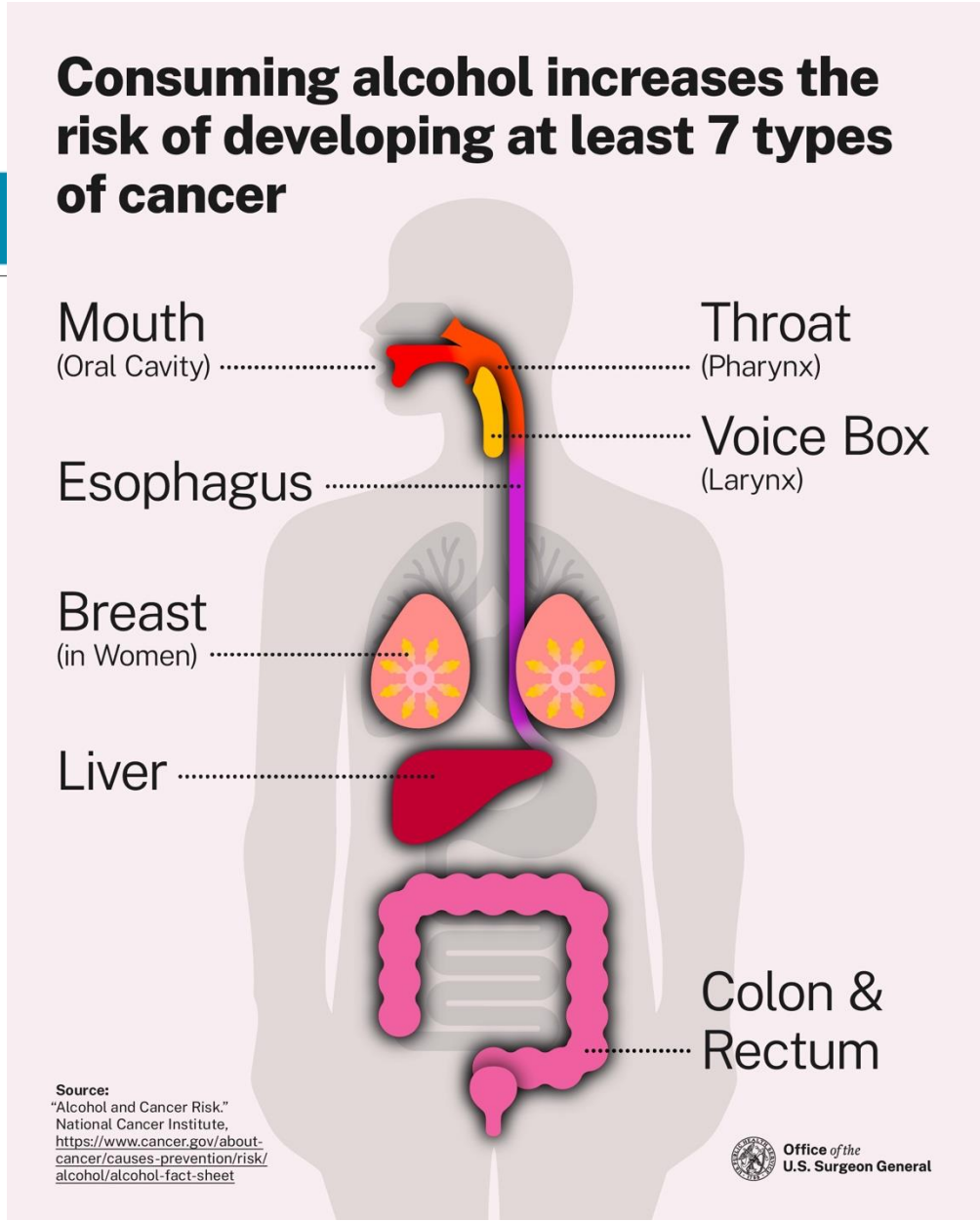
Adverse Consequences of Alcohol and other Substance Use in Women

Cardiovascular disease	Liver disease	Sexually transmitted infections	HIV/AIDS
Gastrointestinal disease	Breast cancer	Unintended pregnancy	Fertility issues
Hepatitis C	Exposure to intimate partner violence	Menstrual cycle irregularities	Sexual victimization

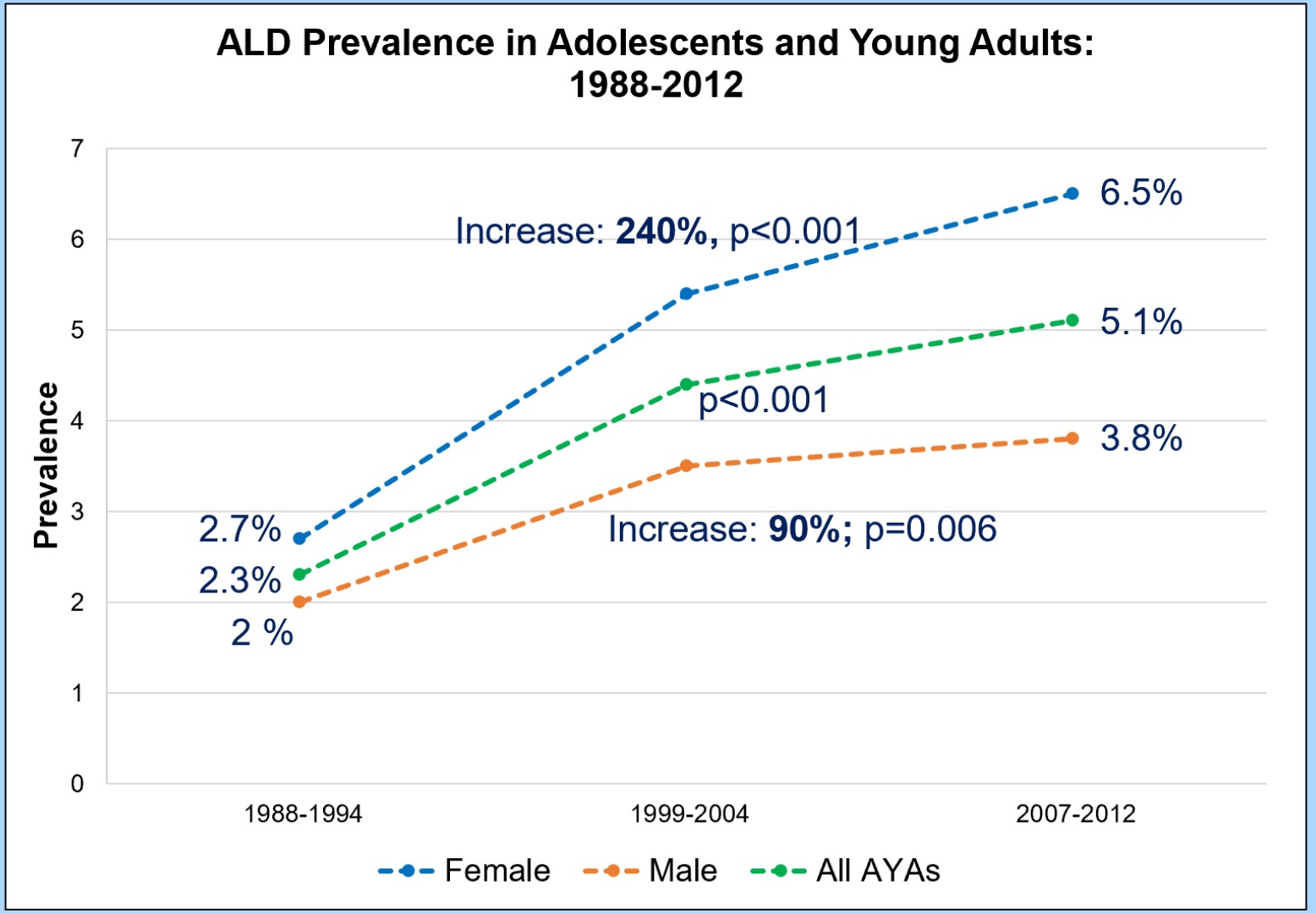
Alcohol and Cancer Risk

- There is a strong scientific consensus that drinking alcohol can cause several types of cancer including breast cancer
(Tin Tin S, Smith-Byrne K, Ferrari P, et al. *Cancer*. 2024; 130(19): 3375-3386. doi:10.1002/cncr.35391)

- In January 2025, U.S. Surgeon General recommended that cancer-related warning labels be placed on alcohol products
https://www.hhs.gov/sites/default/files/oash-alcohol-cancer-risk.pdf



Alcoholic liver disease (ALD), ages 15-39
National Health and Nutrition Examination Survey



Doycheva et al, Digestive Diseases and Sciences, 2017

Are there other factors affecting these rates?

- **Social media?**
- **Alcohol advertising?**
- **Role changes/normalization of substance use in women?**
- **Stress?**
- **Social isolation/Loneliness?**
- **More depression/anxiety?**
- **Trauma?**
- **Covid 19 stress and loss?**

What are the potential drivers of alcohol and other substance use in women and how might they vary across age groups/lifespan

New Study: "Stress, Substance Use, and Mental Health in Adult Women in the United States"

Community Survey on Substance Use in Women :

- Survey in U.S. of **2,296 women** collected 8/16/2024-9/30/2024
  - **Potential contributing factors correlated with alcohol and other substance use patterns**
  - **Interested in Heavy use (compared to Light or Moderate use) – across all substances (alcohol, cannabis, prescription medications, other drugs)**
  - Across all age groups 18-70

Community Survey on Substance Use in Women: Patterns of Use

ELSEVIER

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Substance use patterns in a c
United States: Alcohol, Canna

Shelly F. Greenfield [a,b,c,*,1], Allen J. B
Kristin N. Javaras [a,c], Laura A. Payne
R. Kathryn McHugh [b,c]

[a] Division of Women's Mental Health, McLean Hospital, 115 Mill
[b] Division of Alcohol Drugs and Addiction, McLean Hospital, 115
[c] Harvard Medical School, 25 Shattuck Street, Boston, MA 0211

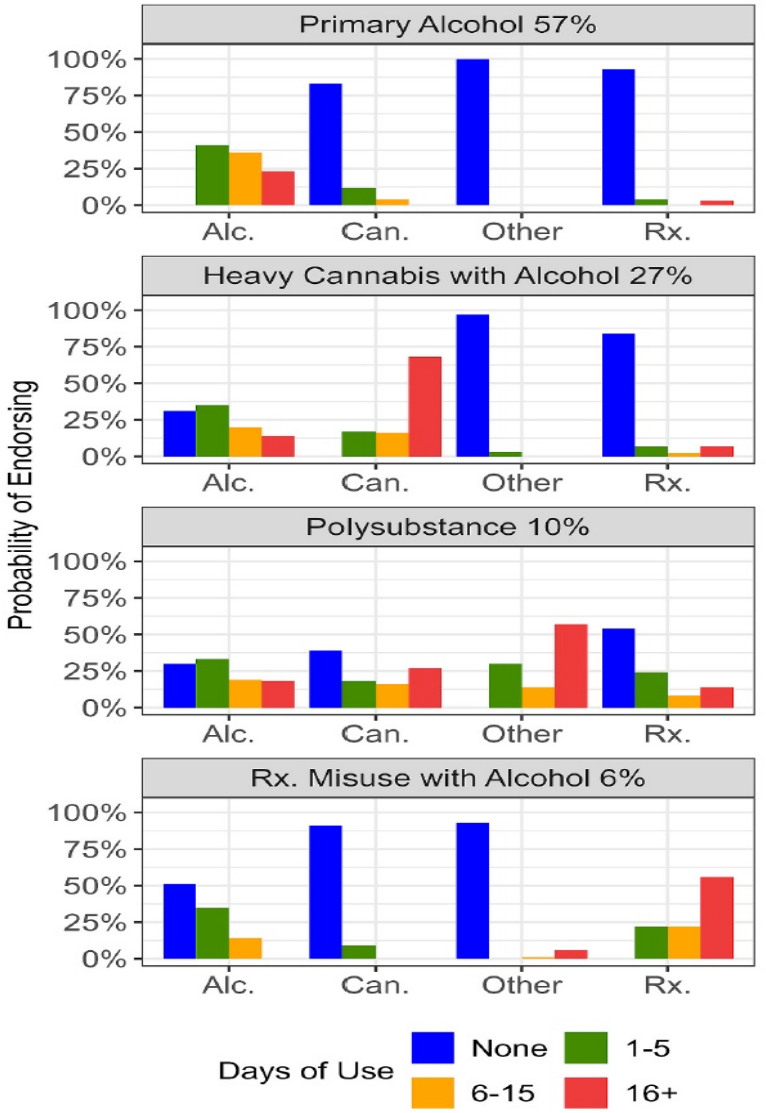


Fig. 3. Probability of endorsing each substance use frequency (none, mild, moderate, heavy) for each of the four latent classes: Primary Alcohol, Heavy Cannabis with some alcohol, polysubstance use, and prescription medication misuse with alcohol.

n the

ıan [a,b,c]



- ~~Co-use of Alcohol~~ with other substances
- Heavy alcohol use more common in the older age women 44-70 years than younger women 18-43

Alcohol Use and Reproductive Hormones

Alcohol and Reproductive Hormones

Important relationship between alcohol and women's reproductive hormones:

Menstrual cycle and dysmenorrhea (menstrual pain):

- Alcohol can interfere with the hypothalamic-pituitary-adrenal-ovarian axis – the hormonal system responsible for regulating ovulation and menstruation. Alcohol can disrupt hormone signaling, especially estrogen and progesterone. (Carrol HA et al Arch Womens Ment Health. 2015 December ; 18(6): 773–781. doi:10.1007/s00737-015-0568-2). **Alcohol may**:
  - Increase estrogen levels temporarily
  - Interfere with ovulation
  - Disrupt timing of menstrual cycle
- Depending on dose, effects can include:
  - Delayed or missed period
  - Delayed ovulation
  - Heavier period/cramps
  - Increased mood changes
- Menstrual pain may be a risk factor for alcohol/drug use among women in SUD treatment (Sugarman DE et al J Addict Med 2025)

Alcohol and Reproductive Hormones

Important relationship between alcohol and women's reproductive hormones:

Alcohol and Menopause

Alcohol can:

- Exacerbate symptoms of menopause including vasomotor symptoms (commonly known as hot flashes and night sweats) because alcohol can cause vasodilation of blood vessels
- Disrupt high-quality sleep and this can interact with sleep problems that arise during menopause
- Increase dehydration which can in turn promote headache and fatigue

Longitudinal study of 3,622 women demonstrated that **light, moderate and heavy drinking appear associated with poorer scores on menopause-specific quality of life questionnaire including poorer vasomotor, psychosocial, and physical domains**

(Kwon, R., et al. Longitudinal analysis of alcohol consumption pattern and menopause-specific quality of life in middle-aged women undergoing the menopausal transition. Addiction, 2026;121(3), 586–596. https://doi.org/10.1111/add.70222)

Tolerance to alcohol decreases with age as metabolism in the liver decreases; same quantity of alcohol consumed can be experienced as a higher dose as you age.

Alcohol Use and Pregnancy

Alcohol and Pregnancy

According to the CDC (2024):

- Nearly **14%** (or 1 in 7) pregnant women reported current drinking alcohol
- Approximately **5%** (or 1 in 20) reported binge drinking (4 or more drinks on one occasion) in the past 30 days
- In the US, both current alcohol use and binge drinking among pregnant women aged 18–44 years increased slightly from 2011 to 2018
- No safe drinking levels in pregnancy: risks FAS/FASD
- Screening for alcohol use in pregnancy (AUDIT-C) https://everymomentmatters.org.au/wp-content/uploads/FARE_A4_FactSheet_Using-AUDIT-C-In-Practice.pdf



Resources for patients: https://www.acog.org/womens-health/infographics/alcohol-and-pregnancy

Treatment interventions for alcohol use in pregnancy



Cochrane Database of Systematic reviews | Review - Intervention

Psychosocial and medication interventions to stop or reduce alcohol consumption during pregnancy

Silvia Minozzi, Ludovico Ambrosi, Rosella Saulle, Seilin S Uhm, Mishka Terplan, Julia MA Sinclair, Roberta Agabio

Authors' declarations of interest

Version published: 29 April 2024 Version history

https://doi.org/10.1002/14651858.CD015042.pub2

Collapse all Expand all

Abstract

Available in English | Español | فارسی | Français | 한국어 | Português | ภาษาไทย | 简体中文

Background

Despite the known harms, alcohol consumption is common in pregnancy. Rates vary between countries, and are estimated to be 10% globally, with up to 25% in Europe.

Objectives

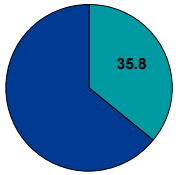
- Meta-analysis of 8 studies of psychosocial interventions (1369 participants across studies)
- Brief interventions ranged from single session of 10-60 minutes up to 5 sessions of 10 minutes each.
- Women in the control group received treatment as usual (TAU) or similar treatments such as alcohol use assessment and advice to stop drinking during pregnancy.
- Evidence to support that these types of brief psychosocial interventions increased the rate of continuous abstinence among pregnant women who report alcohol use during pregnancy
- Additional research needed for this population

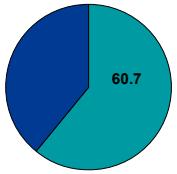
Women and Alcohol Use Disorders

- Now initiate their use of alcohol and other substances at an earlier age than in previous generations, and at approximately the same age as their male counterparts
- Advance more rapidly from first use to regular use to first treatment episode
- Can use smaller quantities of alcohol and other substances for fewer years
- Average more medical, psychiatric, and social consequences: the **telescoping** course of alcohol and other substance use disorders in women compared with men
- More likely to have co-occurring depression, anxiety, and trauma-related disorders

Co-occurring Depression and Anxiety and Lifetime Alcohol Use Disorders

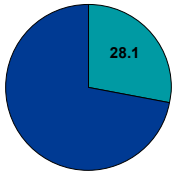
Men | **Women**

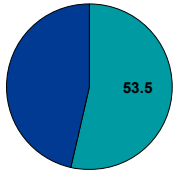




Anxiety Disorders

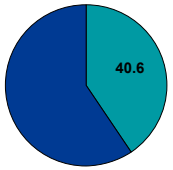
Anxiety Disorders: Female:Male 1.7:1

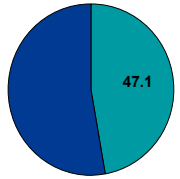




Mood Disorders

Mood Disorders: Female:Male 1.9:1



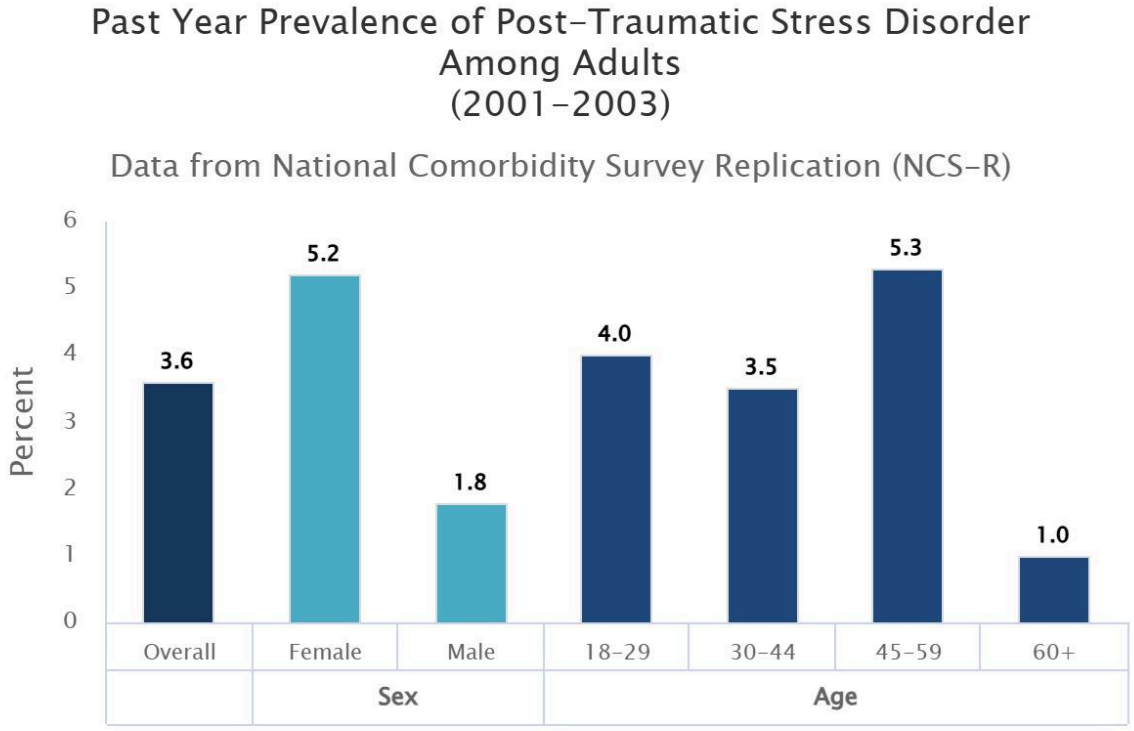


Drug Use Disorders

Kessler et al., 2004

Trauma/Abuse and Risk of Substance Use Disorders

- Violence/trauma common in individuals with substance use disorder
- Women more likely to experience childhood sexual/physical abuse
- Strong relationship between abuse history and substance use disorders in women



F:M Ratio PTSD 2.9:1

What About Treatment?

Given these emerging trends and risk factors for developing Alcohol and other substance use disorders:

- Are there gender differences in:
  - Barriers to treatment?
- What about gender-specific treatment for women?

What About Treatment?

Current Addiction Reports
https://doi.org/10.1007/s40429-023-00515-1

Alcohol Treatment Access and Engagement Among Women in the USA: a Targeted Review of the Literature 2012–2022

Emily A. Levine[1] · Dawn E. Sugarman[1,2] · Mary Rockas[1,2] · R. Kathryn McHugh[1,2] · Chloe Jordan[1,2] · Shelly F. Greenfield[1,2]

Accepted: 28 July 2023
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Abstract

Purpose of Review The purpose of this review is to examine recent literature (2012–2022) on alcohol treatment access and engagement in women in the USA and propose future directions for research and clinical practice.

Recent Findings A targeted literature review resulted in 27 studies encompassing screening and brief intervention (SBIRT), treatment utilization, treatment engagement, and barriers to treatment. Recent literature demonstrates overall low rates of screening and brief interventions and treatment utilization in the population with women less likely to be screened and utilize alcohol treatment. The magnitude of these gender differences varies with race/ethnicity. Extensive barriers to care include provider knowledge, structural barriers, and attitudinal barriers and these vary with service setting, gender, and race/ethnicity.

Summary There is an increasing prevalence of alcohol use and alcohol use disorder (AUD) in women with low rates of screening, brief treatment, treatment, and engagement which have resulted from extensive barriers to care. Possible areas of further inquiry include the impact of race/ethnicity on gender differences, improving provider and system level policies to promote SBIRT and treatment engagement and utilization, further developing digital interventions and implementation research to investigate factors associated with optimizing effectiveness of gender-responsive and culturally tailored interventions that address the unique needs of women.

Keywords Women · Alcohol · Alcohol use Disorders · Gender · Gender Differences · Treatment · Drinking

Shelly F. Greenfield, MD, MPH

- Low rates of screening and brief interventions and treatment utilization in the population overall with women less likely than men to be screened and utilize alcohol treatment. Only 15% will ever seek treatment.
- Extensive barriers to care include provider knowledge, structural and attitudinal barriers
- Once in treatment, outcomes for women equivalent to men

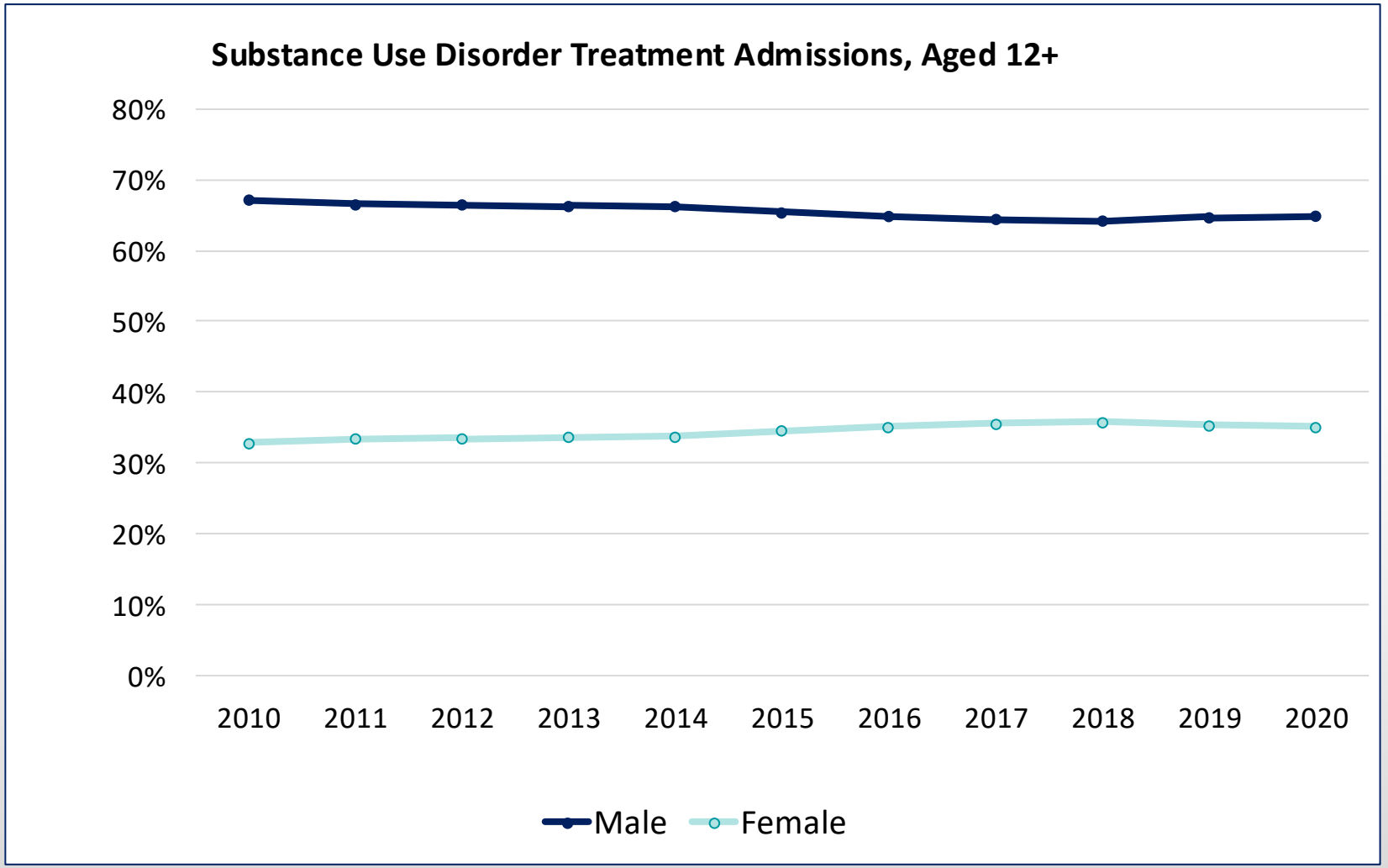
(Grenfield et al 2007; McCrady et al 2020)

Specific Barriers to Treatment Entry for Women

- Less likely to be screened in primary and mental health care
- Lack of treatment services for pregnant women
- Lack of childcare services for parenting women
- Economic barriers (e.g., lack of insurance; other resources)
- **Trauma histories**
- Social stigma and discrimination
- **Higher risk for certain co-occurring psychiatric disorders such as mood, eating, anxiety, and post-traumatic stress disorder**

(Brady and Ashley, 2005; Pelissier and Jones, 2005; Grella, 1997; Brady and Randall, 1998; Gordon et al, 2008; Killeen et al, 2011)

Men Outnumber Women in Substance Use Disorders Treatment Settings

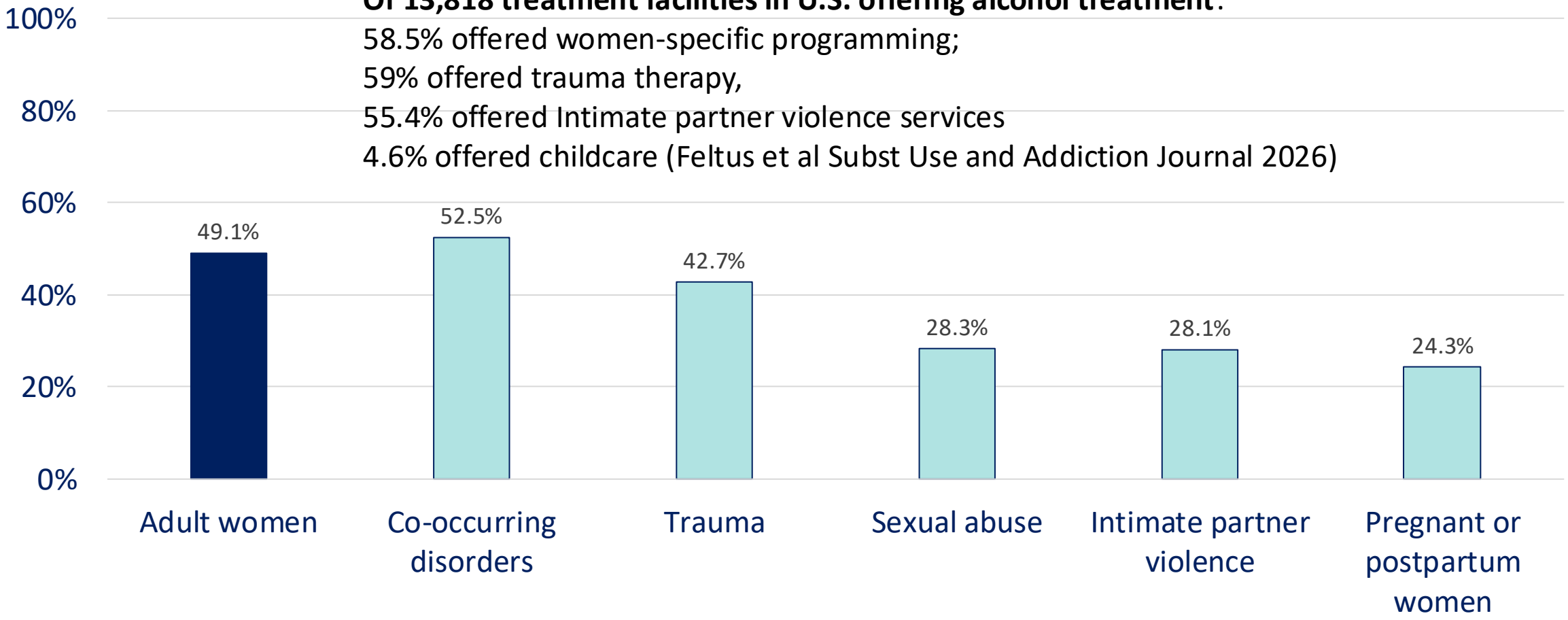


Source: SAMHSA Treatment Episode Data Set, 2020

Accessing Gender-Specific Treatment for Women

Substance use treatment facilities that offer specifically tailored programs or groups by client type

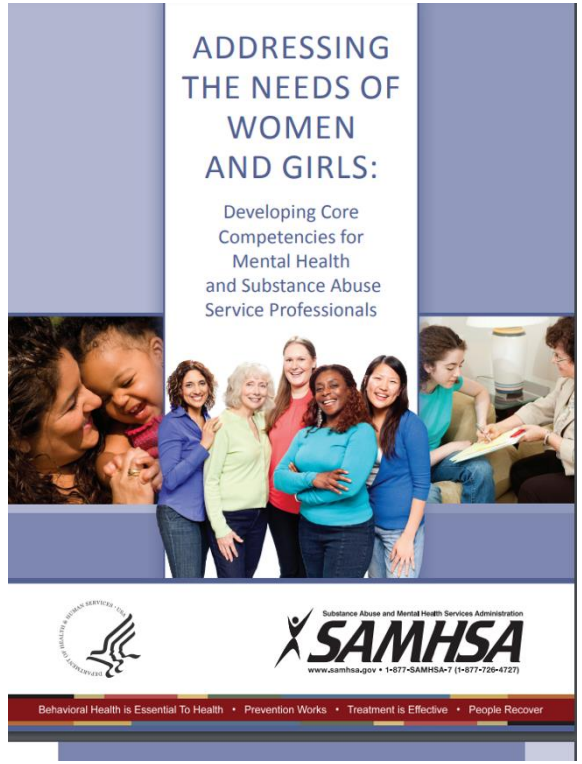
Of 13,818 treatment facilities in U.S. offering alcohol treatment:
58.5% offered women-specific programming;
59% offered trauma therapy,
55.4% offered Intimate partner violence services
4.6% offered childcare (Feltus et al Subst Use and Addiction Journal 2026)



SAMHSA: National Survey of Substance Abuse Treatment Services (N-SSATS): 2019, Data On Substance Abuse Treatment Facilities

Gender-Specific Treatment for Women

- Gender-specific treatments address women's needs, including:
  - **Co-occurring mental health disorders**
  - **Trauma**
  - **Family concerns**
  - **Pregnancy**
  - **Parenting and childcare**



Gender-specific treatment for women with substance use disorders is associated with **better** treatment outcomes

Evidence based treatment interventions for women and alcohol

FOCUS ON ALCOHOL RESEARCH Current Reviews

Alcohol Res. 2020;40(2):08 • https://doi.org/10.35946/arcr.v40.2.08

Published: 30 July 2020

Treatment Interventions for Women With Alcohol Use Disorder

Barbara S. McCrady,[1] Elizabeth E. Epstein,[2] and Kathryn F. Fokas[3]

[1]Center on Alcoholism, Substance Abuse, and Addictions, University of New Mexico, Albuquerque, New Mexico
[2]Department of Psychiatry, University of Massachusetts Medical School, Worcester, Massachusetts
[3]Department of Psychology, University of New Mexico, Albuquerque, New Mexico

Women with alcohol use disorder (AUD) experience more barriers to AUD treatment and are less likely to access treatment than men with AUD. A literature review identified several barriers to women seeking help: low perception of a need for treatment; guilt and shame; co-occurring disorders; employment, economic, and health insurance disparities; childcare responsibilities; and fear of child protective services. Women entering treatment present with more severe AUD and more complex psychological, social, and service needs than men. Treatment program elements that may reduce barriers to AUD treatment include provision of childcare, prenatal care, treatment for co-occurring psychological problems, and supplemental social services. Research has suggested that outcomes for women are best when treatment is provided in women-only programs that include female-specific

Gender-specific mutual help groups:

- Women's AA Groups (Sanders J, 2010; Kelly & Hoeppner, 2013; Witbrodt & Delucchi, 2011; [some gender differences]
- Women for Sobriety (WFS),LifeRing, and SMART (Zemore SE et al 2018)

- Early Treatment of Women with Alcohol Addiction (EWA) Study – Intensive women's treatment – (Dahlgren & Wallander, ACER 1989) with longitudinal follow-up @20 years (Berge LI et al 2022)
- Behavioral Couples Therapy (McCrady et al 2009)
- Female Specific Cognitive Behavioral Treatment (FS-CBT individual & group formats) – (Epstein et al JSAT 2018)
- Women's Path to Recovery – (Najavaits et al, Am J Addict 2018)
- Helping Women Recover (Covington 2008) – Trauma-informed
- Seeking Safety (Najavits 2002) – PTSD-SUD
- Women's Recovery Group (WRG) – (Greenfield et al, DAD, 2007, 2014)

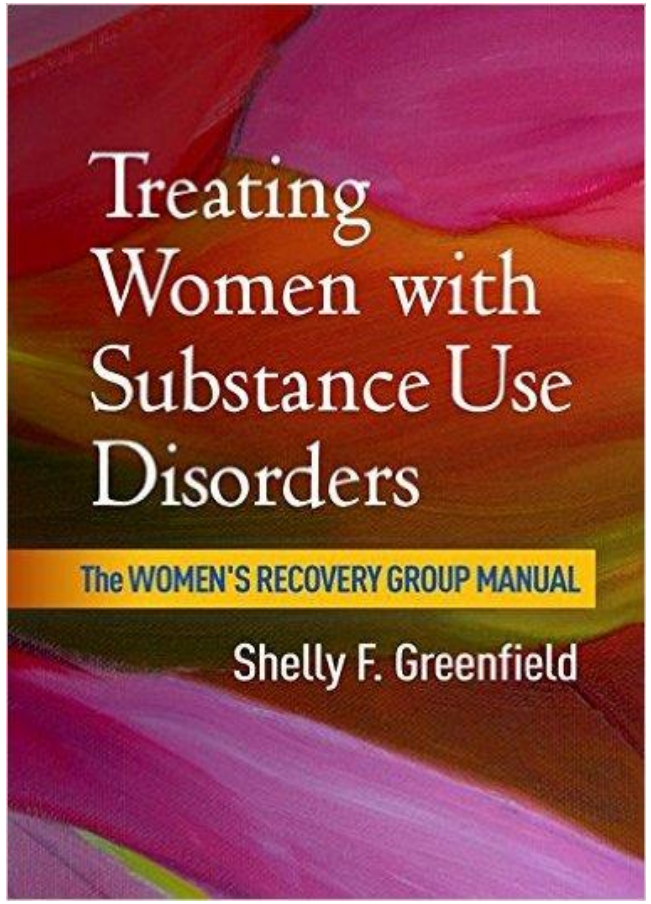
The Women's Recovery Group (WRG)

- Most women receive treatment in mixed-gender substance use treatment programs
- Recognized the need for treatment that would be gender-responsive for women with alcohol and drug use disorders
- Research to develop an evidence-based group treatment designed for women with alcohol and drug use disorders who are heterogeneous with respect to their substance disorder, co-occurring other psychiatric disorders, trauma histories, and life stage

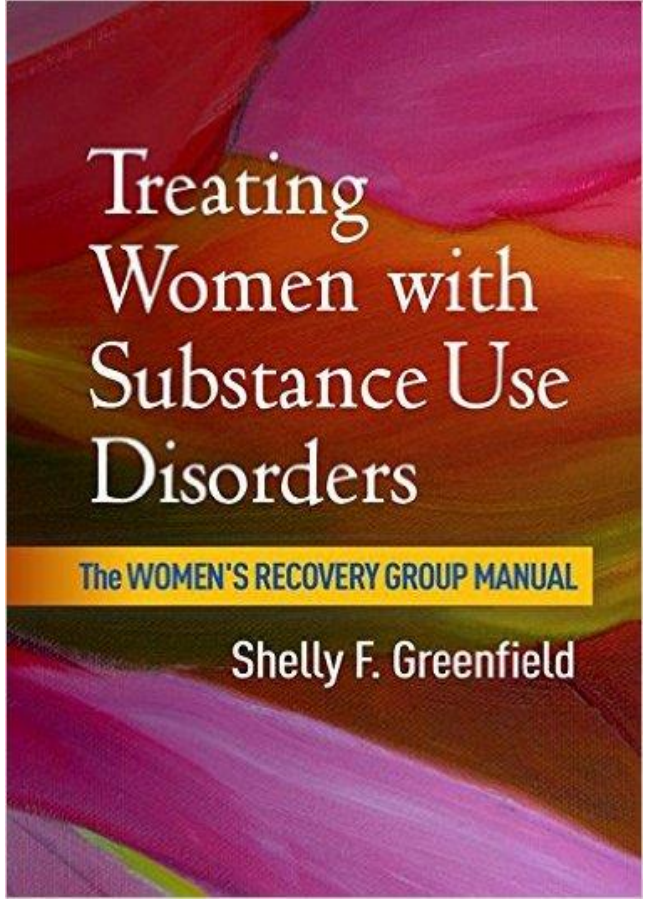
The Women's Recovery Group (WRG)

(Greenfield, 2016)

- Developed in Stage I and Stage II behavioral therapy development trials funded by NIH/NIDA
- Single-gender group treatment for women with alcohol and drug use disorders
- Manual-based relapse prevention group therapy with structured sessions and women-focused content
- The WRG is an empirically supported, effective gender-responsive component of care that can be disseminated into routine clinical practice
- Disseminated into practice in the U.S. and two other countries
- New Adaptations: Veterans; Young Adults



WRG developed in mixed-methods study: Stage I and Stage II Trials



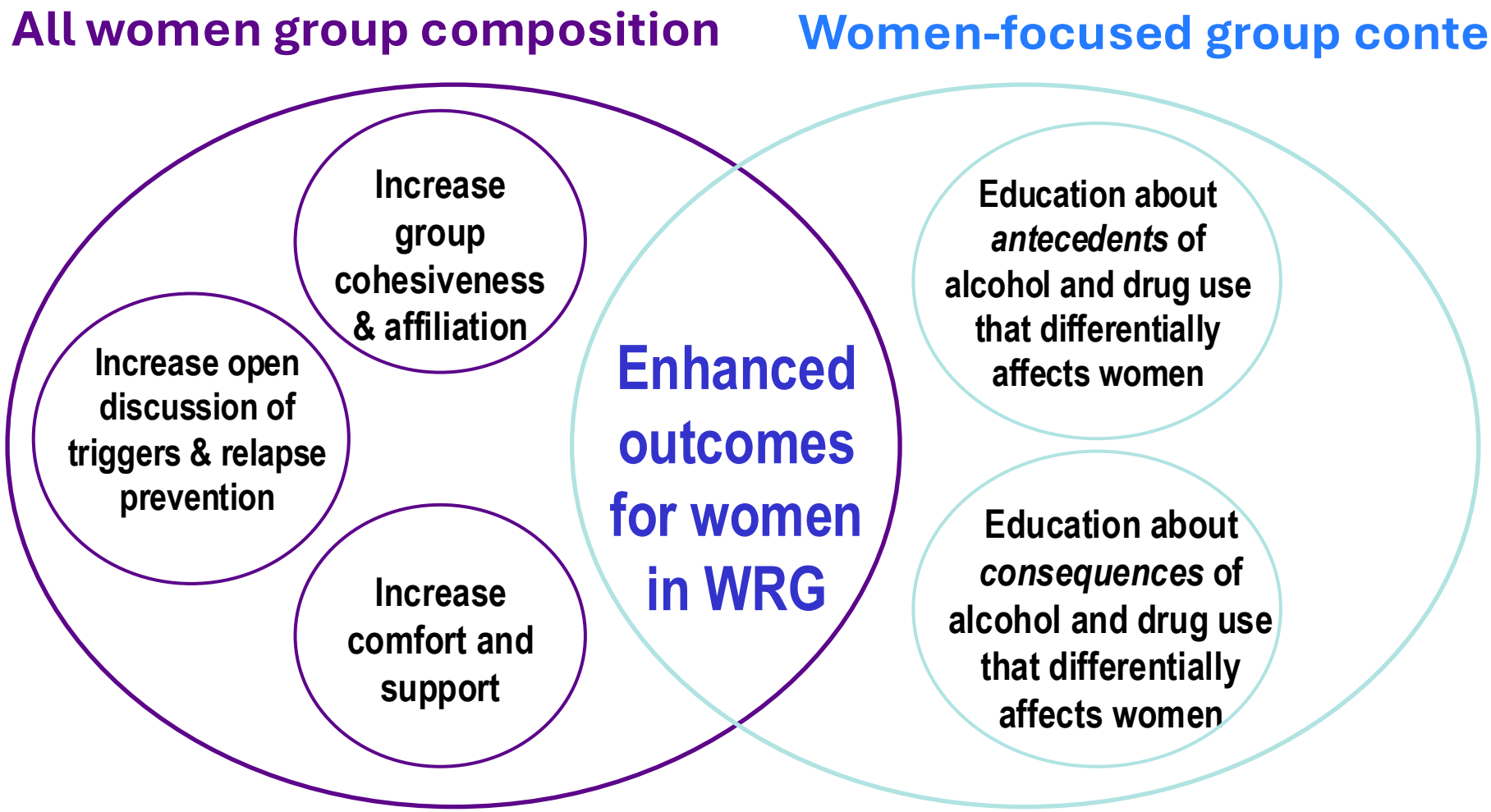
Stage I: (R01 DA 015434 and K24 DA019855)
Main Outcome: Greenfield et al DAD 2007
Psychiatric Severity: Greenfield et al Am JDAA 2008
Self-efficacy & Outcomes: Cummings et al JGAR 2010
Transdiagnostic Symptom Improvement: McHugh et al J Cogn Psychotherapy 2010
Changes in Coping: Kuper et al AJA 2010
Group Process & Affiliation: Greenfield et al JGAR 2013
Qualitative Analysis of Women's experiences: Greenfield et al Sub Use & Misuse 2013

Stage II: (R01 DA 015434 and K24 DA019855)
Main Outcome: Greenfield et al DAD 2014
Methods: Implementation of group therapy in real world settings Greenfield et al Am J Addict 2013
Qualitative Analysis of Affiliation: Sugarman et al Am J Addict 2016
Qualitative Analysis of Affiliation predicting treatment outcomes Valeri et al JSAT 2018
Qualitative Analysis of Women's and Men's Experiences: Sugarman et al 2022

Dissemination Manual Published in 2016

Hypothesis Regarding Mechanism of Action

Shelly F. Greenfield, MD, MPH



WRG Therapy Development: Structure of Sessions

90-minute structured relapse prevention group therapy session:

- Brief check-in
- Review of skill practice and last week's topic
- Presentation of session topic
- Discussion by participants
- Review session's "take home message" and upcoming week's skill practice
- Check-out

Fourteen (14) Session Topics

1. The Effect of Drugs and Alcohol on Women's Health
2. What are the Obstacles to Seeking Treatment and Getting into Recovery
3. Managing Mood, Anxiety, and Eating Problems Without Using Substances
4. Violence and Abuse: Getting Help
5. Women and their Partners: The Effect on the Recovery Process
6. Women as Caretakers: Can you take care of yourself while taking care of others?
7. Women's Use of Substances Through the Life Cycle
8. Substance Use and Women's Reproductive Health
9. The Issue of Disclosure: To Tell or Not to Tell
10. How to Manage Triggers and High-Risk Situations
11. Using Self-Help Groups to Help Yourself
12. Can I Have Fun and Not Use Drugs or Alcohol?
13. Coping with Stress
14. Achieving Balance in Your Life

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Drug and Alcohol Dependence 90 (2007) 39–47
DRUG and ALCOHOL DEPENDENCE
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The Women's Recovery Group Study: A Stage I trial of women-focused group therapy for substance use disorders versus mixed-gender group drug counseling

Shelly F. Greenfield [a,b,*], Elisa M. Trucco [b], R. Kathryn McHugh [b], Melissa Lincoln [b], Robert J. Gallop [c]

[a] *Department of Psychiatry, Harvard Medical School, Boston MA 02115, USA*
[b] *McLean Hospital, 115 Mill Street, Belmont, MA 02478, USA*
[c] *Department of Mathematics, Applied Statistics Program, West Chester University, West Chester, PA 19383, USA*

Received 20 October 2006; received in revised form 6 February 2007; accepted 8 February 2007

WRG Therapy Development Stage II trial

Drug and Alcohol Dependence 142 (2014) 245–253

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

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Full length article

Group therapy for women with substance use disorders: Results from the Women's Recovery Group Study

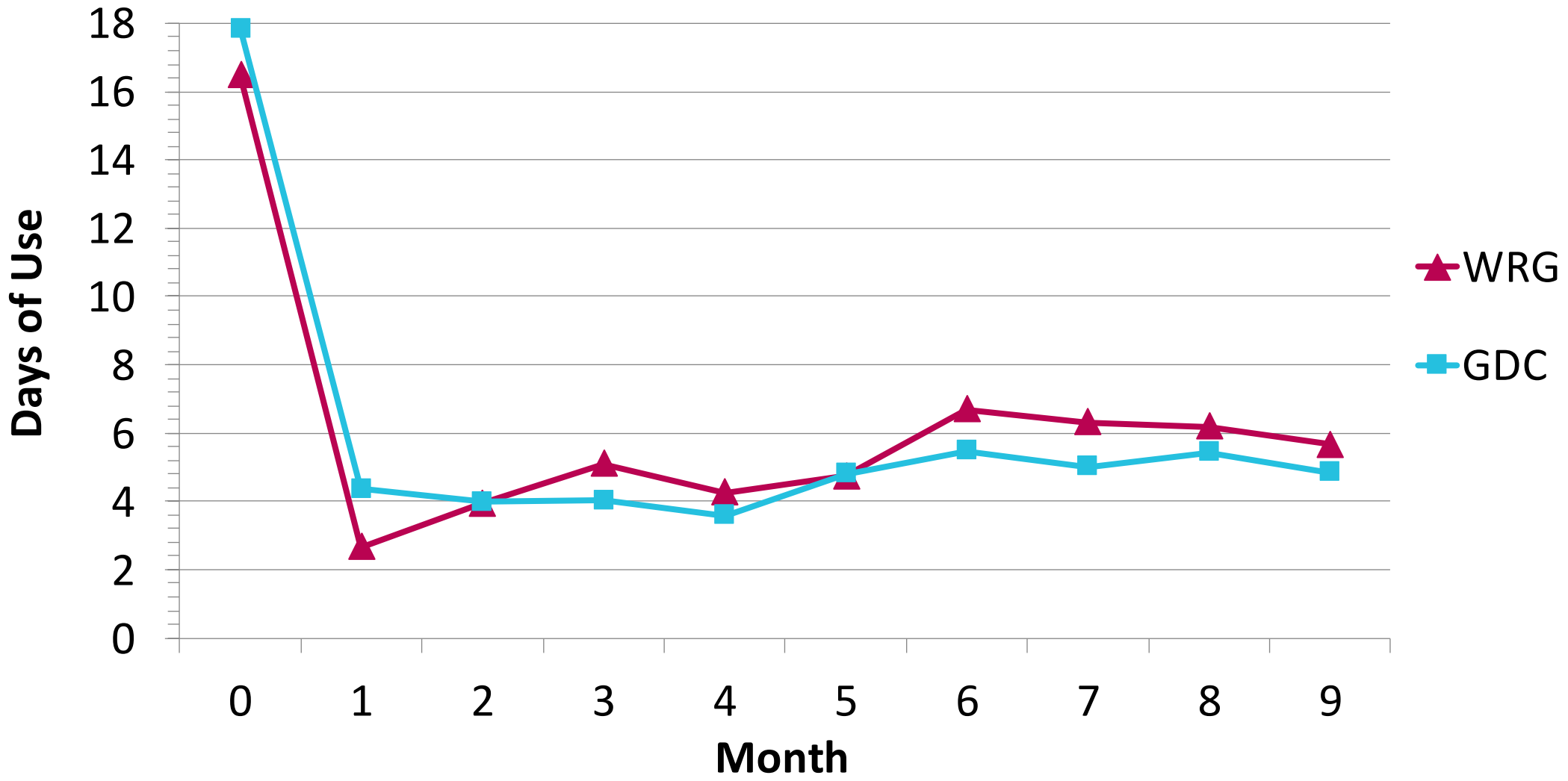
Shelly F. Greenfield[a,b,c,*], Dawn E. Sugarman[a,b,c], Cathryn M. Freid[a], Genie L. Bailey[d,e], Michele A. Crisafulli[f], Julia S. Kaufman[g], Sara Wigderson[a,c], Hilary S. Connery[a,b], John Rodolico[a,b], Antonio A. Morgan-Lopez[h], Garrett M. Fitzmaurice[a,b]

[a] *McLean Hospital, Division of Alcohol and Drug Abuse, Belmont, MA 02478, United States*
[b] *Harvard Medical School, Department of Psychiatry, Boston, MA 02115, United States*
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[d] *Brown University, Department of Psychiatry and Human Behavior, Providence, RI 02912, United States*
[e] *Stanley Street Treatment and Resources, Fall River, MA 02720, United States*
[f] *University of Maryland, Baltimore County, Department of Psychology, Baltimore, MD 21250, United States*
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[h] *RTI International, Risk Behavior and Family Research Program, Research Triangle Park, NC 27709, United States*

Time Plot of Mean Days of Any Substance Use

(Greenfield et al, DAD 2014)

- Shelly F. Greenfield, M.D., M.P.H., Women's Recovery Group Study, NIDA R01DA015434



WRG Research Findings



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During the 6-month post-treatment follow-up, WRG members demonstrated a pattern of continued reductions in substance use while women in the mixed-gender group did not.

The WRG demonstrated comparable effectiveness to standard mixed-gender treatment, with women in both groups reducing mean number of substance use days during treatment and 6 months post-treatment. WRG effective single-gender component of care that can be implemented in community-based real-world settings

Mechanism of Action: Is Affiliation - a Predictor of Outcome?

- There were **66% more affiliative statements** made in the WRG compared with GDC (Sugarman et al, 2016)

- **There was greater group affiliation among members in the WRG compared to the mixed-gender control group and more exposure greater affiliation in the WRG, predicted better outcomes at 6 months post-treatment** (Valeri et al 2018)

WRG Content – Qualitative Feedback-Stage I

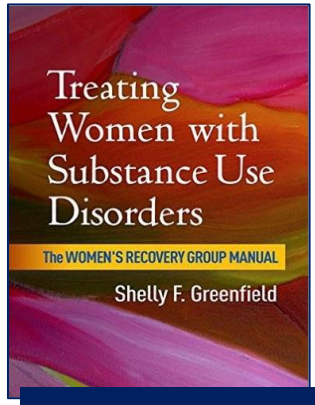
"A lot of the information that was presented to me I was very unaware of. In particular, women's health and what alcohol does to a woman's body...The education end of it was huge for me. Really huge, to the point that I was sharing it with my family and...friends."

(Greenfield, Cummings et al., 2013)

Using Technology to Deliver Gender-Responsive Care for Women with Substance Use Disorders:

Digital Intervention Development







Adult Women with Substance Use Disorders

- The Effects of Alcohol and Drugs on Women's Health
- Managing Mood, Anxiety, and Eating Problems without Using Substances
- Women and their Partners
- Violence and Abuse: Getting Help
- Women as Caregivers

❖ **Sugarman DE, et al. *JMIR-Formative Research*, 2026;1-20.**

❖ **Sugarman, D.E., et al. Feasibility and acceptability of a web-based, gender-specific intervention for women with substance use disorders. *Journal of Women's Health*, 2020. 29; 636-646**

Young Adult Women with Substance Use and Co-Occurring Disorders

- The Effects of Alcohol and Drugs on Women's Health
- Managing Substance Use and Other Mental Health Problems
- Women and Relationships
- Violence and Abuse: Getting Help
- Navigating Everyday Life

❖ **Sugarman DE, et al. J Dual Diagn. 2021:1-12. doi:10.1080/15504263.2021.1940412**

Dawn Sugarman PhD
dsugarman@mclean.Harvard.edu

Conclusions

- Narrowing gender gap in prevalence of alcohol and other substance use disorders
- Women born in the last 5 decades have lower rates of abstinence and higher rates of substance use
- Women have a telescoping course of addiction
- There are important considerations by gender & race/ethnicity
- Treatment outcomes can be enhanced by programs that provide services and other programming specific to women's needs (e.g., co-occurring disorders, trauma, childcare)
- The WRG is a manual-based single-gender women's recovery group with women-focused content may enhance treatment outcomes that can be integrated into community-based alcohol and drug treatment programs and other outpatient programs
- Digital adaptations are promising to extend gender-specific treatment to women with alcohol and other SUDs

.

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- **Group Therapists:** Crystal Cote, LICSW, Patti Diaferio, LICSW, Judy Faberman, LICSW, Monika Kolodziej PhD, Marjorie Joseph, LICSW, Sue O'Donnell, LICSW, Barbara Raymond, LICSW, Ruth Reibstein, EdD, Laura Ruegg Lander, LICSW, Bronwen Wirta, LICSW
- **Research Staff:** Michele Crisafulli, MA, Amanda Cummings, BA, Cathryn Freid, PhD, Julia Kaufman, BA, Laura Kuper, BA, Melissa Lincoln, BA, Kate McHugh, MA, Rebecca Popuch, BA, Michelle Rapoza, CAC, Meghan Reilly BA, Katie Schlebecker, BA, BS, Dawn Sugarman, PhD, Elisa Trucco, MA; Sara Wigderson, BA; Brittany Iles BA; Laurel Meyer BA; Linda Valeri PhD, Callie Wang BA, Emily Levine, Nicole Barbaro
- National Institute on Drug Abuse (R01 DA 015434 and K24 DA019855)

Acknowledgements: Women's Recovery Group and Greenfield Lab Study Staff

























THANK YOU!



Questions?

Resources

- Health Care Professionals Core Resources on Alcohol:https://www.niaaa.nih.gov/health-professionals-communities/core-resource-on-alcohol/about-core-resource-alcohol
- NIAAA Treatment Navigator:https://alcoholtreatment.niaaa.nih.gov/healthcare-professionals?_gl=1*44pa71*_ga*OTY1ODk1NzA0LjE2NjU2NjQ3ODQ.*_ga_E2D8B2PVE9*MTY2NjQ3MTcyMy4zLjEuMTY2NjQ3MTc0NS4wLjAuMA
- https://women.smokefree.gov/ Smoking cessation website for women
- Opioid Response Network https://opioidresponsenetwork.org/
- NIAAA Rethinking Drinking: https://www.rethinkingdrinking.niaaa.nih.gov/
- Helping Patients Who Drink Too Much: A clinician's guide https://pubs.niaaa.nih.gov/publications/practitioner/cliniciansguide2005/guide.pdf
- Understanding the Effects of Alcohol on Women's Health https://www.youtube.com/watch?v=tJfBoiMRrMw
- Substance Use Disorders: Signs, Common Addictions, and How To Get Treatment https://www.youtube.com/watch?v=jOJrfjUeSCo
- Opioid Addiction: Signs, Symptoms, and Treatment https://www.youtube.com/watch?v=Qa4v80LdM1w
- NIDA Screening tools: https://nida.nih.gov/nidamed-medical-health-professionals/screening-tools-resources/chart-screening-tools

https://www.samhsa.gov/data/sites/default/files/reports/rpt35326/2021NSDUHSUChartbook102221B.pdf

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- Born Curious Podcast Substance Use Disorders Among Women: Reasons for Concern—and Hope, Harvard Radcliffe Institute https://www.radcliffe.harvard.edu/news-and-ideas/episode-501-substance-use-disorders-among-women-reasons-for-concern-and-hope Released October 20, 2025.
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Alcohol Use Disorder: Relapse, Remission, and Recovery

OCTOBER 2026

Addiction Policy Forum

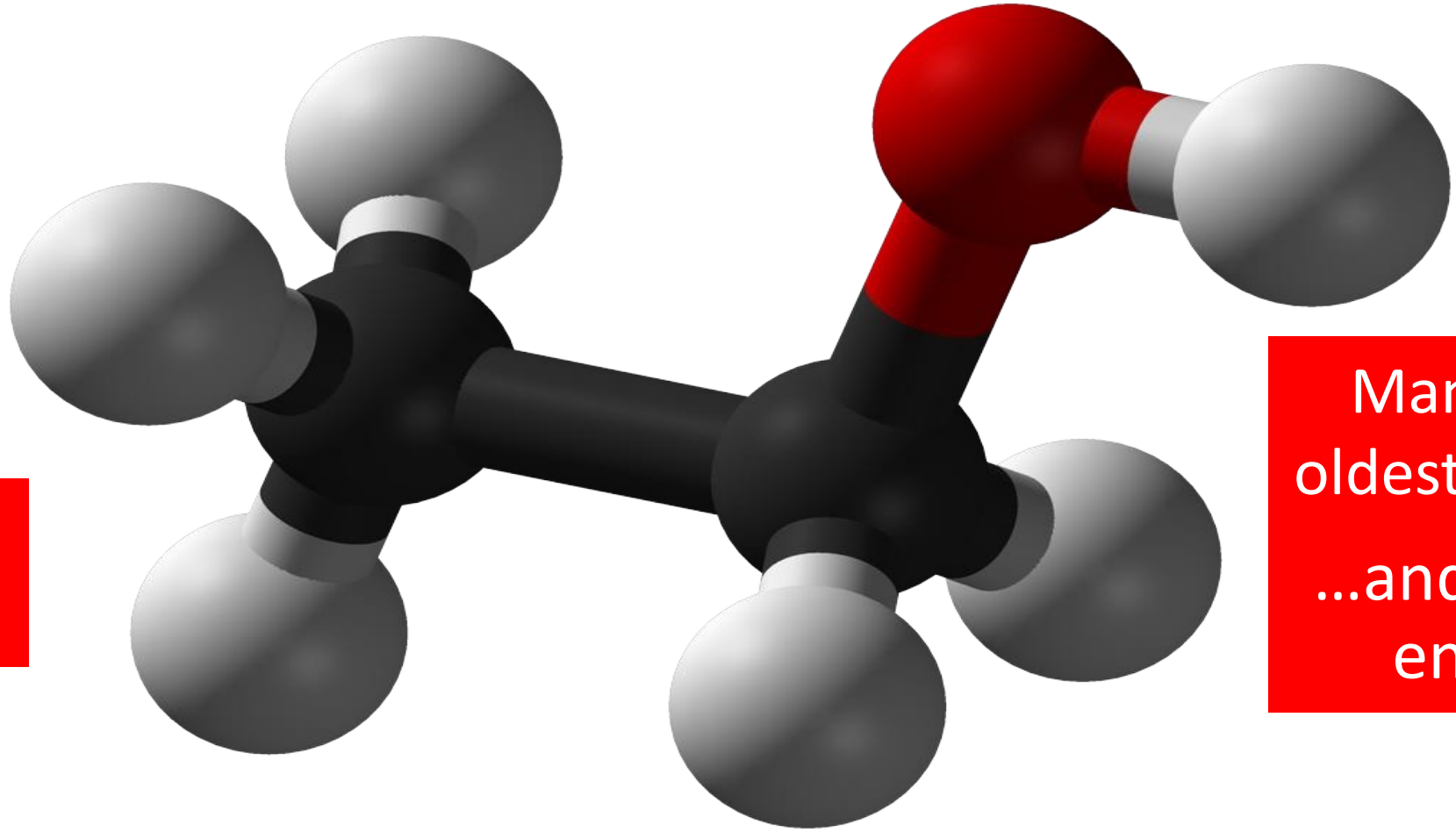
John F. Kelly, PhD, ABPP

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Massachusetts General Hospital
Founding Member, Mass General Brigham

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

C2H5OH - A simple molecule that belies the complexity of its pharmacological, psychological, and social impacts…



"The world's favorite drug" – Griffith Edwards

Mankind's oldest friend…

…and oldest enemy

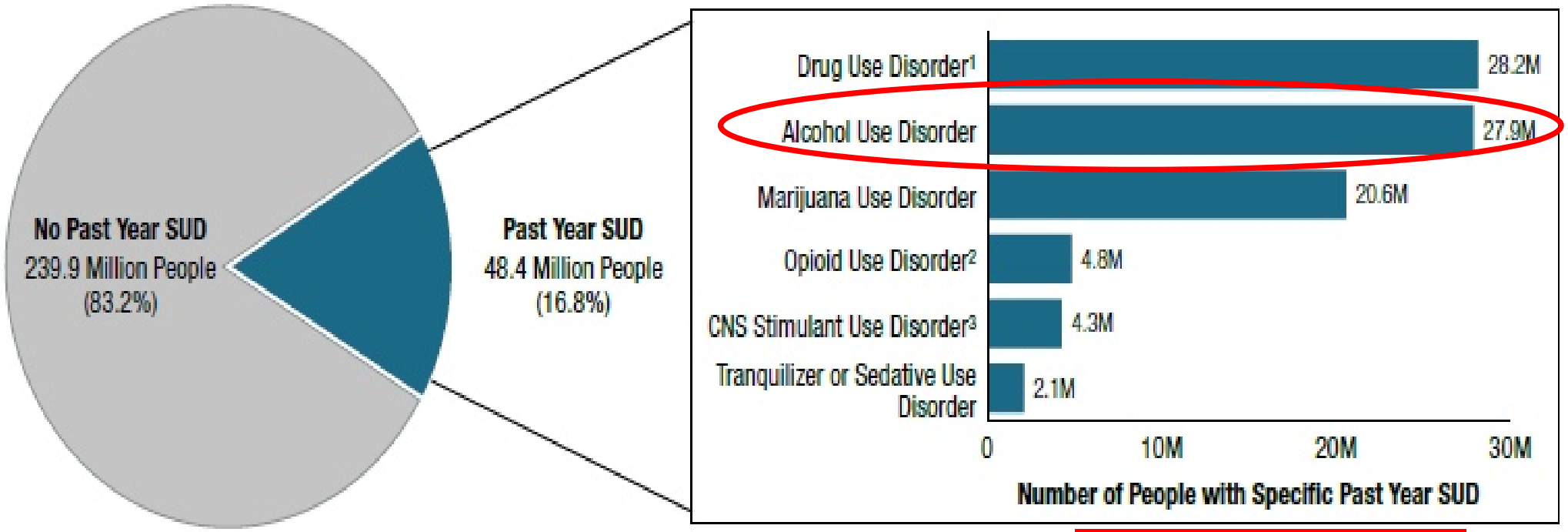
Kelly and Renner (2008)

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Main Points

- AUD heterogeneity and phenotypes
- Multiple Pathways to Recovery
- Recovery trajectories
- Long-Term Relapse and Implications for Disease Management in AUD

Figure 35. Past Year Substance Use Disorder (SUD): Among People Aged 12 or Older; 2024



Approx. 60% of all SUD is AUD

CNS = central nervous system.

Note: The estimated numbers of people with SUDs are not mutually exclusive because people could have use disorders for more

[1] Includes data from all past year users of marijuana, cocaine, heroin, hallucinogens, inhalants, methamphetamine, or prescriptio tranquilizers, stimulants, or sedatives). See footnote 2 for more information about opioid use disorder.

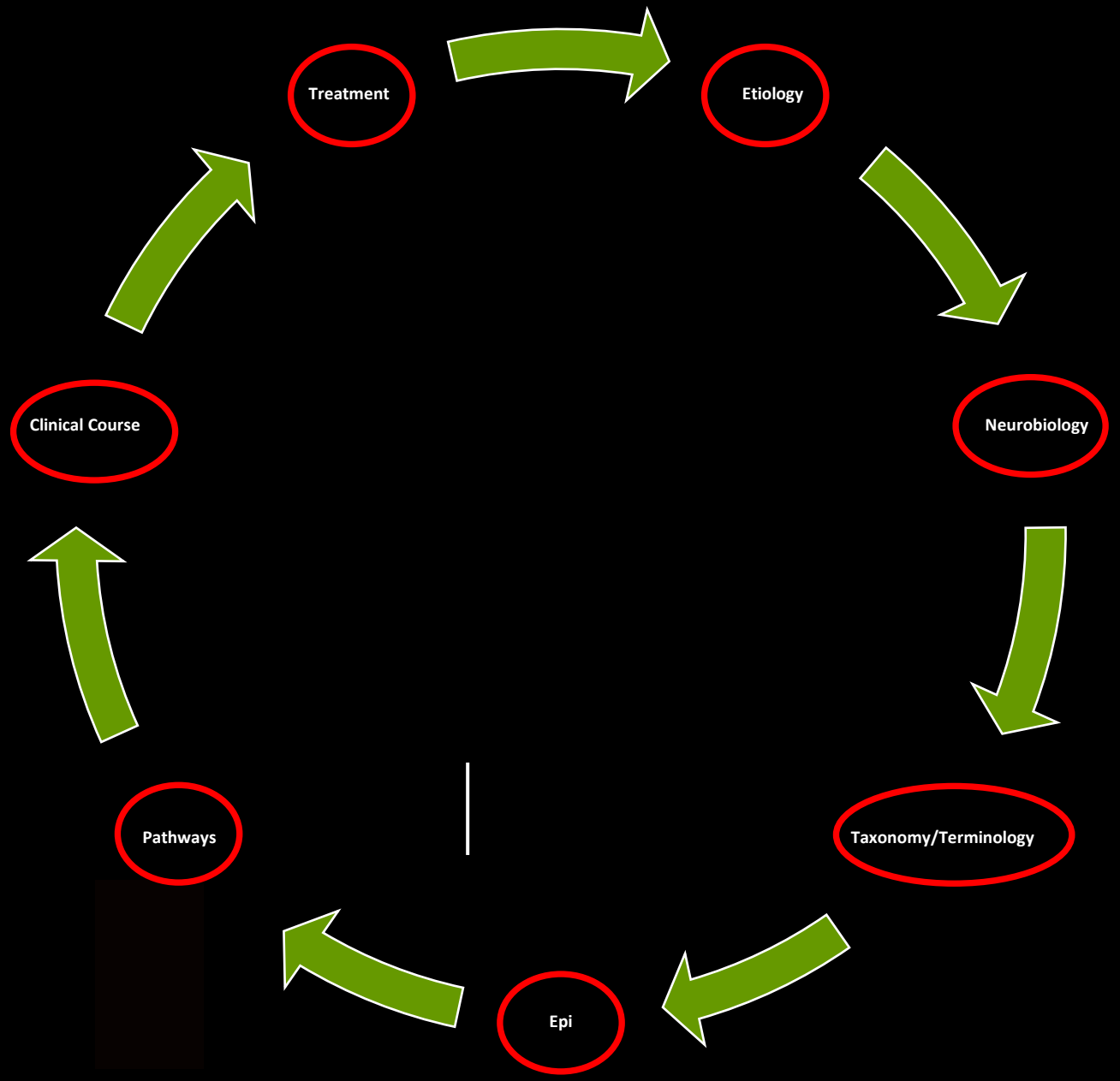
[2] Includes data from all past year users of heroin or prescription opioids. Respondents were not included if they used only nonopioid pain relievers and did not use heroin in the past year.

[3] Includes data from all past year users of cocaine, methamphetamine, or prescription stimulants.

50 years of criminal justice, treatment, and public health, approaches

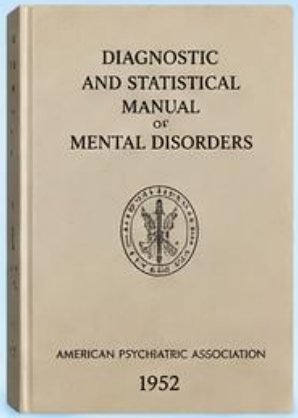


Past 50 yrs since declaration of “War on drugs” led to large-scale federal appropriations and a number of paradigm shifts…



How Substance Use and Addiction Were Assessed Across DSM Iterations

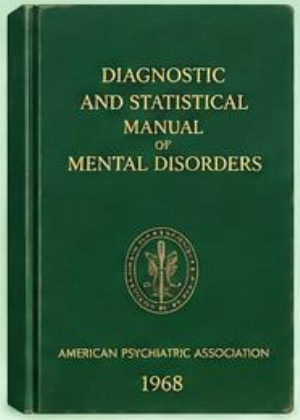
DSM–I
(First Edition)



How substance use was assessed

- Substance-related problems were not a separate diagnostic category.
- Alcoholism was included under "sociopathic personality disturbance."
- Focus on maladaptive behavioral patterns and social dysfunction rather than specific substance use criteria.
- No formal diagnostic criteria for substance use disorders

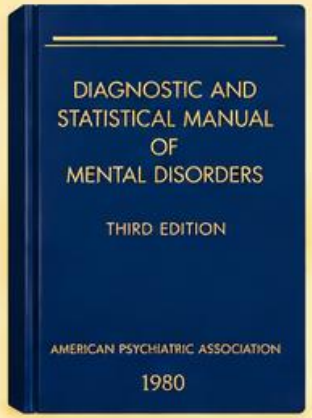
DSM–II
(Second Edition)



How substance use was assessed

- Alcoholism remained within the category of "sociopathic personality disturbances."
- Other substance use (e.g., drug addiction) was also placed under sociopathic personality disturbances.
- No specific, operational diagnostic criteria.
- Emphasis on social deviance and behavioral consequences rather than a distinct mental disorder model

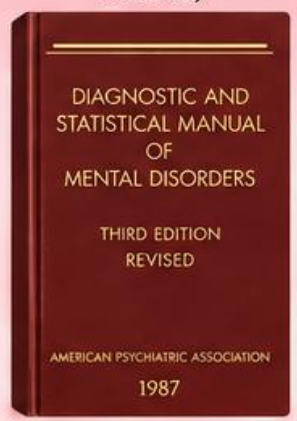
DSM–III
(Third Edition)



How substance use was assessed

- Major reorganization with explicit diagnostic criteria for the first time.
- Introduced distinct categories for
  - Substance Abuse
  - Substance Dependence
- Operationalized criteria with specific symptoms and time frames (≥ 1 month).
- Separated alcohol and other drugs into different diagnostic categories.

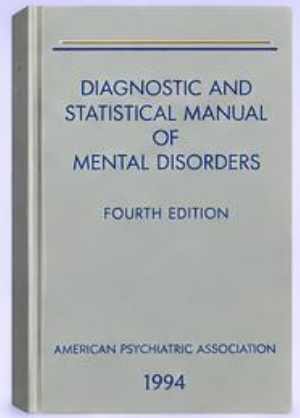
DSM–III–R
(Third Edition, Revised)



How substance use was assessed

- Refined criteria for Substance Abuse and Substance Dependence.
- Clarified and improved reliability of diagnostic criteria.
- Maintained separate diagnoses for alcohol and other substances.
- Specified symptom lists and decision rules for each disorder.

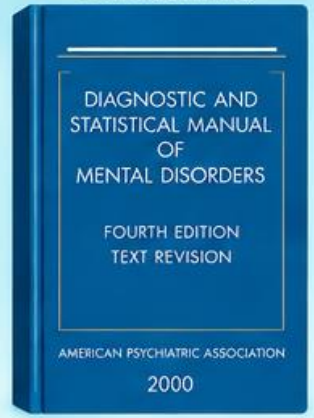
DSM–IV
(Fourth Edition)



How substance use was assessed

- Continued use of separate diagnoses for:
  - **Substance Abuse**
  - Substance Dependence
- Provided more detailed, operationalized criteria and examples.
- Introduced diagnostic criteria for substance-induced disorders (e.g., intoxication, withdrawal, substance-induced mood disorder).
- Explicit criteria for substance use disorders across specific substances

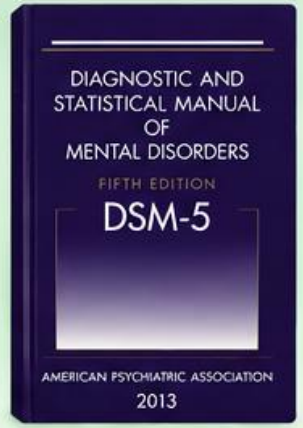
DSM–IV–TR
(Fourth Edition, Text Revision)



How substance use was assessed

- Minor textual revisions to DSM-IV substance-related disorders.
- Maintained separate diagnoses for:
  - Substance Abuse
  - Substance Dependence
- Expanded and clarified examples and coding guidance.
- No major conceptual changes to substance use disorder diagnoses.

DSM–5
(Fifth Edition)



How substance use was assessed

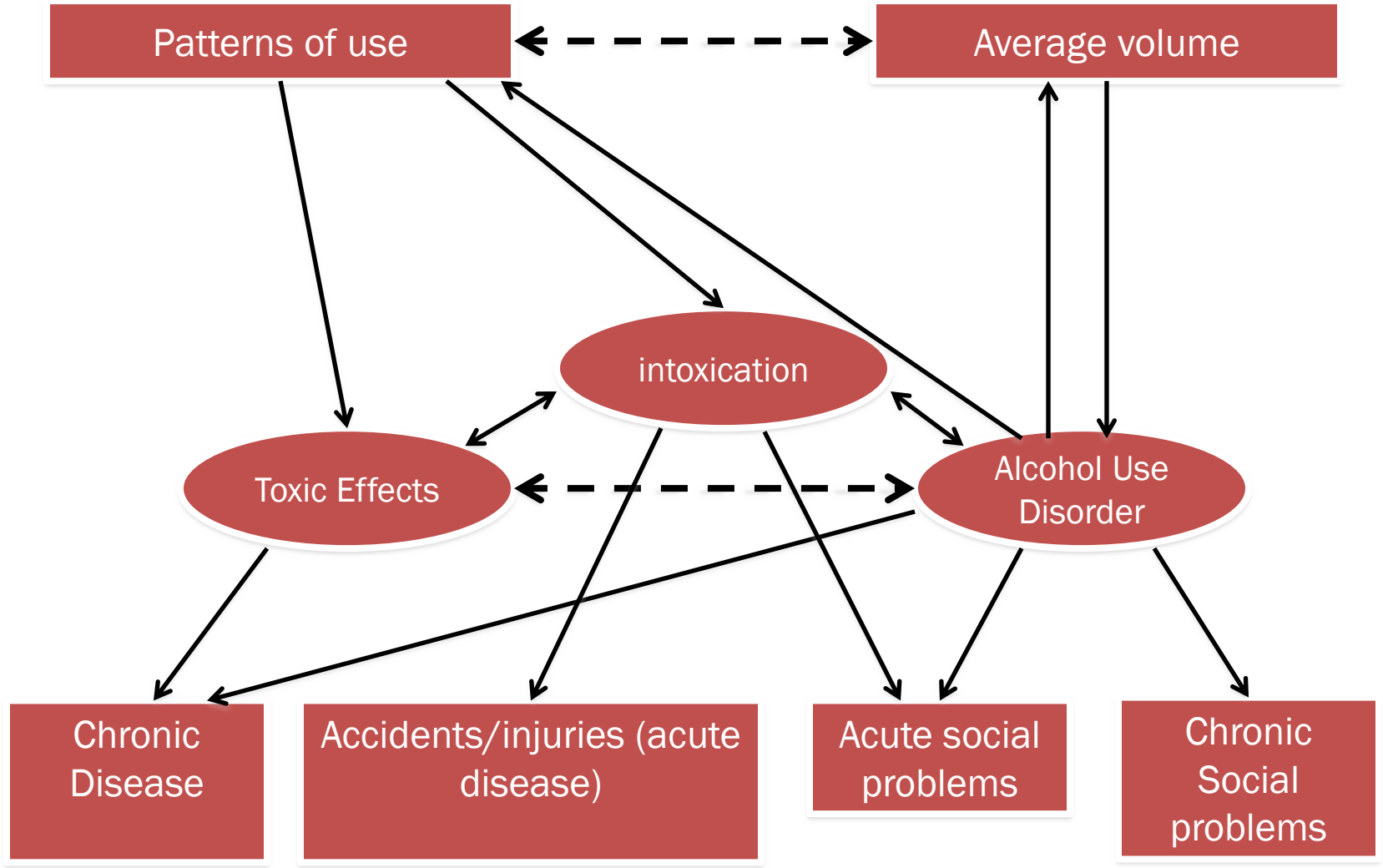
- Combined Substance **Abuse** and Substance Dependence into a single diagnosis: Substance **Use Disorder (SUD).**
- 11 criteria reflecting impaired control, social impairment, risky use, and pharmacologic features (tolerance, withdrawal).
- Severity specified as Mild (2–3), Moderate (4–5), or Severe (≥ 6).
- Eliminated legal problems as a diagnostic criterion.
- Applied to all substances using the same core

Is AUD a category or is it dimensional?



Source: Kelly (2022)

Mediators of substance-related harm: Toxicity, Intoxication, and Alcohol Use Disorder

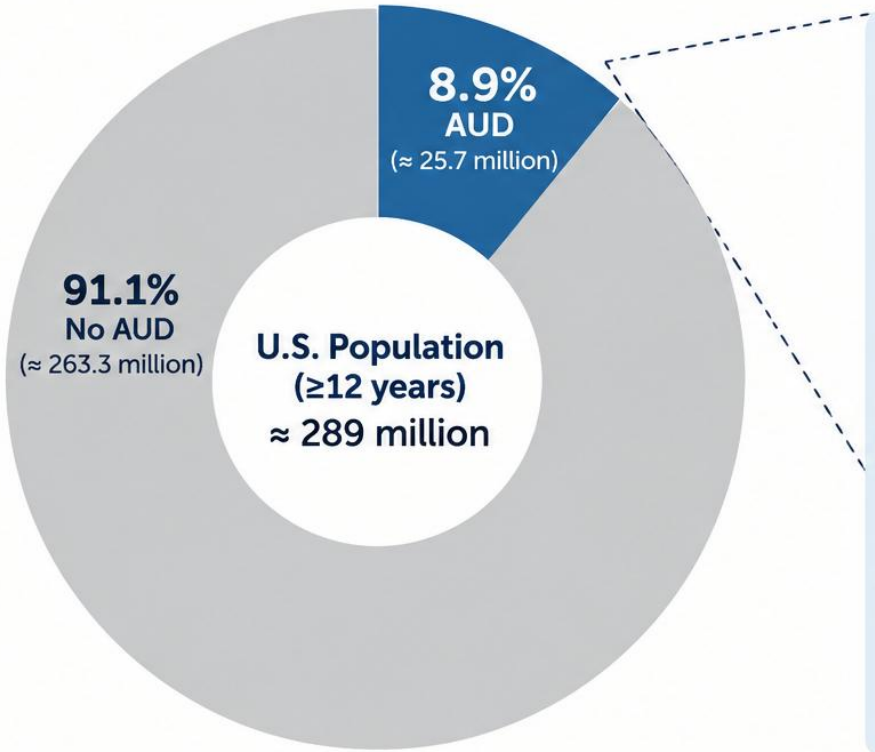


(Source: Babor et al, 2010)

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Severity of Alcohol Use Disorder (AUD) in the U.S. Population (2025)

Among U.S. residents aged 12 or older (past year)



Severity of AUD Among U.S. Residents (2025)

Distribution among those with past-year AUD
(N ≈ 25.7 million)

47.1%	**Mild AUD** ≈ 12.1 million people (47.1% of those with AUD)
33.9%	**Moderate AUD** ≈ 8.7 million people (33.9% of those with AUD)
19.0%	**Severe AUD** ≈ 4.9 million people (19.0% of those with AUD)

Source: Substance Abuse and Mental Health Services Administration (SAMHSA). (2026). *National Survey on Drug Use and Health (NSDUH): 2025 Annual National Report.*

Note: Estimates are for U.S. civilians aged 12 or older, based on past-year AUD defined by DSM-5 criteria.

Combinations of DSM-5 Substance Use Disorder (SUD) Symptoms

There are **11** symptoms in DSM-5 for SUD. A diagnosis requires **2 or more symptoms.**

Total possible symptom profiles

With 11 symptoms, each can be present or absent:

$$2^{11} = 2{,}048$$

possible combinations (including having no symptoms).

Combinations that do NOT meet the diagnosis

- 0 symptoms: 1 combination
- Exactly 1 symptom: 11 combinations

Total to exclude: 1 + 11 = 12

Combinations that DO meet the diagnosis

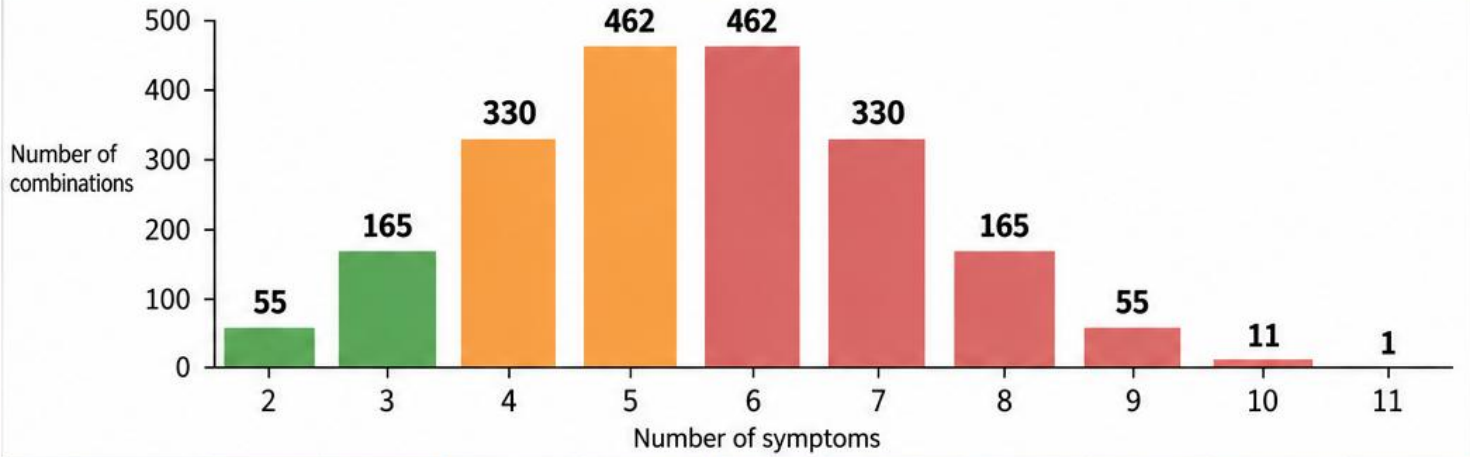
At least 2 symptoms:

$$2{,}048 - 12 = 2{,}036$$

different combinations can produce a positive SUD diagnosis.

Number of Combinations by Number of Symptoms

(and Corresponding DSM-5 Severity Level)



Number of symptoms	2	3	4	5	6	7	8	9	10	11
DSM-5 severity	Mild	Mild	Moderate	Moderate	Severe	Severe	Severe	Severe	Severe	Severe
Number of combinations $\binom{n}{k}$	55	165	330	462	462	330	165	55	11	1

Total combinations (≥ 2 symptoms) **2,036**

Breakdown by DSM-5 Severity Level

Mild SUD (2–3 symptoms)	55 + 165 = **220**
Moderate SUD (4–5 symptoms)	330 + 462 = **792**
Severe SUD (6–11 symptoms)	462 + 330 + 165 + 55 + 11 + 1 = **1,024**

Key Takeaways

- There are **2,036** distinct combinations of DSM-5 SUD symptoms that can lead to a positive diagnosis (≥ 2 symptoms).
- Even within the same severity level, there is substantial heterogeneity: e.g., **220** different configurations for mild SUD.
- This illustrates the **phenotypic heterogeneity** within a single categorical SUD diagnosis.

Why So Many Combinations?

- Each of the 11 symptoms can be present or absent, leading to 2^{11} = **2,048** possible symptom profiles.
- Only 12 profiles (0 or 1 symptom) do not meet the diagnosis.
- All remaining 2,036 profiles (with 2–11 symptoms) meet the DSM-5 SUD criteria.

Stage vs Phenotype

Edwards and Gross (1976)

- Addiction as a clinical syndrome: Not all symptoms need be present or present to the same degree, but with mounting intensity the syndrome shows increasing coherence
- For most, there are hallmarks of initial progression into symptomatic use (e.g. increased tolerance, bio-psycho-social consequences from use), and for some ongoing progression to severe SUD/addiction
- But, there is large heterogeneity in expression and progression even among similar symptom levels (suggesting different types)
- Some do not progress; staying stable at mild or moderate levels
- Note: of all SUD cases, the vast majority occur at the mild and moderate levels
- Important to consider elements of chronicity, complexity, as well as severity

Major Typologies of Alcohol Use Disorder (AUD)

Key subtypes and defining features

Jellinek (1960)
Five types

Based on drinking patterns, dependence, and loss of control.

A — Alpha type
Psychological reliance on alcohol, without the classic dependence syndrome.

B — Beta type
Heavy drinking with physical complications, but without established dependence.

G — Gamma type
Impaired control, tolerance, withdrawal, and progression (i.e., classic dependence).

D — Delta type
Inability to abstain, with relatively preserved control over quantity once drinking begins.

E — Epsilon type
Periodic or episodic bouts of excessive drinking (e.g., binge episodes).

Cloninger et al. (1981)
Two types

Based on genetic, environmental, personality, and developmental differences.

	Type I (later onset)	Type II (earlier onset)
Onset	Generally later	Generally earlier
Sex	Both sexes	Predominantly males (original studies)
Genetic influence	Gene–environment contributions	Stronger familial/ genetic loading
Personality	Greater harm avoidance	Greater novelty seeking
Antisocial	Less prominent	More prominent
Course	More environmentally influenced	Earlier onset, often more persistent

Babor et al. (1992)
Two types

Based on severity, comorbidity, chronicity, and prognosis.

	Type A (less severe)	Type B (more severe)
	Later onset	Earlier onset
	Lower childhood risk factors	Greater childhood risk factors
	Less psychiatric comorbidity	Higher psychiatric and drug-use comorbidity
	Less severe dependence	More severe dependence
	Fewer alcohol-related consequences	More alcohol-related consequences
	Generally more favorable prognosis	Greater chronicity and treatment complexity

Zucker (1987)
Four types

Based on developmental pathways and psychosocial mechanisms.

Antisocial alcoholism
Early behavioral dysregulation, conduct problems, and antisocial characteristics.

Developmentally cumulative alcoholism
Alcohol problems arising through accumulated social and environmental influences.

Negative affect alcoholism
Drinking associated with attempts to regulate anxiety, depression, and negative emotional states.

Developmentally limited alcoholism
Heavy drinking concentrated in adolescence or young adulthood, often diminishing as adult roles develop.

Moss et al. (2007, NIAAA)
Five subtypes

Empirically derived subtypes from a national sample (NESARC) based on age, severity, family history, comorbidity, and treatment utilization.

Young adult (~31.5%)
Early adulthood, relatively low psychiatric comorbidity and low treatment utilization.

Young antisocial (~21.1%)
Early onset, antisocial personality characteristics, substantial psychiatric and other substance-use comorbidity.

Functional (~19.5%)
Generally middle-aged, relatively stable employment and relationships despite dependence.

Intermediate familial (~18.8%)
Substantial familial alcoholism and moderate psychiatric comorbidity.

Chronic severe (~9.2%)
High dependence severity, substantial psychiatric comorbidity, extensive family history, and high treatment utilization.

Note: These typologies highlight the heterogeneity of AUD. They are influential for research and clinical understanding, but none has become a universally accepted, prospectively validated classification system for assigning individual patients to specific treatments.

Main Points

- AUD heterogeneity and phenotypes
- Multiple Pathways to Recovery
- Recovery trajectories
- Long-Term Relapse and Implications for Disease Management in AUD



Drug and Alcohol Dependence 181 (2017) 162–169

Contents lists available at ScienceDirect

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journal homepage: www.elsevier.com/locate/drugalcdep

Full length article

Prevalence and pathways of recovery from drug and alcohol problems in the United States population: Implications for practice, research, and policy

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ARTICLE INFO

Keywords:
Recovery
Problem resolution
Treatment
Assisted
Unassisted
Mutual-help
Prevalence
Adults
Population

ABSTRACT

Background: Alcohol and other drug (AOD) problems confer a global, prodigious burden of disease, disability, and premature mortality. Even so, little is known regarding how, and by what means, individuals successfully resolve AOD problems. Greater knowledge would inform policy and guide service provision.

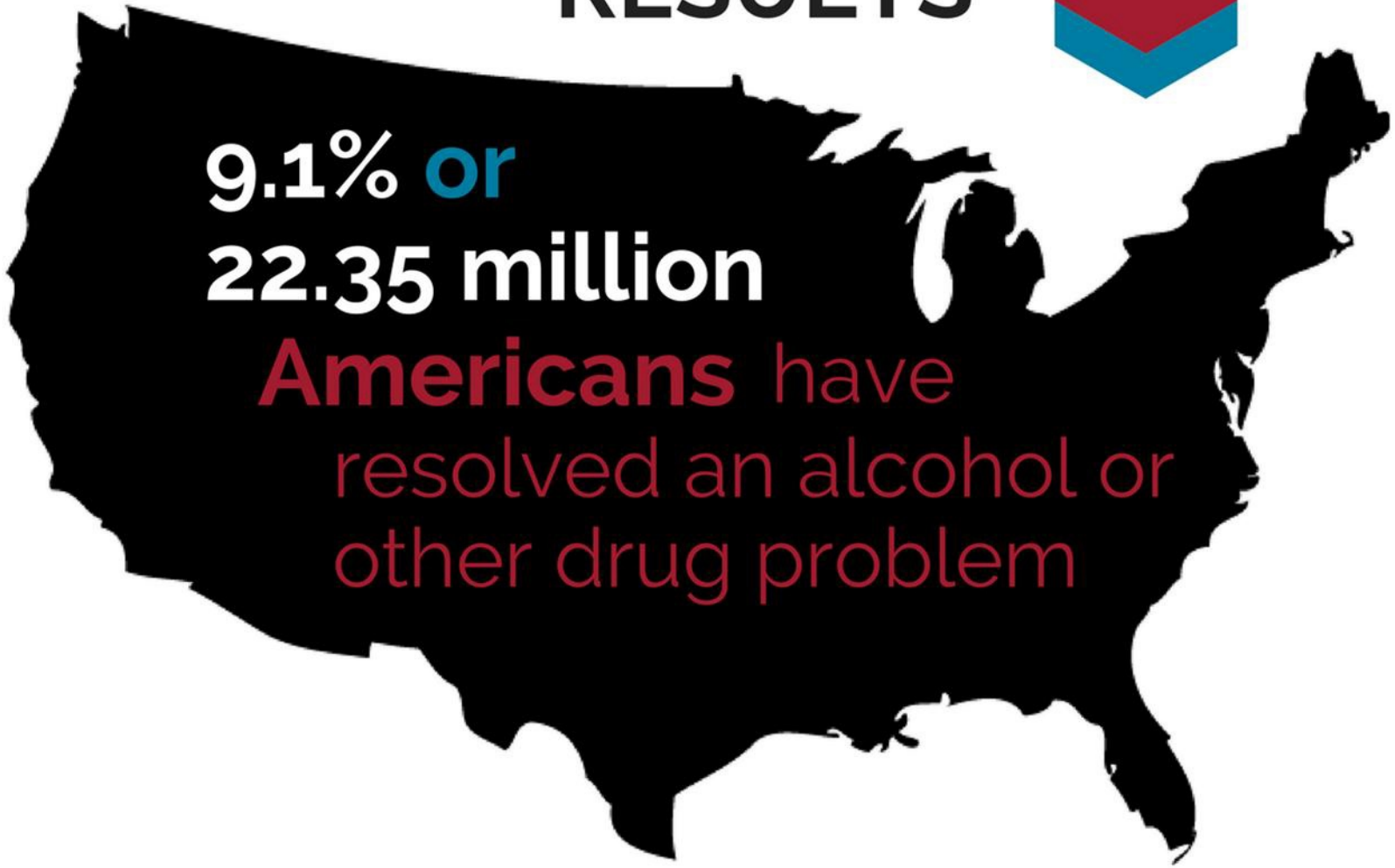
Method: Probability-based survey of US adult population estimating: 1) AOD problem resolution prevalence; 2) lifetime use of "assisted" (i.e., treatment/medication, recovery services/mutual help) vs. "unassisted" resolution pathways; 3) correlates of assisted pathway use. Participants (response = 63.4% of 39,809) responding "yes" to, "Did you use to have a problem with alcohol or drugs but no longer do?" assessed on substance use, clinical histories, problem resolution.

Results: Weighted prevalence of problem resolution was 9.1%, with 46% self-identifying as "in recovery"; 53.9% reported "assisted" pathway use. Most utilized support was mutual-help (45.1%,SE = 1.6), followed by treatment (27.6%,SE = 1.4), and emerging recovery support services (21.8%,SE = 1.4), including recovery community centers (6.2%,SE = 0.9). Strongest correlates of "assisted" pathway use were lifetime AOD diagnosis (AOR = 10.8[7.42–15.74], model R2 = 0.13), drug court involvement (AOR = 8.1[5.2-12.6], model R2 = 0.10), and, inversely, absence of lifetime psychiatric diagnosis (AOR = 0.3[0.2–0.3], model R2 = 0.10). Compared to those with primary alcohol problems, those with primary cannabis problems were less likely (AOR = 0.7[0.5–0.9]) and those with opioid problems were more likely (AOR = 2.2[1.4-3.4]) to use assisted pathways. Indices related to severity were related to assisted pathways (R2 < 0.03).

Conclusions: Tens of millions of Americans have successfully resolved an AOD problem using a variety of traditional and non-traditional means. Findings suggest a need for a broadening of the menu of self-change and community-based options that can facilitate and support long-term AOD problem resolution.

RESULTS

NRS


9.1% or
22.35 million
Americans have
resolved an alcohol or
other drug problem



Multiple Pathways to Recovery

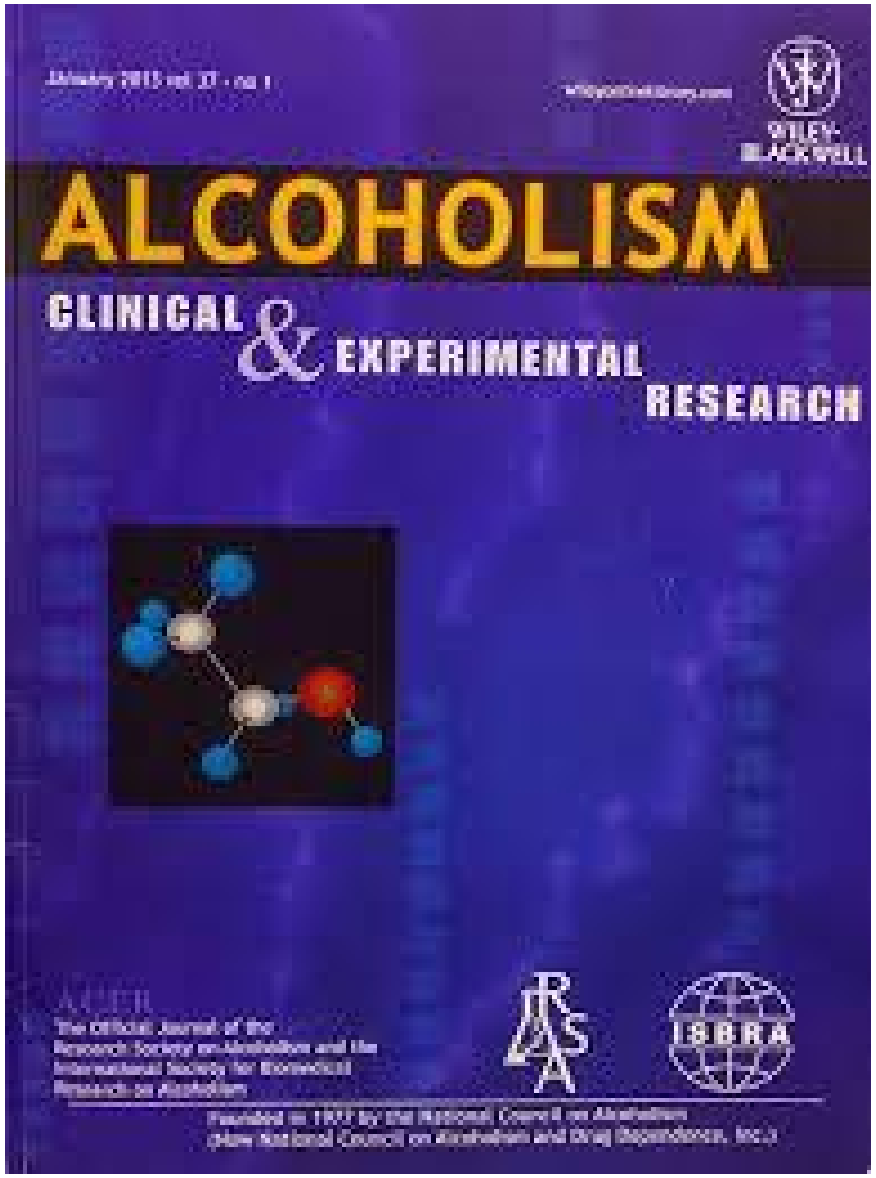
Acknowledges myriad ways in which individuals can recover:

- **Clinical pathways** (provided by a clinician or other medical professional – both medication and psychosocial interventions)

- **Nonclinical pathways** (services not involving clinicians such as Alcoholics Anonymous)

- **Self-management pathways** (recovery change processes that involve no formal services, sometimes referred to as “natural recovery”)





Beyond Abstinence: Changes in Indices of Quality of Life with Time in Recovery in a Nationally Representative Sample of U.S. Adults

John F. Kelly, M. Claire Greene, and Brandon G. Bergman

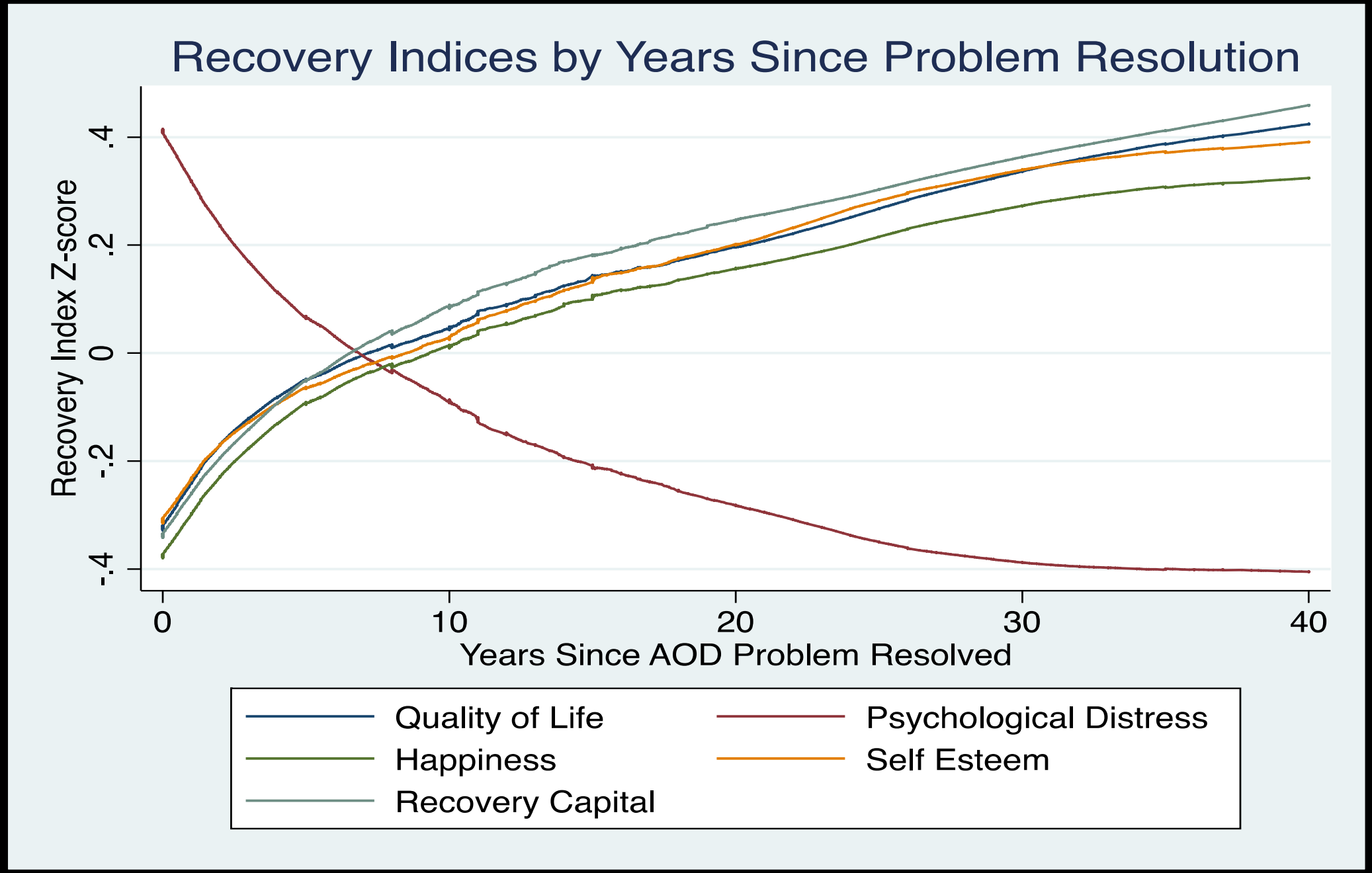
Background: Alcohol and other drug (AOD) treatment and recovery research typically have focused narrowly on changes in alcohol/drug use (e.g., "percent days abstinent") with little attention on changes in functioning or well-being. Furthermore, little is known about whether and when such changes may occur, and for whom, as people progress in recovery. Greater knowledge would improve understanding of recovery milestones and points of vulnerability and growth.

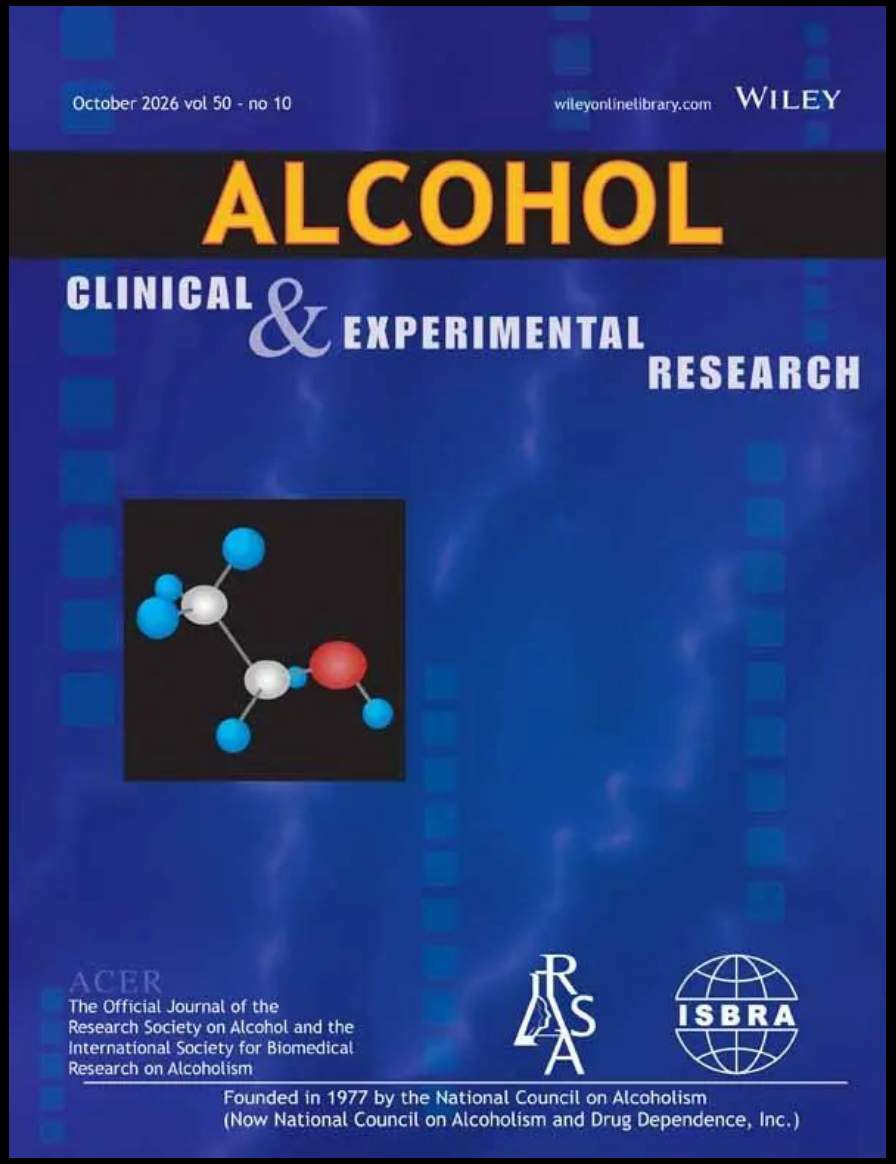
Methods: National, probability-based, cross-sectional sample of U.S. adults who screened positive to the question, "Did you used to have a problem with alcohol or drugs but no longer do?" (Response = 63.4% from 39,809; final weighted sample n = 2,002). Linear, spline, and quadratic regressions tested relationships between time in recovery and 5 measures of well-being: quality of life, happiness, self-esteem, recovery capital, and psychological distress, over 2 temporal horizons: the first 40 years and the first 5 years, after resolving an AOD problem and tested moderators (sex, race, primary substance) of effects. Locally Weighted Scatterplot Smoothing regression was used to explore turning points.

Results: In general, in the 40-year horizon there were initially steep increases in indices of well-being (and steep drops in distress), during the first 6 years, followed by shallower increases. In the 5-year horizon, significant drops in self-esteem and happiness were observed initially during the first year followed by increases. Moderator analyses examining primary substance found that compared to alcohol and cannabis, those with opioid or other drugs (e.g., stimulants) had substantially lower recovery capital in the early years; mixed race/native Americans tended to exhibit poorer well-being compared to White people; and women consistently reported lower indices of well-being over time than men.

Conclusions: Recovery from AOD problems is associated with dynamic monotonic improvements in indices of well-being with the exception of the first year where self-esteem and happiness initially decrease, before improving. In early recovery, women, certain racial/ethnic groups, and those suffering from opioid and stimulant-related problems appear to face ongoing challenges that suggest a need for greater assistance.

Key Words: Recovery, Remission, Alcohol Use Disorder, Quality of Life, National, Epidemiology.


Recovery Indices by Years Since Problem Resolution
Recovery Index Z-score
-.4
-.2
0
.2
.4
0
10
20
30
40
Years Since AOD Problem Resolved
Quality of Life
Happiness
Recovery Capital
Psychological Distress
Self Esteem



ALCOHOL CLINICAL & EXPERIMENTAL RESEARCH

ORIGINAL ARTICLE

Abstinence versus moderation recovery pathways following resolution of a substance use problem: Prevalence, predictors, and relationship to psychosocial well-being in a U.S. national sample

David Eddie, Brandon G. Bergman, Lauren A. Hoffman, John F. Kelly

First published: 21 December 2021 | https://doi.org/10.1111/acer.14765 | VIEW METRICS

Funding information:

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PATHWAYS TO RECOVERY

NRS

THREE BROAD RESOLUTION PATHWAYS WERE EXAMINED



ASSISTED RECOVERY



UNASSISTED RECOVERY



52%

ABSTINENCE FROM ALCOHOL & ALL OTHER DRUGS



73%

ABSTINENCE FROM ALCOHOL OR OTHER DRUGS IDENTIFIED AS PROBLEMATIC



SELF-IDENTIFY AS BEING IN RECOVERY



DO NOT IDENTIFY AS BEING IN RECOVERY

Recovery support services have grown intended to facilitate access to conducive and supportive environments and recovery capital …





NARR
National Alliance for Recovery Residences
Community • Standards • Ethics • Education

ALCOHOLICS ANONYMOUS

Anchor
Recovery Community Center
Peer-to-peer support services

LifeRir

HOPE for NEW HAMPSHIRE RECOVERY

WOMEN FOR SOBRIETY

ASSOCIATION OF RECOVERY COMMUNITY ORGANIZATIONS
FACES & VOICES OF RECOVERY

ARHE
ASSOCIATION OF RECOVERY IN HIGHER EDUCATION

FOR ADDICTI

SMART Recovery®



Cochrane Database of Systematic Reviews

Alcoholics Anonymous and other 12-step programs for alcohol use disorder (Review)

Kelly JF, Humphreys K, Ferri M

Kelly JF, Humphreys K, Ferri M.
Alcoholics Anonymous and other 12-step programs for alcohol use disorder.
Cochrane Database of Systematic Reviews 2020, Issue 3. Art. No.: CD012880.
DOI: 10.1002/14651858.CD012880.pub2.

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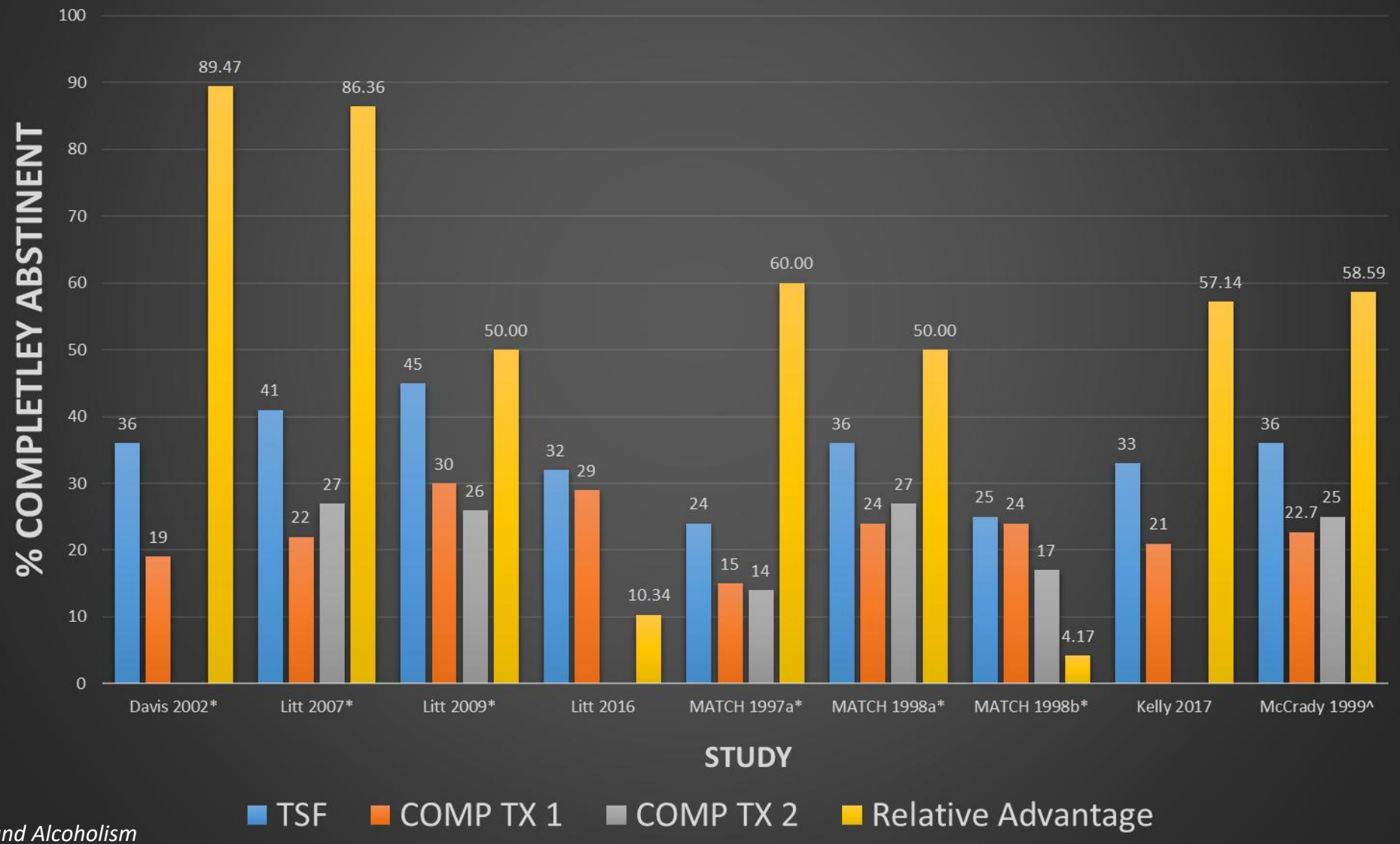
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Cochrane Systematic Review on AA/TSF (2020)

- Kelly, JF
- Humphreys, K
- Ferri, M

TSF Compared to Different Theoretical Orientation Treatments (RCTs all Manualized)



Kelly et al, 2020; *Alcohol and Alcoholism*

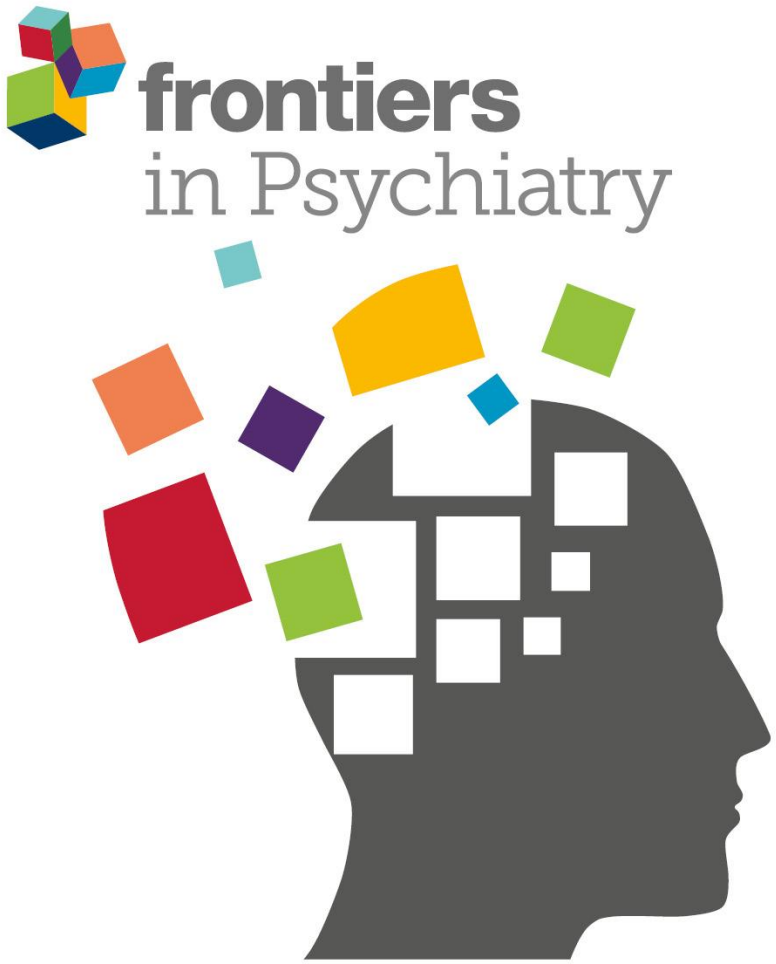


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A comparison of recovery benefits associated with participation in SMART Recovery, AA, both SMART and AA, or neither, following a new alcohol use disorder recovery attempt

John F. Kelly[1,2]*, Eric Boorman[1] and Jenny B. O'Connor[1]

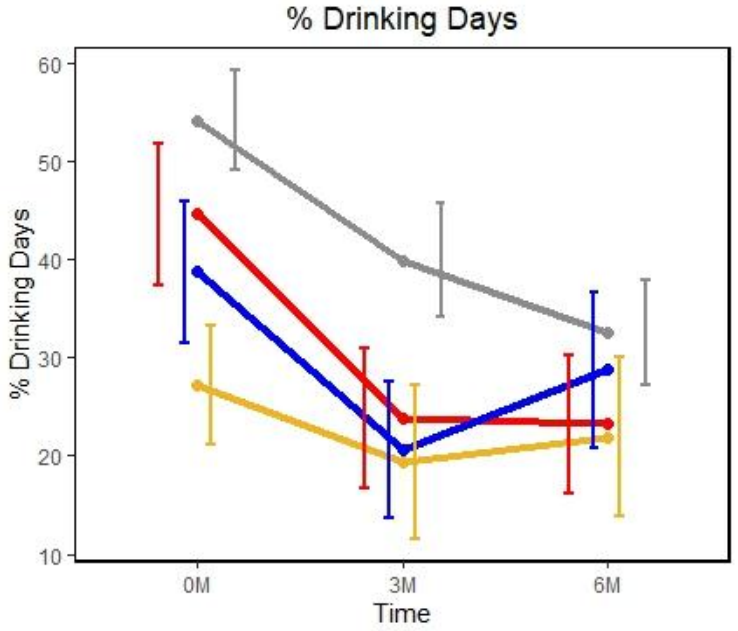
[1]Psychiatry Department, Massachusetts General Hospital, Boston, MA, United States, [2]Psychiatry Department, Harvard Medical School, Boston, MA, United States

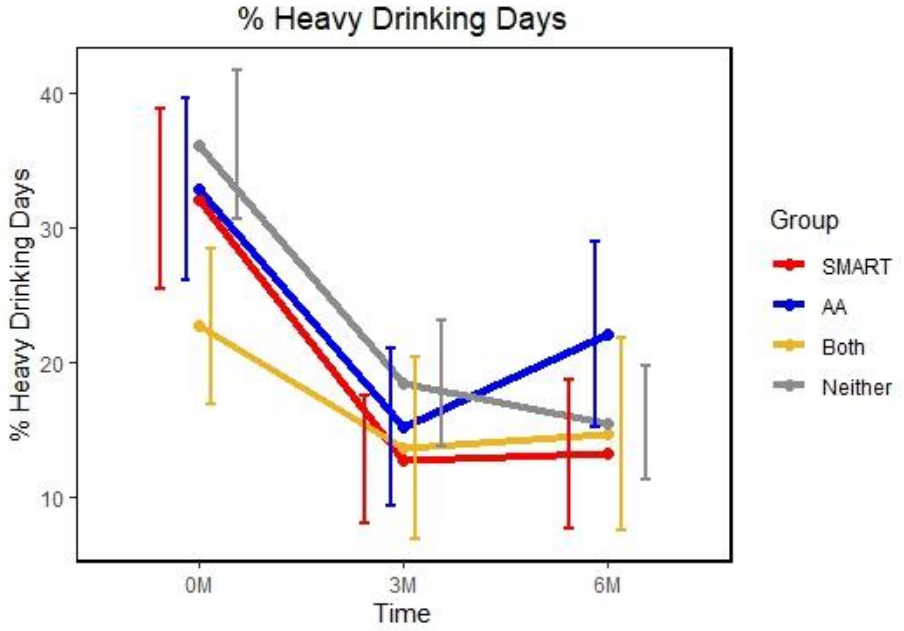
Background: Self-Management and Recovery Training (SMART Recovery or "SMART") is an internationally known "second-wave" addiction recovery mutual-help organization that has grown over several decades. Despite this, little is known empirically about who uses SMART and how they fare on important alcohol-specific outcomes over time relative to individuals using more established options such as Alcoholics Anonymous (AA), or indeed those who utilize both SMART and AA, or neither. Greater knowledge could deepen understanding of the clinical and public utility of SMART in its own right and inform clinical referral options.

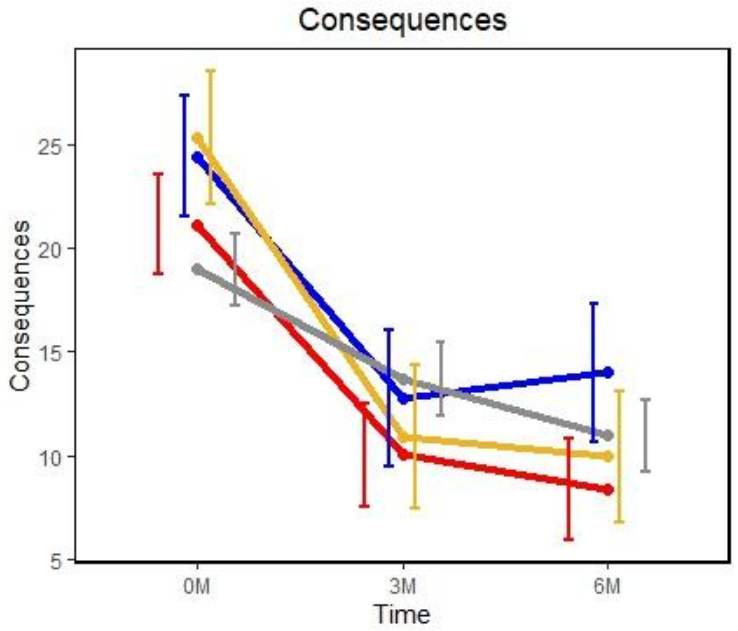
Methods: A naturalistic, longitudinal cohort study (N = 361) of individuals recruited between February 2019 and February 2022 who were initiating a new alcohol use disorder (AUD) recovery attempt and self-selected into one of four groups at study entry: (1) SMART Recovery; (2) AA; (3) SMART + AA; and (4) neither SMART nor AA. Assessments were conducted at intake, 3 months, and 6 months and measured a variety of alcohol/drug-related and functioning outcomes.

Results: Compared to the AA and Both groups, SMART Recovery pathway participants exhibited a pattern of less severe clinical pathology and legal system involvement histories, along with higher psychosocial stability and

SMART vs AA vs Both vs Neither: Group Effects over Time on four outcomes across 6 months







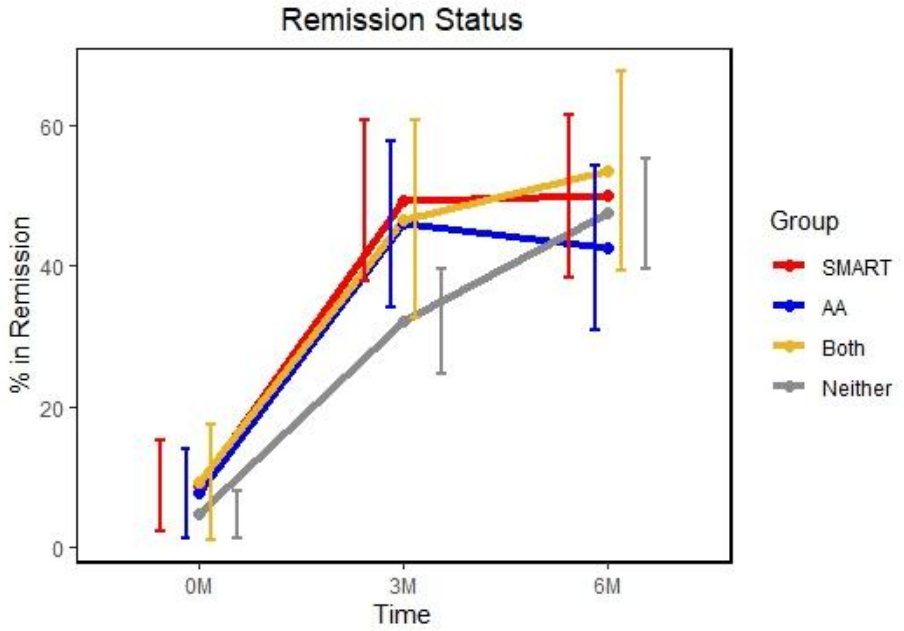


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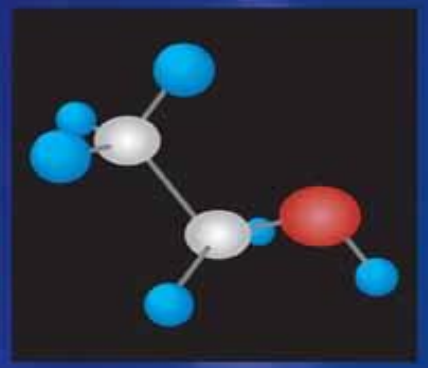
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RESEARCH ARTICLE

ALCOHOL CLINICAL & EXPERIMENTAL RESEARCH

Who affiliates with SMART recovery? A comparison of individuals attending SMART recovery, alcoholics anonymous, both, or neither

John F. Kelly[1,2] | Samuel Levy[1] | Maya Matlack[1] | Bettina B. Hoeppner[1,2]

[1]Psychiatry Department, Massachusetts General Hospital, Boston, Massachusetts, USA

[2]Department of Psychiatry, Harvard Medical School, Boston, Massachusetts, USA

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Abstract

Background: Mutual-help organizations (MHOs) play a crucial role for many individuals with alcohol use disorder (AUD) or other substance use disorders in achieving stable remission. While there is now substantial research characterizing who uses 12-step MHOs, very little is known about who becomes affiliated with newer and rapidly growing MHOs, such as Self-Management and Recovery Training ("SMART" Recovery). More research could inform knowledge regarding who may be best engaged by these differing pathways.

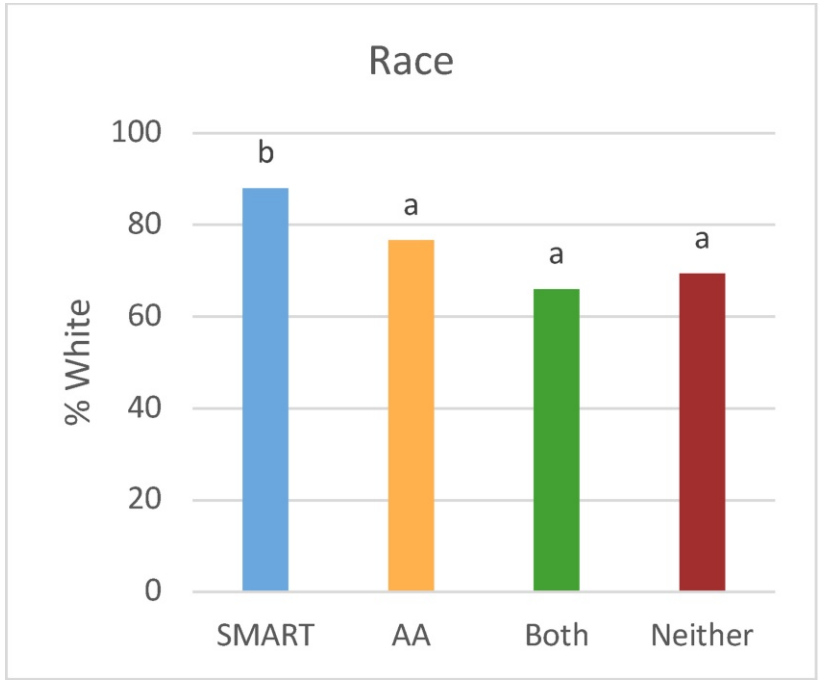
Methods: We conducted a cross-sectional analysis of participants ($N = 361$) with AUD recruited mostly from the community who were starting a new recovery attempt and self-selected into one of four different recovery paths: (1) SMART Recovery ("SMART-only"; $n = 75$); (2) Alcoholics Anonymous ("AA-only"; $n = 73$); (3) Both SMART and AA ("Both"; $n = 53$); and (4) Neither SMART nor AA ("Neither"; $n = 160$). We compared the groups on demographics, clinical history, treatment and recovery support service use, and indices of functioning and well-being. We computed descriptives and conducted inferential analyses according to the data structure.

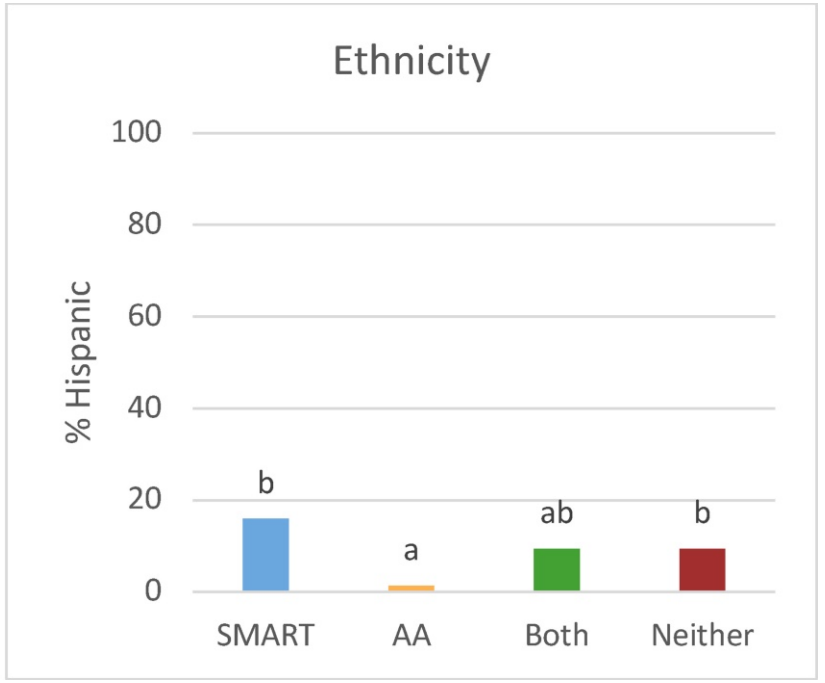
Results: Compared to study participants choosing AA-only or Both, SMART-only participants were more likely to be White, married, have higher income and more education, be full-time employed, and evince a pattern of lower clinical severity characterized by less lifetime and recent treatment and recovery support services usage, lower alcohol use intensity and fewer consequences, and less legal involvement. AUD symptom levels, lifetime psychiatric diagnoses, psychiatric distress, and functioning were similar across MHO-engaged groups.

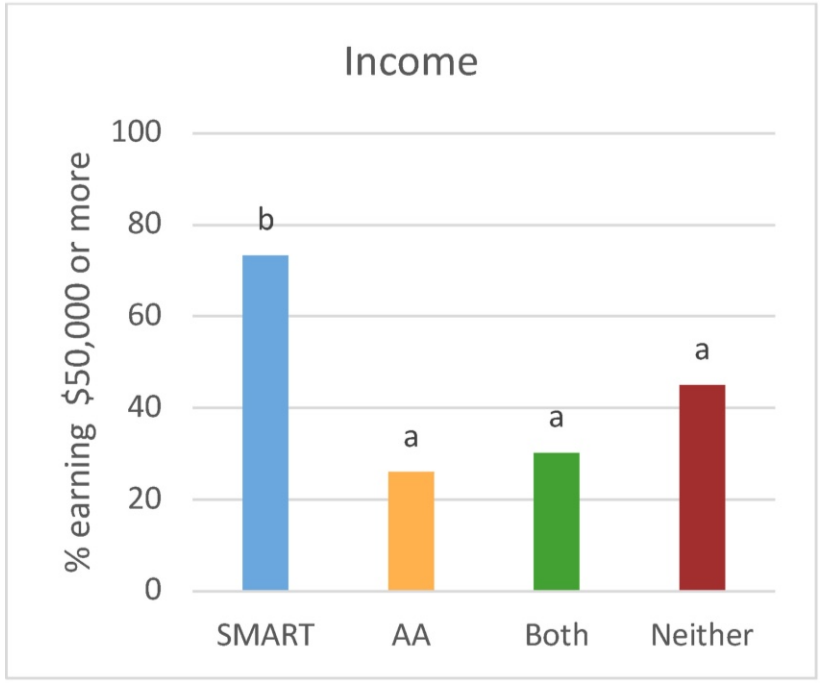
Conclusion: SMART Recovery appears to attract individuals with greater psychosocial stability and economic advantage and less severe histories of alcohol-related impairment and legal involvement. Findings suggest that certain aspects specific to the SMART Recovery group approach, format, and/or contents may appeal to individuals exhibiting this type of profile. As such, SMART appears to provide an additional

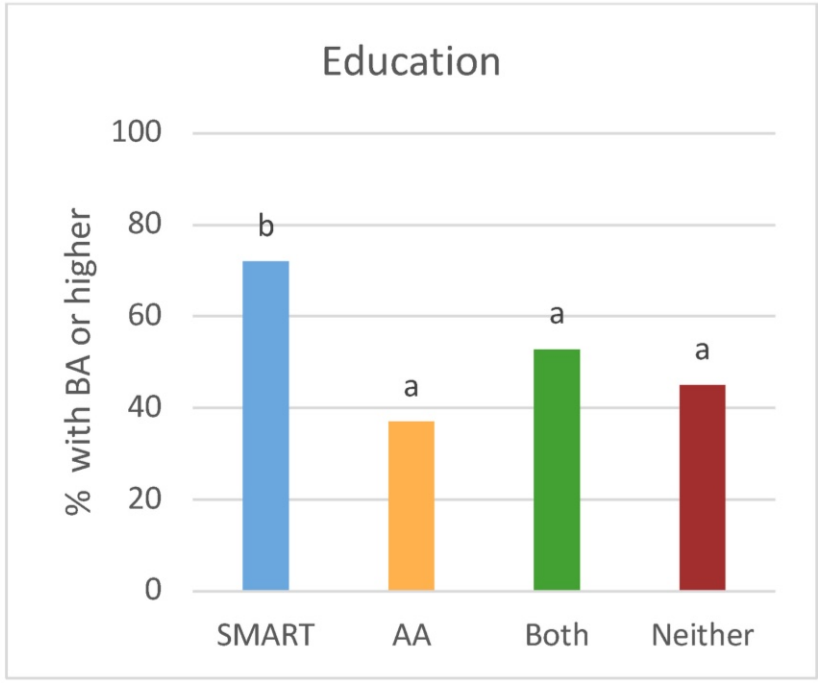
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Results



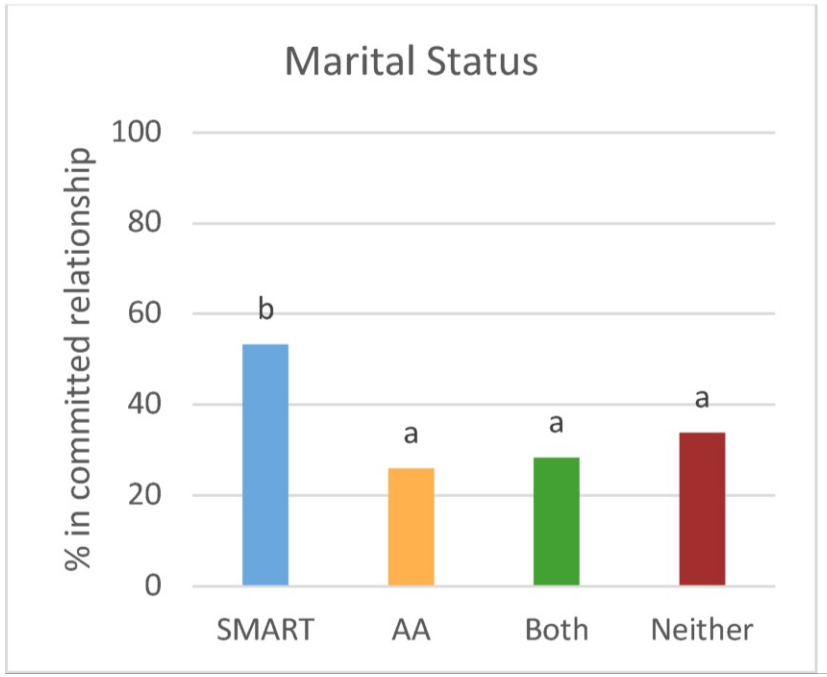


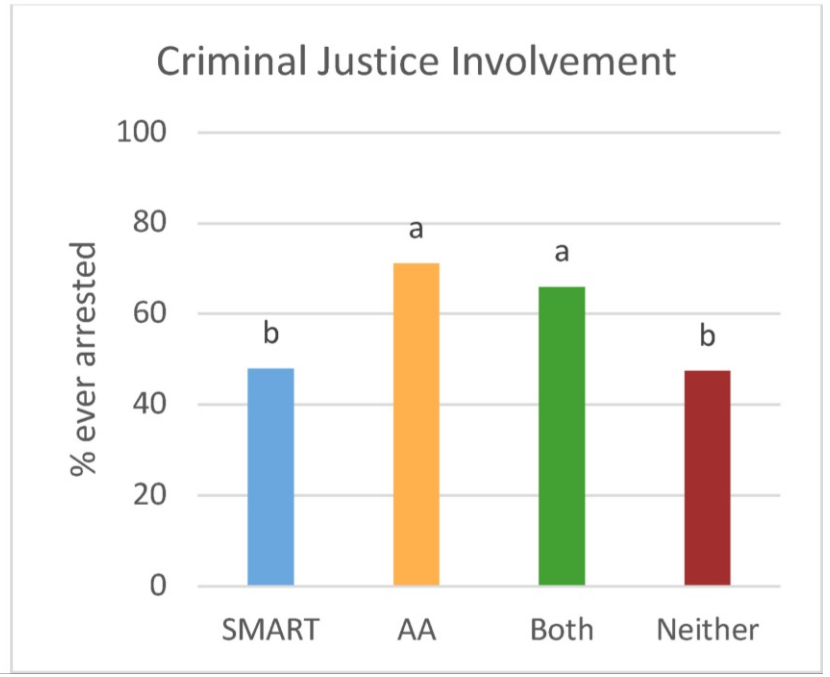


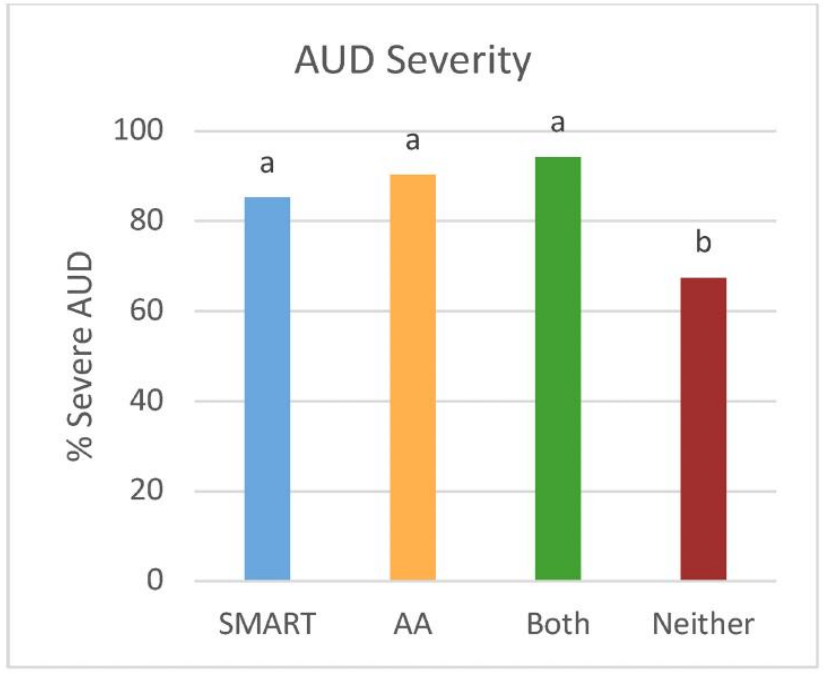


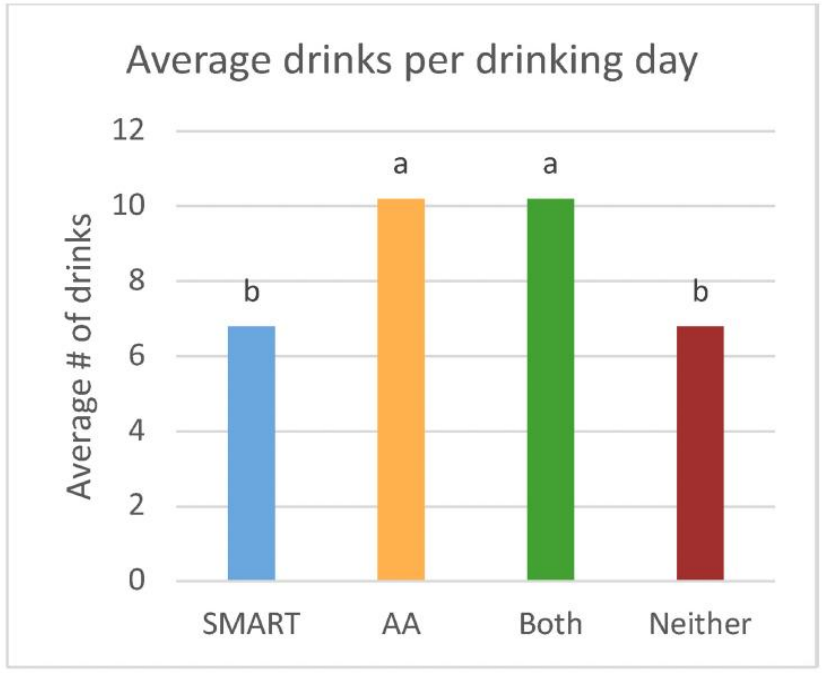
Kelly et al. (2023)

Results



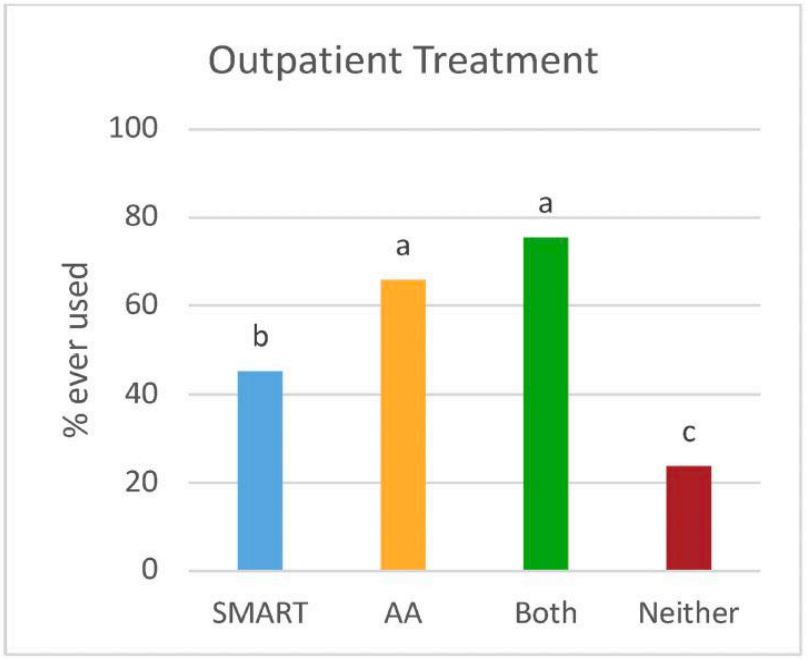


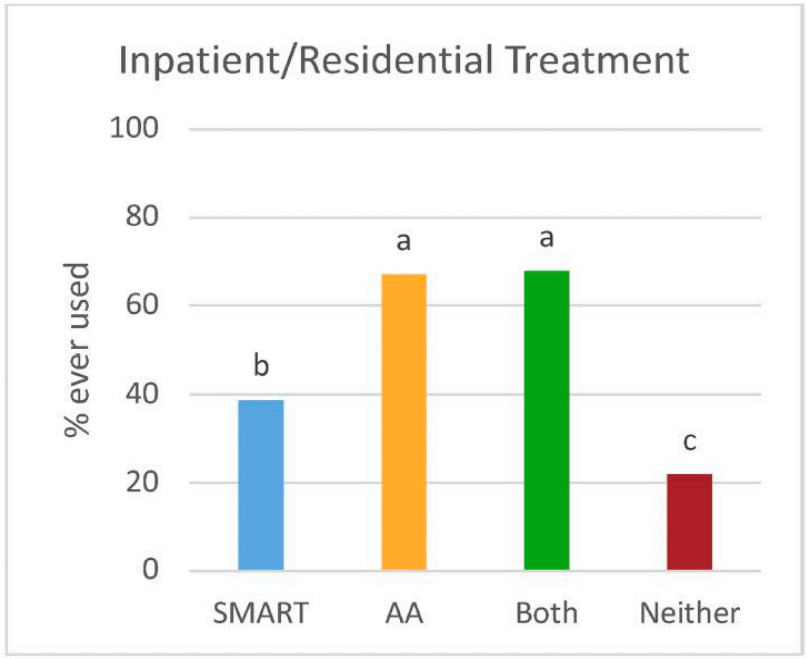


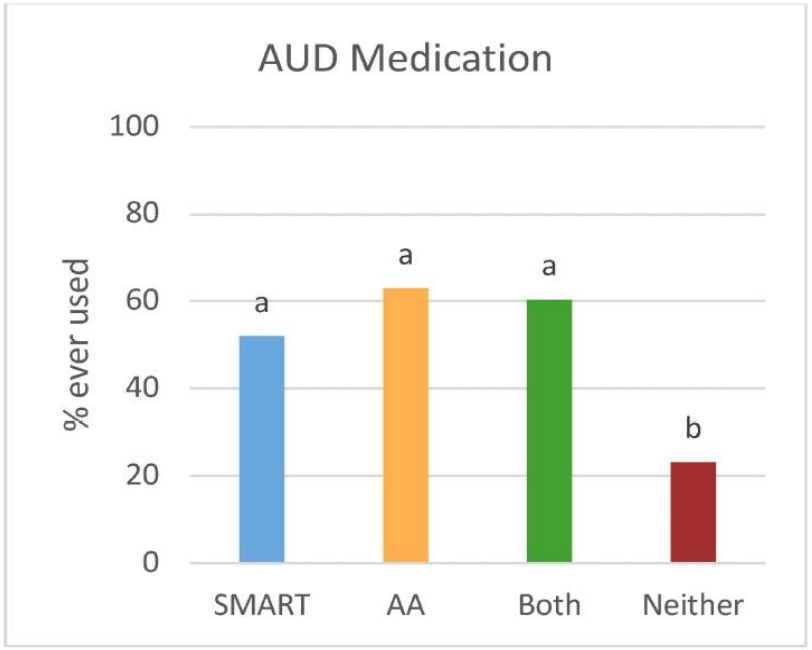


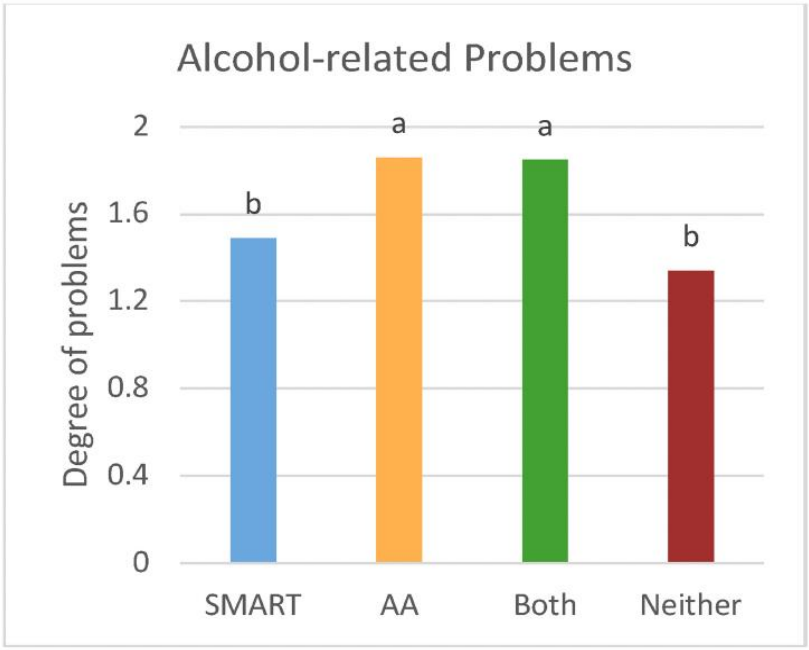
Kelly et al. (2023)

Results

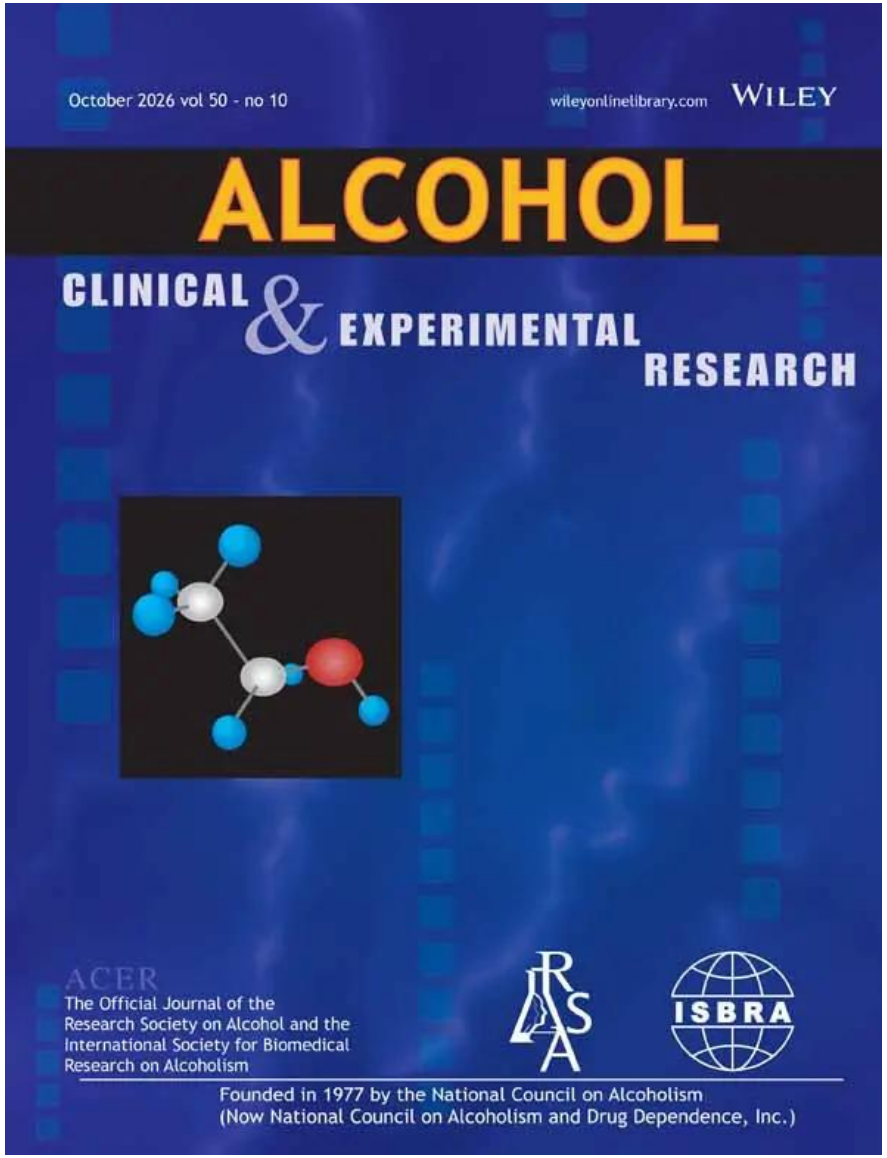








Kelly et al. (2023)



ALCOHOLISM: CLINICAL AND EXPERIMENTAL RESEARCH

Vol. 43, No. 7
July 2019

How Many Recovery Attempts Does it Take to Successfully Resolve an Alcohol or Drug Problem? Estimates and Correlates From a National Study of Recovering U.S. Adults

John F. Kelly, Martha Claire Greene, Brandon G. Bergman, William L. White, and Bettina B. Hoeppner

Background: Alcohol and other drug (AOD) problems are commonly depicted as chronically relapsing, implying multiple recovery attempts are needed prior to remission. Yet, although a robust literature exists on quit attempts in the tobacco field, little is known regarding patterns of cessation attempts related to alcohol, opioid, stimulant, or cannabis problems. Greater knowledge of such estimates and the factors associated with needing fewer or greater attempts may have utility for health policy and clinical communication efforts and approaches.

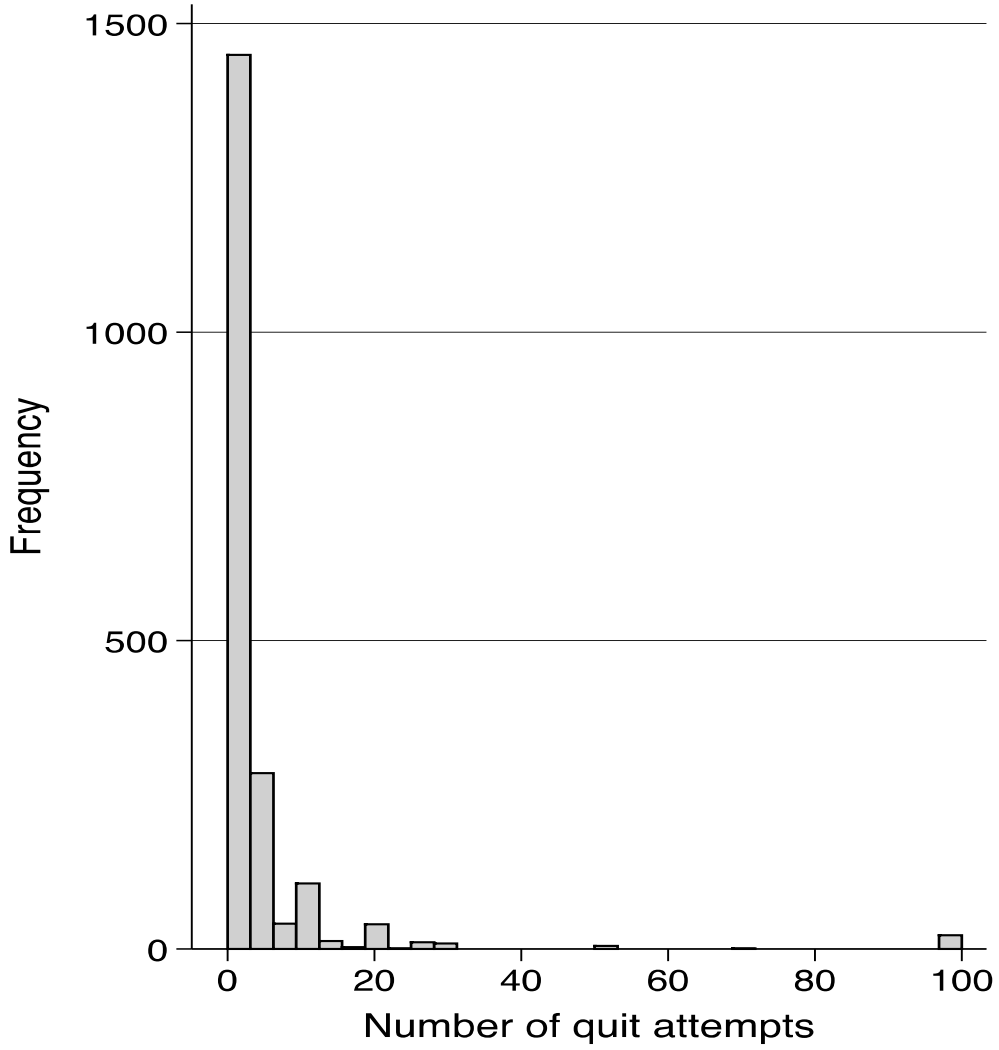
Methods: Cross-sectional, nationally representative survey of U.S. adults ($N = 39{,}809$) who reported resolving a significant AOD problem ($n = 2{,}002$) and assessed on number of prior serious recovery attempts, demographic variables, primary substance, clinical histories, and indices of psychological distress and well-being.

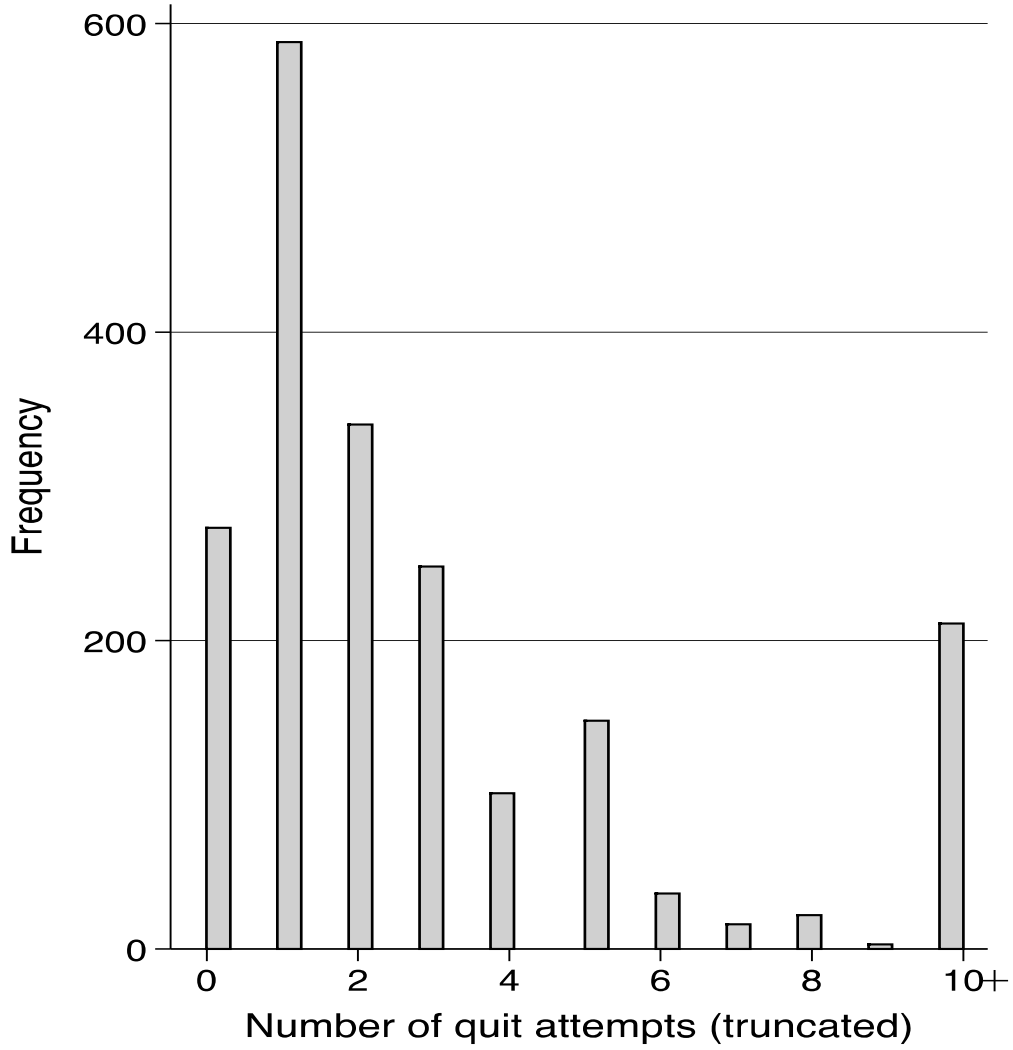
Results: The statistical distribution of serious recovery attempts was highly skewed with a mean of 5.35 (SD = 13.41) and median of 2 (interquartile range [IQR] = 1 to 4). Black race, prior use of treatment and mutual-help groups, and history of psychiatric comorbidity were associated with higher number of attempts, and more attempts were associated independently with greater current distress. Number of recovery attempts did not differ by primary substance (e.g., opioids vs. alcohol).

Conclusions: Estimates of recovery attempts differed substantially depending on whether the mean (5.35 recovery attempts) or median (2 recovery attempts) was used as the estimator. Implications of this are that the average may be substantially lower than anticipated because cultural expectations are often based on AOD problems being "chronically relapsing" disorders implicating seemingly endless tries. Depending on which one of these estimates is reported in policy documents or communicated in public health announcements or clinical settings, each may elicit varying degrees of help-seeking, hope, motivation, and the use of more assertive clinical approaches. The more fitting, median estimate of attempts should be used in clinical and policy communications given the distribution.

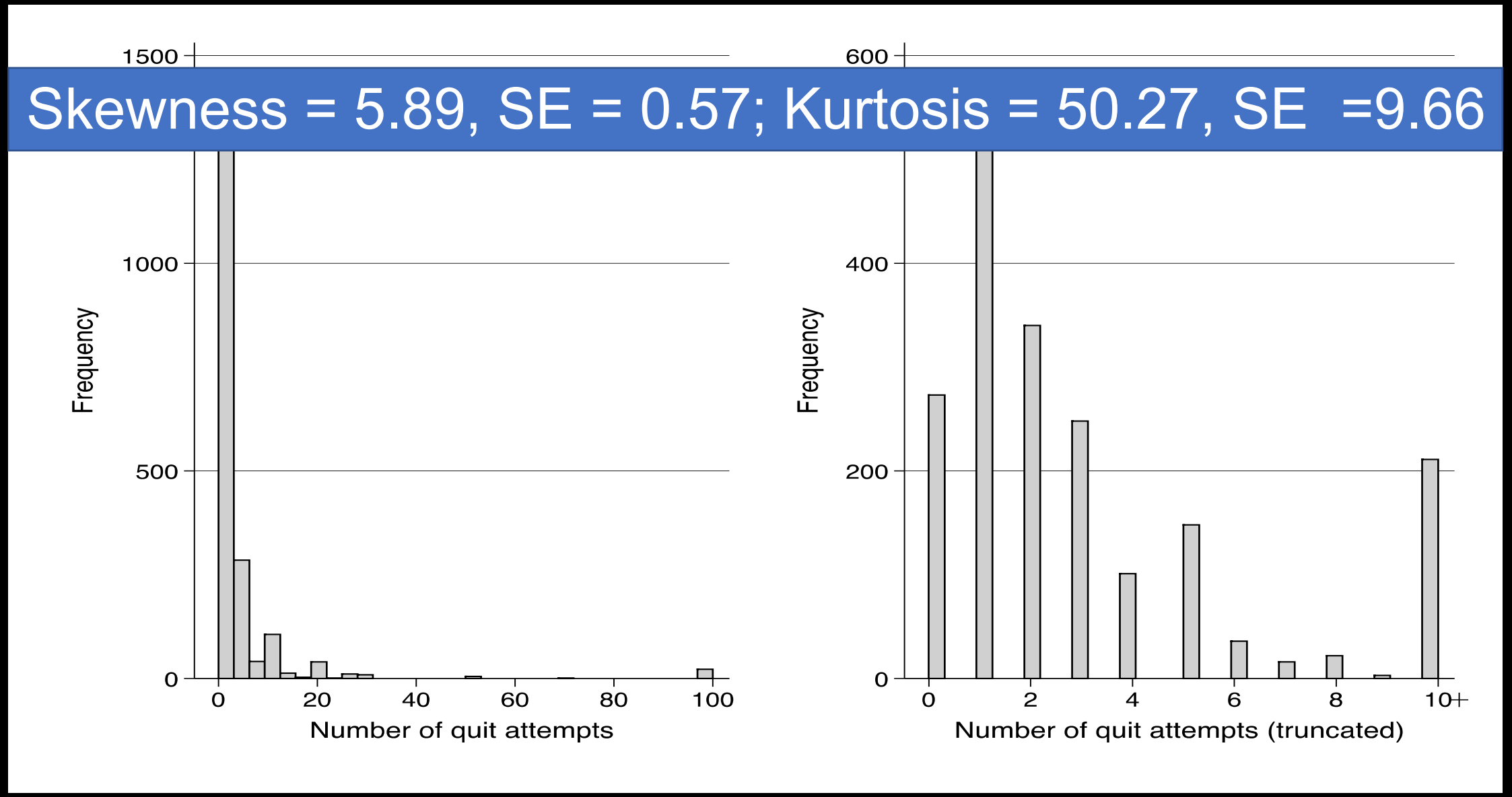
Key Words: Recovery, Opioid Use Disorder, Quit Attempts, Alcohol Use Disorder, Remission.

Frequency distribution of serious recovery attempts prior to successful resolution
(left: full sample; right: outliers removed)





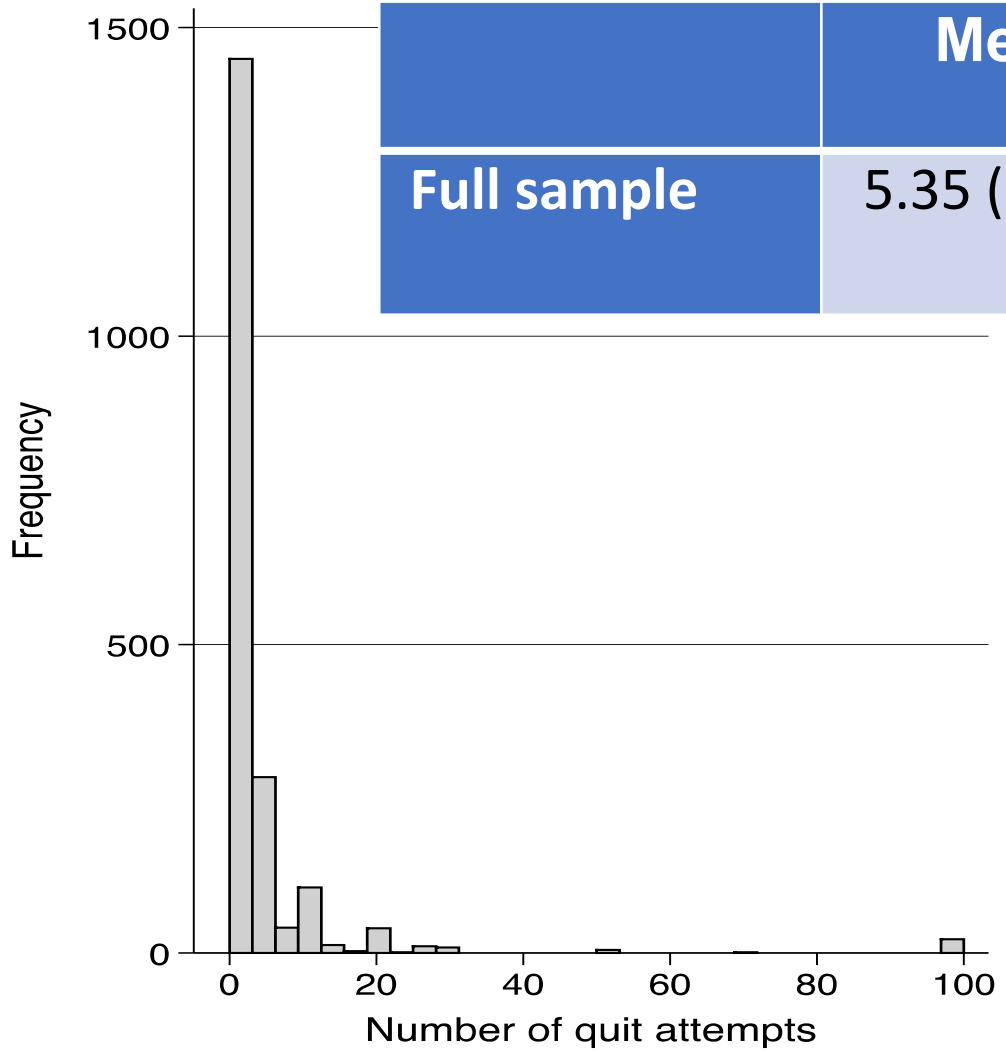
Frequency distribution of serious recovery attempts prior to successful resolution
(left, full sample; right: outliers removed)

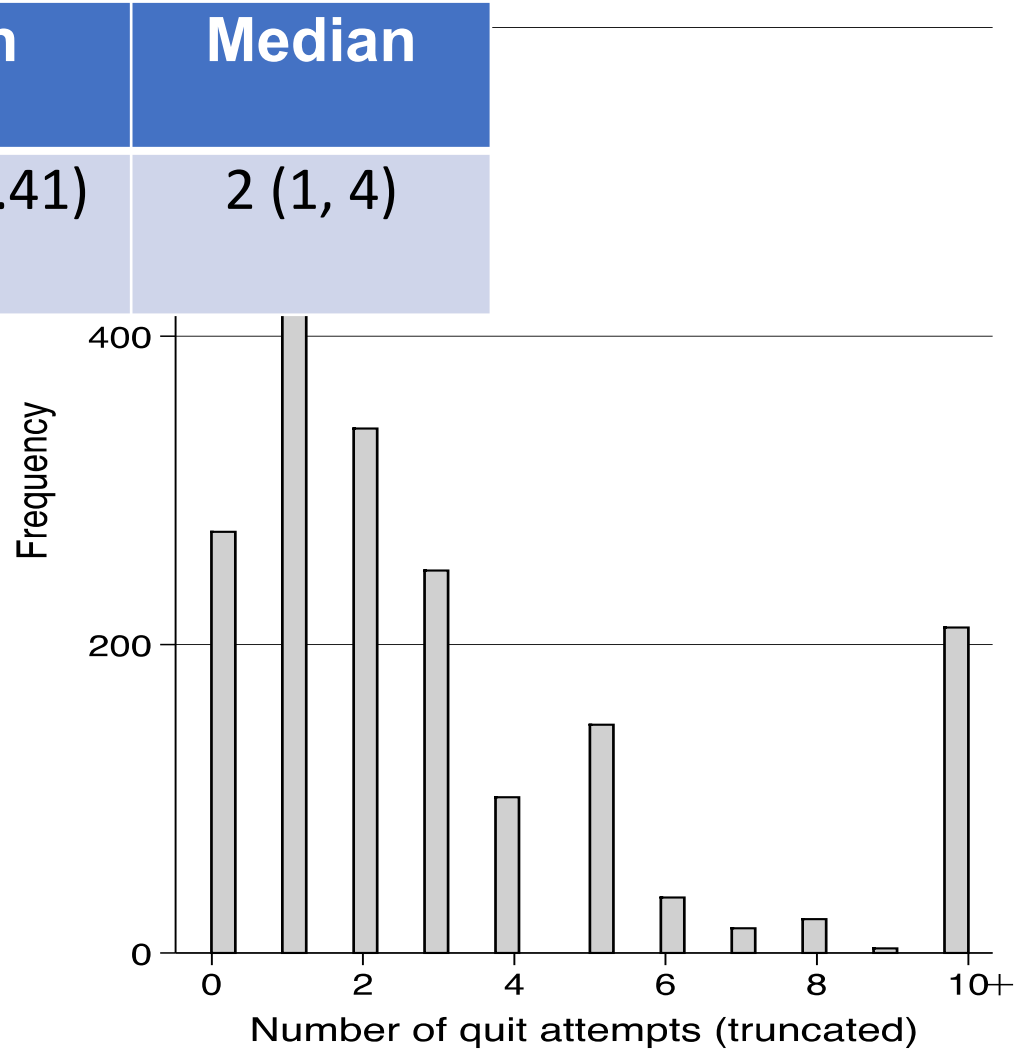


SE: Standard Error

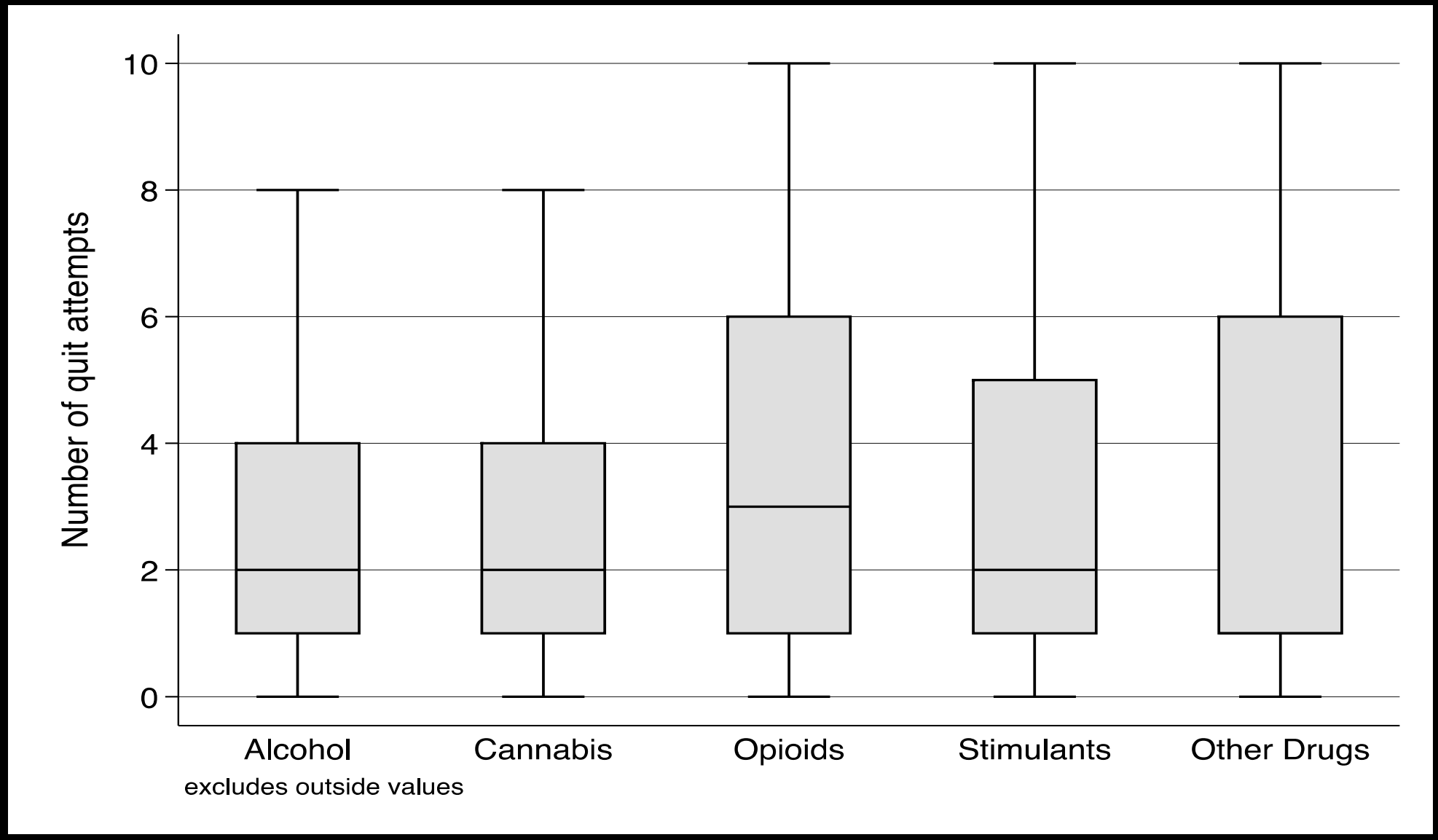
Frequency distribution of serious recovery attempts prior to successful resolution (left, full sample; right: outliers removed)

	Mean	Median
Full sample	5.35 (13.41)	2 (1, 4)

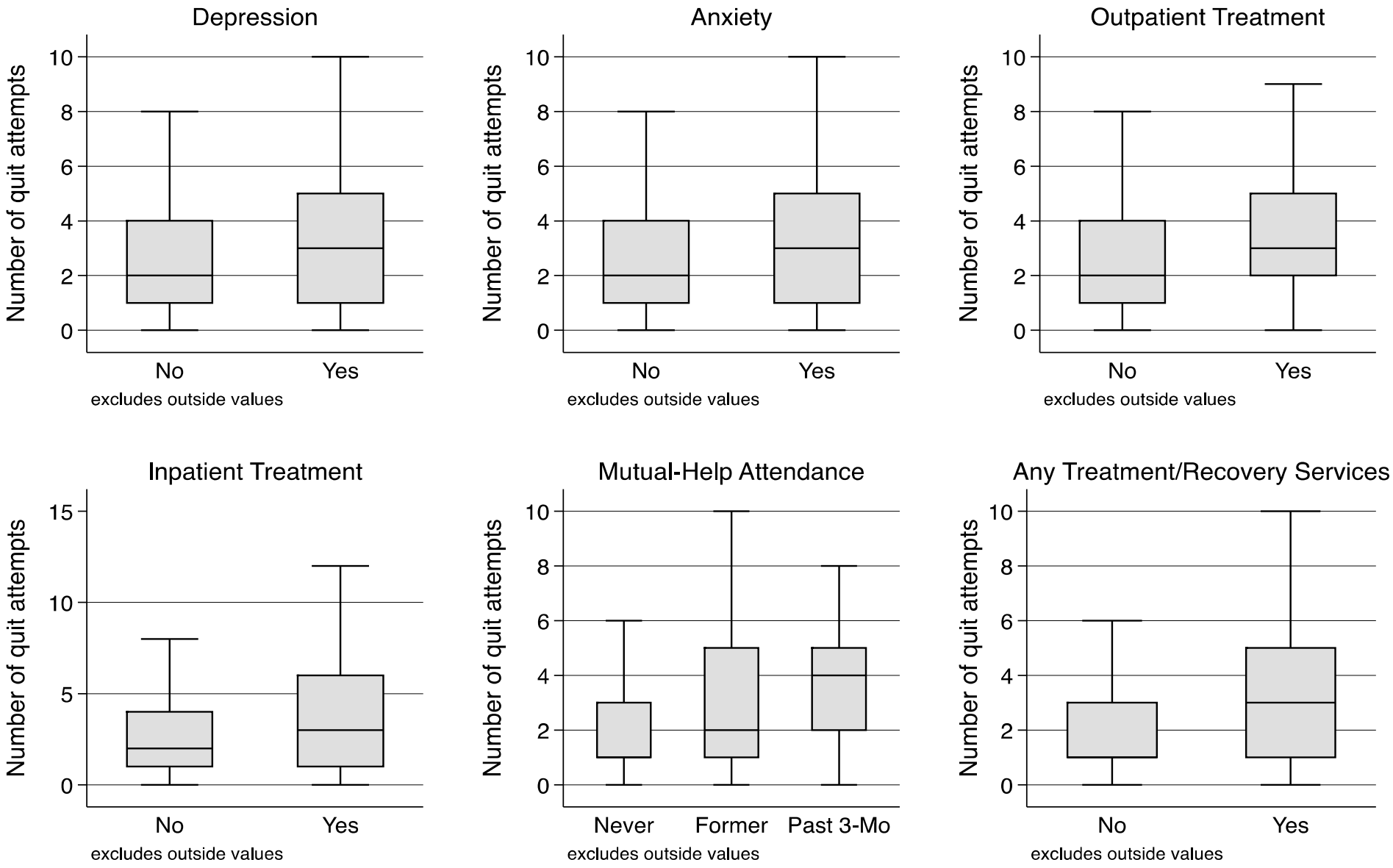




Median Recovery Attempts by Primary Drug



Number of recovery attempts by clinical and recovery support services use



Main Points

- AUD heterogeneity and phenotypes
- Multiple Pathways to Recovery
- Recovery trajectories
- Long-Term Relapse and Implications for Disease Management in AUD

Healing Terminology Used in the Addiction Field

Different Terms. Different Focus. Shared Goal.

All represent positive change toward improved health and well-being.

REDUCTION



Decreasing the amount of substance use and related consequences.

Focus

- Safer use
- Fewer harms
- Improved stability
- Step toward change

"Less use. Less harm. More control."

CESSATION



Stopping substance use, which may be short-term or longer-term.

Focus

- Ending use
- Gaining control
- Beginning a new chapter
- May or may not be sustained

"Stopping use— a powerful first step."

ABSTINENCE



The complete avoidance of alcohol and other drugs.

Focus

- No use of any mind-altering substances
- Often chosen for health, personal, or spiritual reasons
- Can be time-limited or ongoing

"Choosing not to use."

RESOLUTION



A sustained state in which substance use no longer controls or defines a person's life.

Focus

- Long-term stability
- Peace and clarity
- Freedom from the grip of addiction
- Forward movement

"The issue is resolved. Freedom and a new normal."

REMISSION



A period of improved health where symptoms of substance use disorder are absent or significantly reduced.

Focus

- Fewer or no symptoms
- Improved functioning
- May or may not include abstinence

"Symptoms improve. Life gets better."

RECOVERY



A voluntary, ongoing process of change through which individuals improve their health and well-being, live a self-directed life, and strive to reach their full potential.

Focus

- Whole-person wellness
- Growth and purpose
- Quality of life
- Includes many pathways

"Living a meaningful and fulfilling life."



These terms are not one-size-fits-all. People's goals, paths, and definitions of success are unique.

Respect. Person-Centered. Strengths-Based. Hope-Focused.



Whatever term is used, the goal is the same: improved health, well-being, and quality of life.

Kelly, 2026

Clinical Outcomes: Remission and “Recovery”



Confusion over what constitutes “recovery” and how it differs from “remission”



Questions remain as to the utility of a specific “recovery” categorization that is distinct from “remission”



Few operational definitions exist or have been tested…



NIAAA (Hagman et al, 2022) was the first to offer a testable operational definition as the definition offered both measurable thresholds and minimum durations (akin to diagnostic remission)

National Institute of Alcohol Abuse and Alcoholism (NIAAA) Definition of Alcohol Use Disorder Recovery (Hagman et al, 2022):

“Recovery is a process through which an individual pursues both remission from alcohol use disorder and cessation from heavy drinking. An individual may be considered “recovered” if both remission from alcohol use disorder and cessation from heavy drinking are achieved and maintained over time. For those experiencing alcohol-related functional impairment and other adverse consequences, recovery is often marked by the fulfillment of basic needs, enhancements in social support and spirituality, and improvements in physical and mental health, quality of life, and other dimensions of well-being. Continued improvement in these domains may, in turn, promote sustained recovery.”

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ALCOHOL CLINICAL & EXPERIMENTAL RESEARCH

RESEARCH ARTICLE

Prevalence, predictors, correlates, and dynamic changes in the NIAAA-defined "recovery" definition

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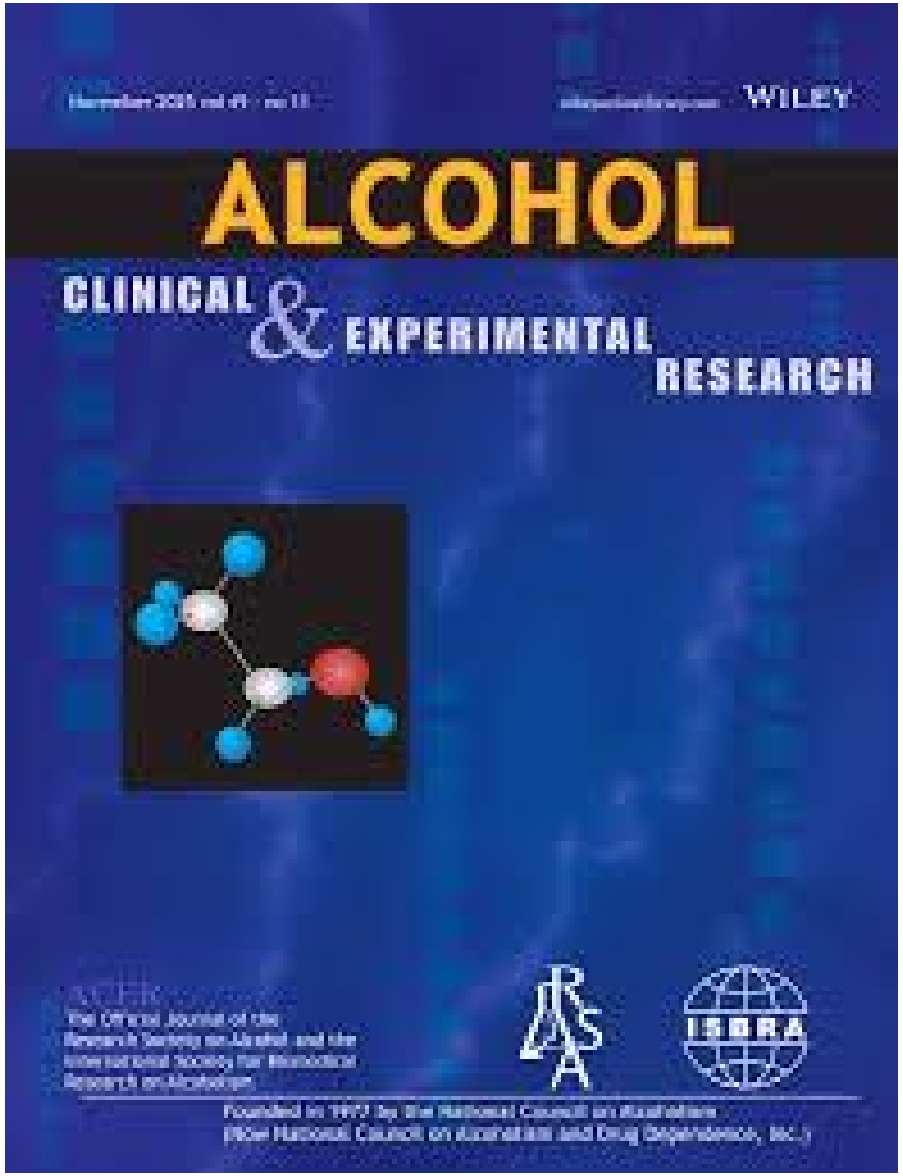
Abstract

Background: Definitions of alcohol use disorder (AUD) "recovery" abound, but the National Institute on Alcohol Abuse and Alcoholism (NIAAA) was the first to offer an operational definition ("AUD remission with no heavy drinking"). Little is known about this definition or how it compares to others. Greater knowledge would inform its clinical and public health utility.

Design: Multisite, single-group, prospective study of individuals beginning a new AUD recovery attempt ($N = 442$) assessed at baseline, 3, 6, 9, and 12 months on AUD symptoms, alcohol use, and functioning/well-being. Hidden Markov models (HMMs) estimated NIAAA-defined recovery status and other recovery group statuses/transitions. Regressions tested group membership predictors; linear mixed models examined functioning/well-being.

Results: Participants were classified into four groups depending on remission status and level of alcohol use: (i) Remission + abstinence (R + A; $n = 102$); (ii) Remission + low-risk drinking (R + LRD; $n = 51$); (iii) Remission + higher-risk drinking (R + HRD; $n = 70$); (iv) No remission (NR; $n = 219$). During follow-up, groups 1 + 2 (NIAAA definition) were quite prevalent (34.6%), evincing patterns of larger psychosocial improvements compared with NR and R + HRD. R + A and R + LRD, however, differed on baseline characteristics, with R + A, similar to NR, being more severe on AUD-related metrics, whereas both remitted but still drinking groups (R + LRD, R + HRD) were less severe. Of note, R + A was the most stably remitted group; R + LRD and R + HRD were less stable, moving increasingly into NR. Unlike R + HRD, who, similar to NR, exhibited persistent lower levels of self-esteem and happiness, NIAAA-defined groups were associated with widespread improvements.

Conclusion: The NIAAA recovery definition was consistent with empirical outcomes exhibited by the R + A and R + LRD profiles, with both showing large psychosocial improvements, but who may represent different AUD phenotypes/stages. Despite R + A exhibiting a pattern of historically greater clinical severity, they demonstrated



Study design

- The participants (N=422) are from a longitudinal study examining the mechanisms of behavior change in AUD-positive individuals making a new recovery attempt.
- Eligibility criteria:
  - Be between 21 and 65 years old
  - Identify alcohol as their primary substance
  - Meet current DSM-5 criteria for AUD
  - Report NIAAA-defined high-risk drinking in the 30 days prior to their recovery attempt
  - Have begun either formal AUD treatment or an informal recovery attempt within the past 90 days, or be planning to begin in the next 14 days.

Design

- Four Outcome Groups:
  - Remission + abstinence (R+A)
  - Remission + Low-risk Drinking (R+LRD)
  - Remission + Higher-Risk Drinking (R+HRD)
  - Non-Remission (NR)



Proportion of Individuals Achieving NIAAA-Defined Recovery Over 12 Months

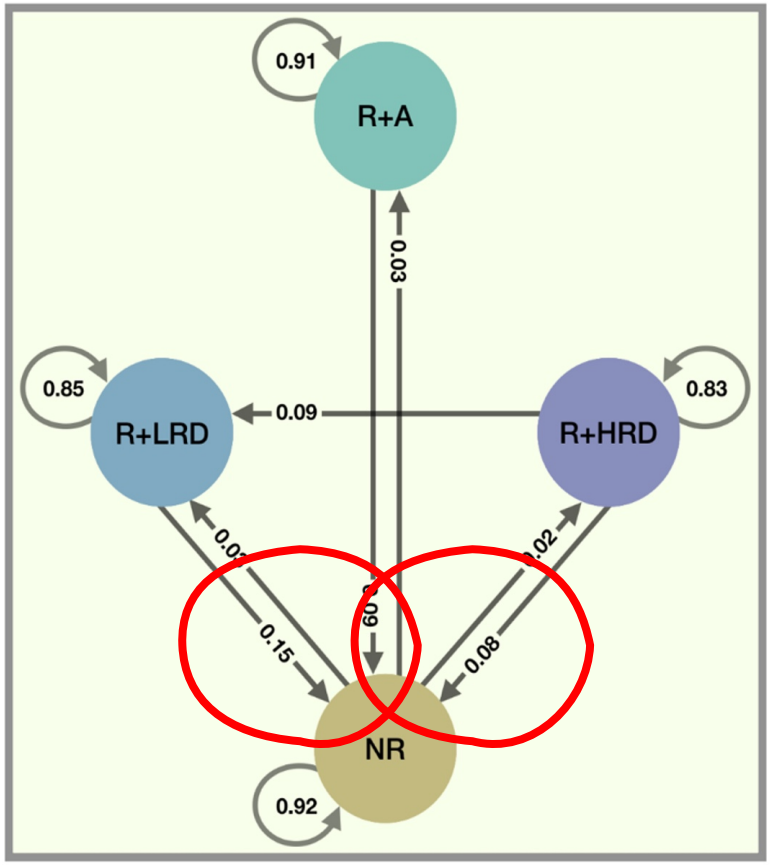
- Across the 12-month follow-up, **34.6%** of participants (**n=153**) achieved **NIAAA-defined recovery** at any time point (i.e., R + A or R + LRD).
- Among those (n=153) who met the NIAAA recovery criteria:
  - **66.7% (n=102)** achieved **abstinent remission (R + A)**.
  - **33.3% (n=51)** achieved **remission low-risk alcohol use (R + LRD)**.
- **A further…**
  - **15.8% (n=70)** met remission criteria but engaged in **high-risk drinking (R + HRD)**.
- **Nearly half of the sample (49.5%, n=221) never** achieved remission and remained in **Non-Remitted (NR)** status over the full year.

Stability of Recovery Classifications Over Time

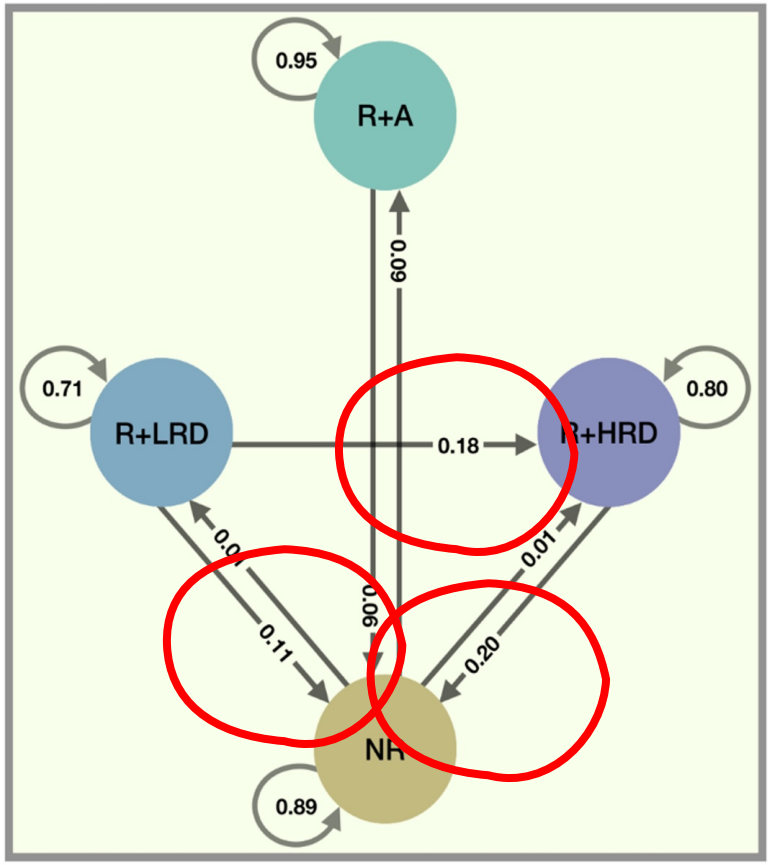
NIAAA-defined remission groups show varying stability

- **Remission with abstinence (R + A)** is the **most stable**, with **95%** remaining in remission across the year.
- **Remission with low-risk alcohol use (R + LRD)** shows moderate stability (**86%** remain in remission).
- **Remission with Higher-risk drinking (R + HRD)** was the **least stable**, with **78%** remaining in remission
- **Early improvement**: 27% of R + HRD transition to R + LRD between **3–6 months**, but this improvement **does not persist** over time.
- **Later deterioration**:
  - Between **6–9 months**, both R + LRD (15%) and R + HRD (8%) show movement into **Non Remitted (NR)**.
  - Between **9–12 months**, heavier and symptomatic alcohol use increases:
    - **18%** of R + LRD shifts to R + HRD
    - **20%** of R + HRD shifts to NR losing remission status
- Overall trend: **Actively drinking but remitted groups lose remission status over time**, especially in the second half of the year.

C. 6-Month to 9-Month Transition Probabilities



D. 9-Month to 12-Month Transition Probabilities

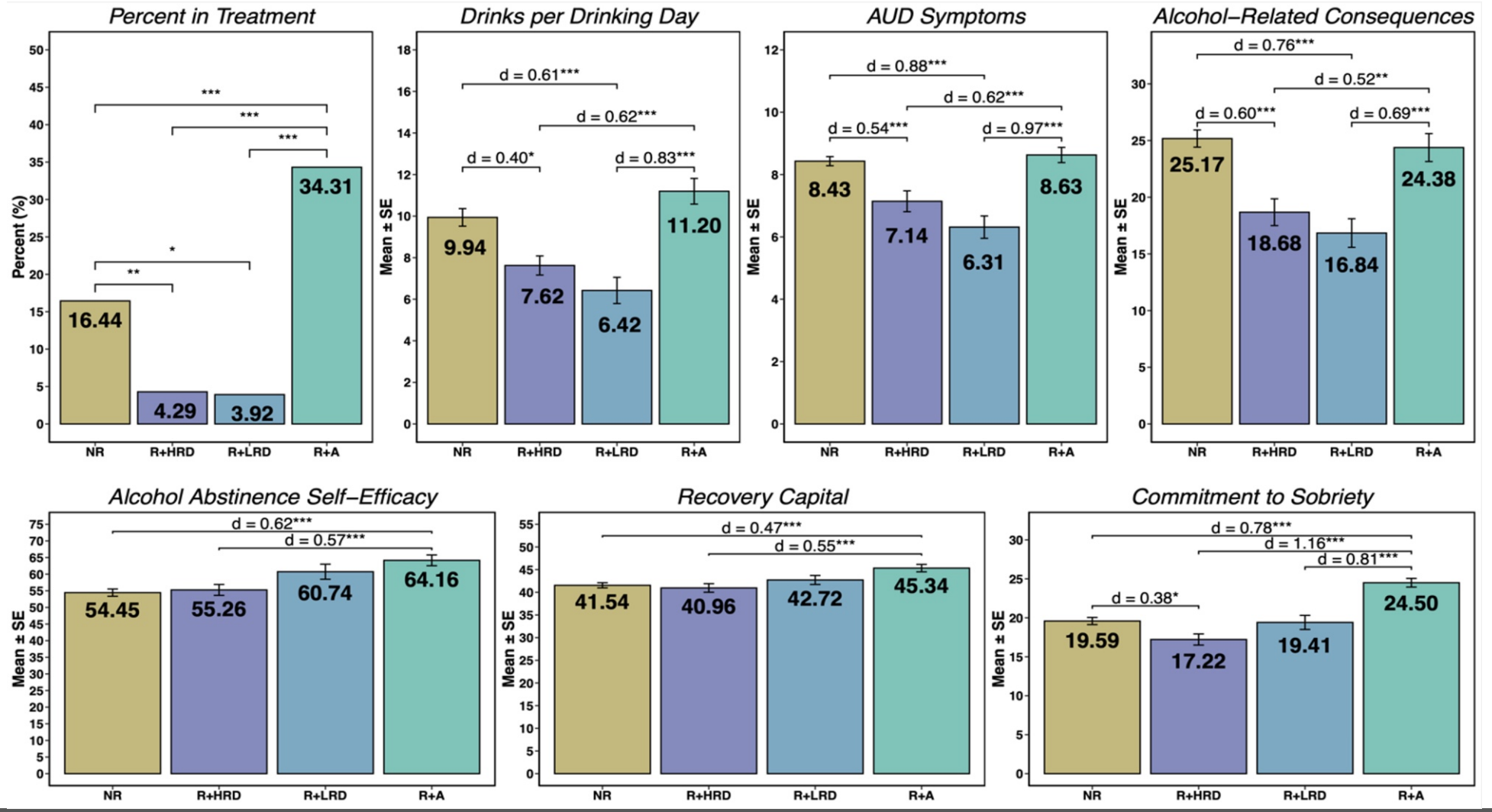


Quality of Life & Well-Being Changes Across Recovery Categories

- Across the 12-month follow-up, **all remission groups** (R + A, R + LRD, R + HRD) experienced **improvements** in quality of life and psychological well-being.
- **R + A** and **R + LRD** showed the **largest and most consistent gains** across quality-of-life and well-being indices.
- **R + HRD** also improved over time but showed **smaller increases**, particularly in **happiness** and **self-esteem**.
- On these domains, R + HRD was **more similar to the NR group**, which demonstrated only **modest improvements**.
- Overall: **Any remission—even non-abstinent—was associated with substantial gains in well-being**, but **abstinent and low-risk drinkers benefited the most**.

Different AUD types or stages associated with different outcome groups…

Figure 3. Mean ± SE of alcohol quantity, severity and recovery capital measures at baseline between groupings of highest attained remission.



Across the 12-month follow-up, **all remission groups** (R + A, R + LRD, R + HRD) experienced **improvements** in quality of life and psychological well-being.

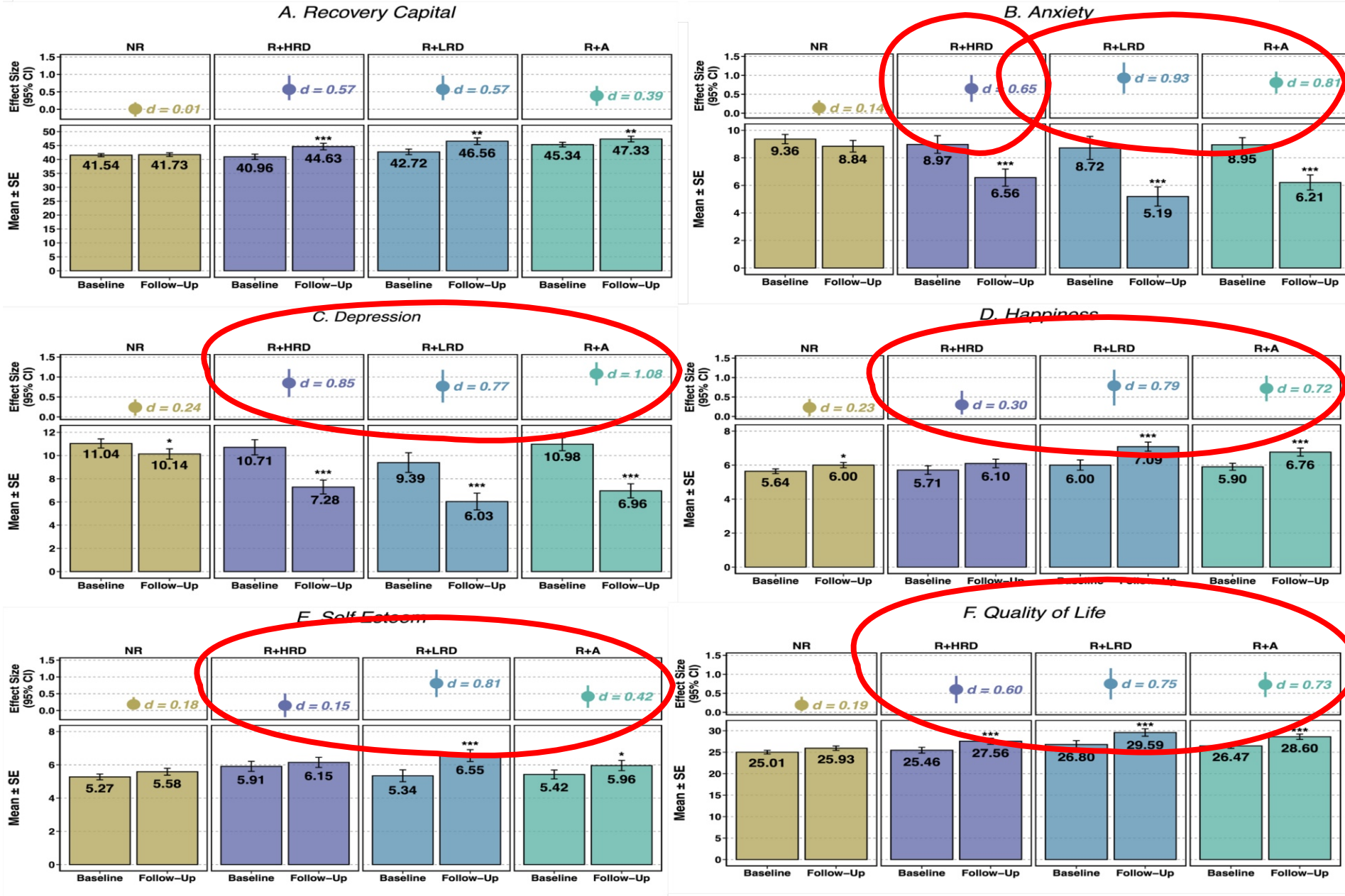
R + A and **R + LRD** showed the **largest and most consistent gains** across quality-of-life and well-being indices.

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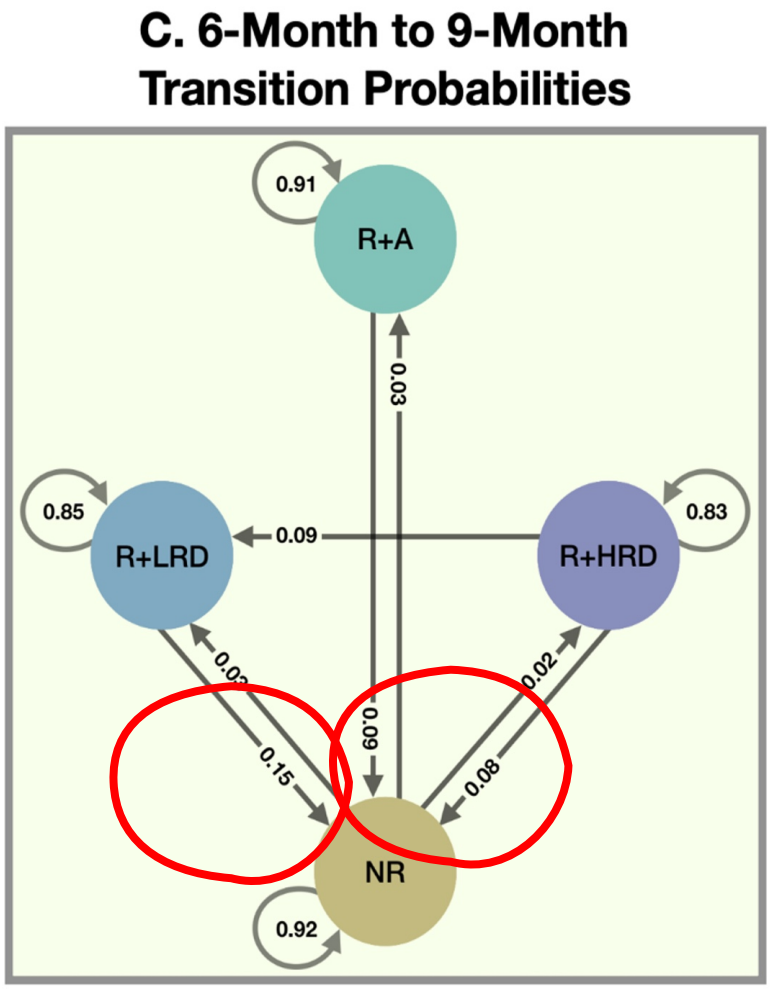
On these domains, R + HRD was **more similar to the NR group**, which demonstrated only **modest improvements**.

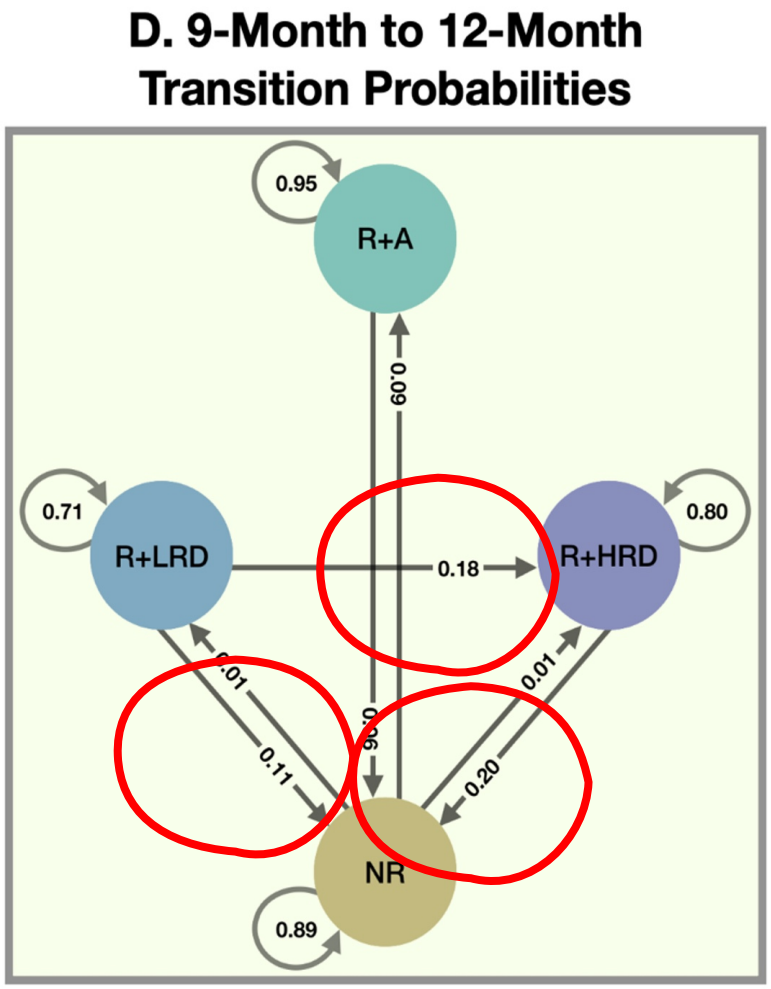
Overall: **Any remission—even non-abstinent—was associated with substantial gains in well-being**, but **abstinent and low-risk drinkers benefited the most**.

Figure 4. Improvements in psycho-social well-being between baseline and follow-up (assessment in which highest level of remission was attained) in: a) Recovery Capital (BARC-10), b) Anxiety symptoms (GAD-7), c) Depressive symptoms (PHQ-9), d) Happiness, e) Self-Esteem, and f) Quality of Life (EUROHIS-QoL). * = p < 0.05; ** = p < 0.01; *** = p < 0.005



In sum,
While AUD cases are in remission, independent of alcohol use, they show many improvements, but remission with heavier alcohol use is associated with less improvements particularly in self-esteem and happiness
Abstinent remission shows many large improvements and this group may represent a may more severe phenotype in many ways similar to the NR group suggesting the NR group could be the same phenotype but at an earlier stage in the change process on their way to abstinent remission in the future given the right resources...



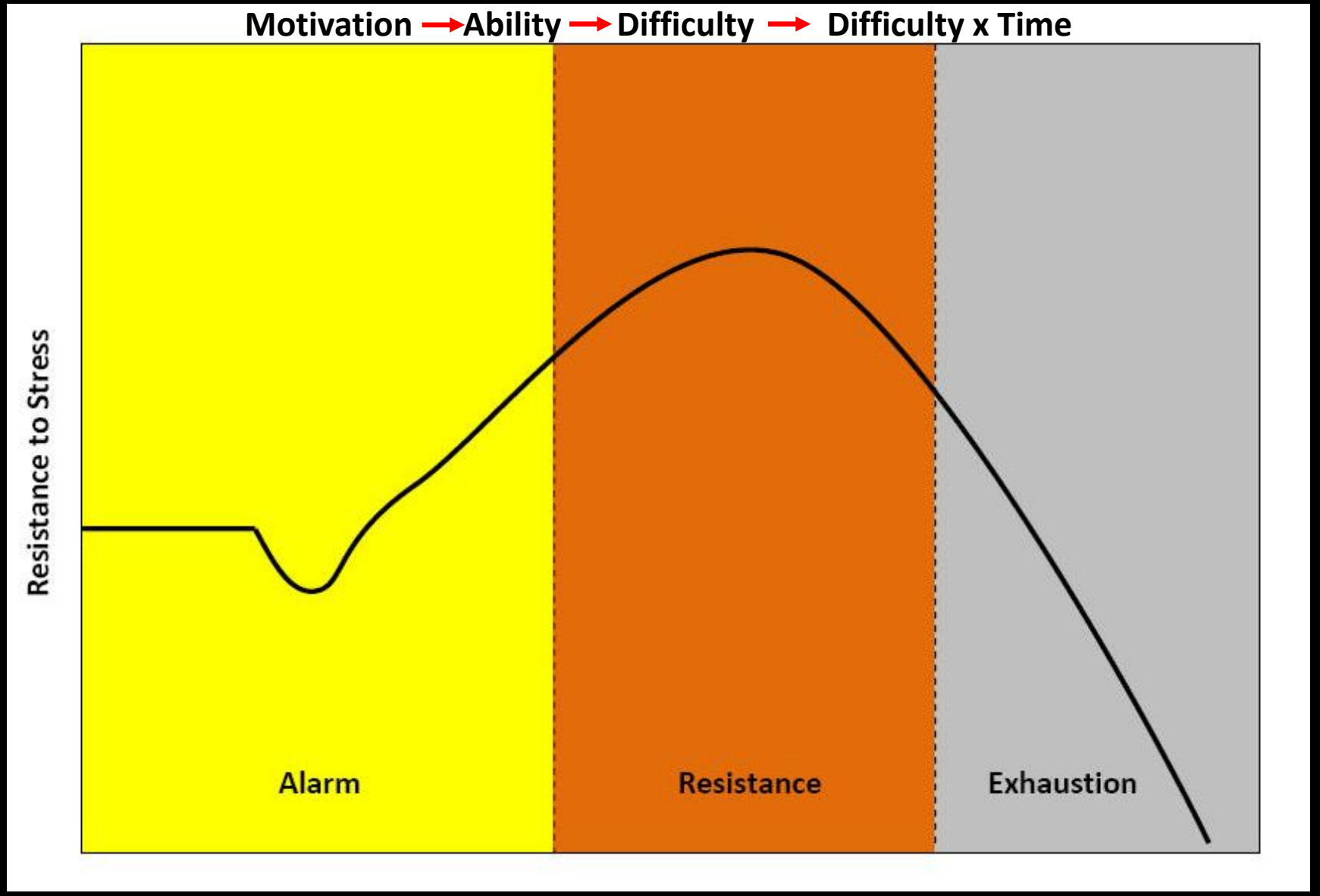


Conclusions and Implications

- While in remission, drinking groups show gains, **but the challenge is how to stay in remission** despite the varying degrees of alcohol exposure which appears to destabilize remission and lead back to AUD recurrence for many

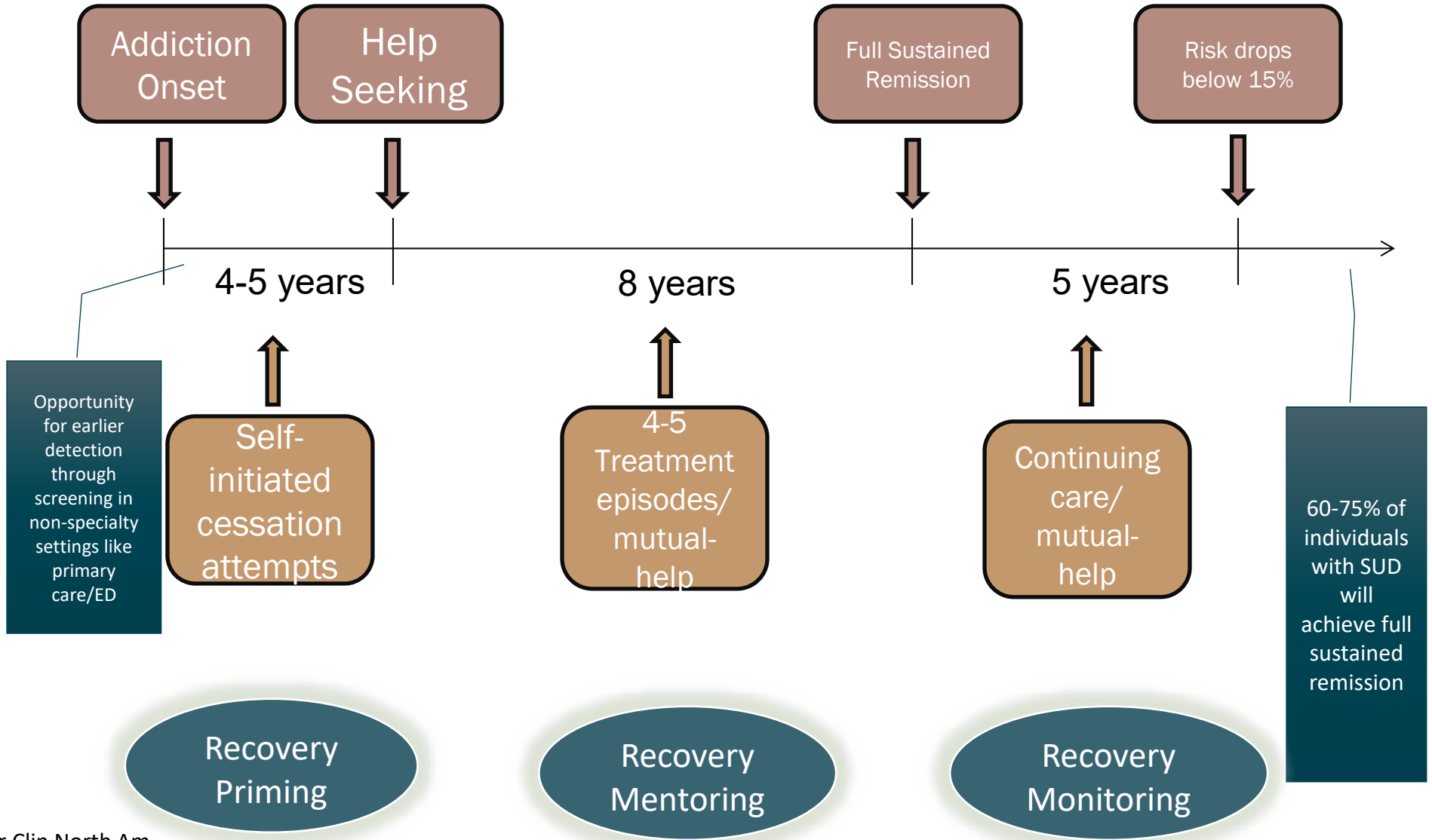
- Mechanisms through which alcohol exposure may increase AUD reinstatement could be **indirect and direct**: through increased socio-ecological alcohol-environment re-exposure, sedation, compromised cognitive appraisal/judgement, decision-making, increased disinhibition and craving

Allostasis (maintaining an organism's stability [homeostasis] through change) occurs both during the development of addiction and of recovery…



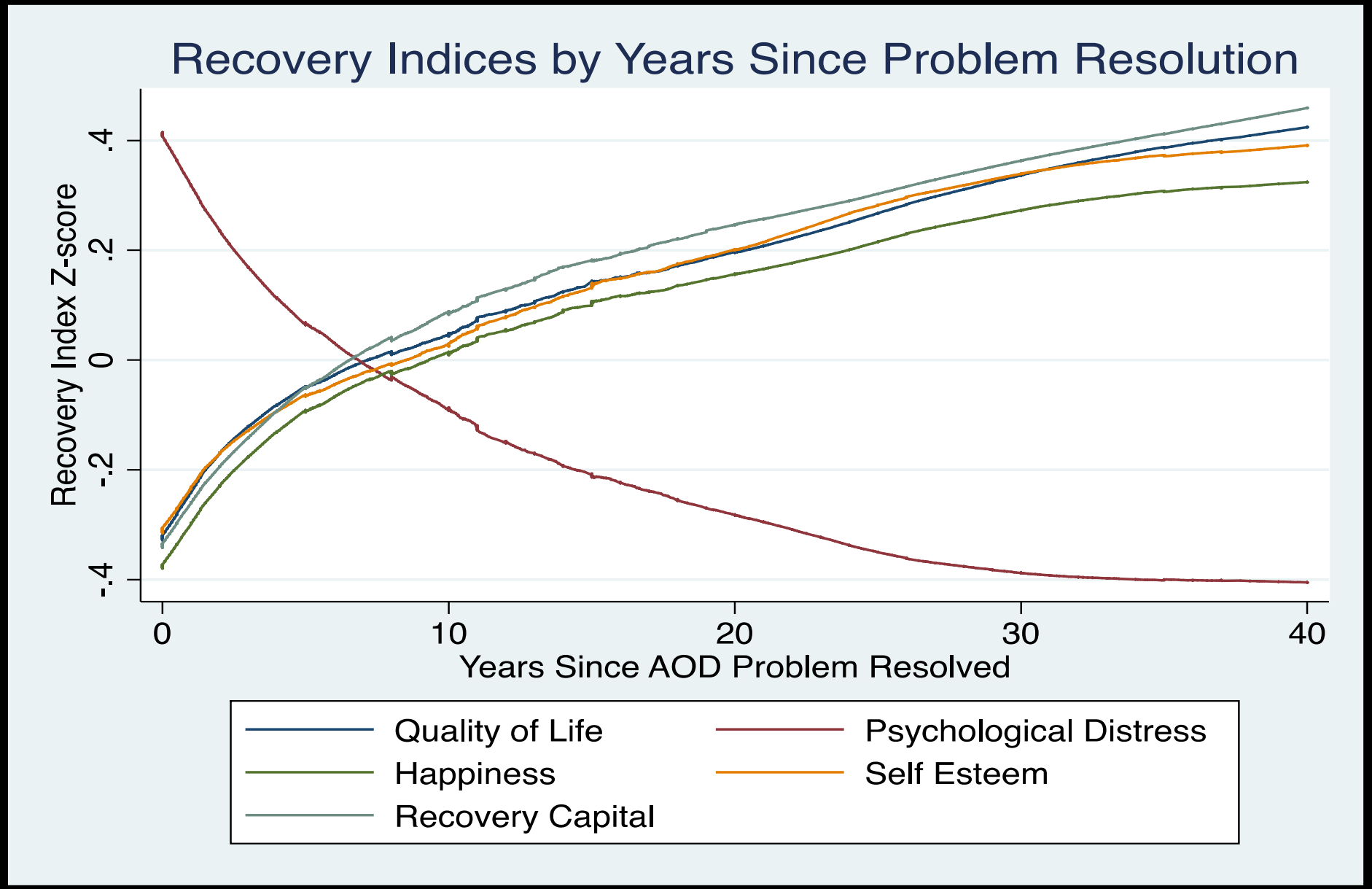
Adapted from Selye, 1956; McEwen, 1998; 2009

The clinical course of addiction and achievement of stable recovery can take a long time …



Kelly JF (2022) Psychiatr Clin North Am

40-Year Temporal Horizon of Recovery Trajectories



National Recovery Study (NRS) N=2,002

Kelly et al, 2018; *Beyond Abstinence; Alcoholism: Clinical Experimental Research*

Main Points

- AUD heterogeneity and phenotypes
- Multiple Pathways to Recovery
- Recovery trajectories
- Long-Term Relapse and Implications for Disease Management in AUD

Long-Term Relapse? What Happens?

Markers, Mechanisms, and Implications for Disease Management



RECOVERY RESEARCH INSTITUTE

frontiers | Frontiers in Public Health

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Long-term relapse: markers, mechanisms, and implications for disease management in alcohol use disorder

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Department of Psychiatry, Recovery Research Institute, Massachusetts General Hospital, Harvard Medical School, Boston, MA, United States

Objective: Much has been theorized and documented about factors involved in alcohol use disorder (AUD) relapse during the early months following a recovery attempt where biobehavioral classical conditioning ("cues/triggers") and neurophysiological explanatory theories predominate. Little has been documented, however, about long-term relapse (LTR) factors following sustained AUD remission where self-regulation and stress and coping theories may predominate because LTR precursors are centered less around neurophysiological dysregulation and cue reactivity and more around factors such as lowered recovery vigilance, avoidant coping, or changes in recovery-support services (RSS) usage. Greater knowledge of factors involved in LTR could sensitize and empower clinicians to deliver more effective disease management protocols to monitor and intervene upon such risks *prior* to AUD recurrence.

Methods: Cross-sectional, retrospective study of individuals in recovery from primary AUD ($N = 50$; 44% Female; 50% White) who had experienced LTR within the past 5 years following at least 1 year of remission (*M* years remitted prior to relapse = 3.6; range = 1–23) and assessed for any change in bio-psycho-social domains or RSS usage during the year prior to LTR, along with their attributions of factors' contribution to relapse (risk "potency"; i.e., didn't contribute, possibly, probably, or definitely, contributed). Research questions focused on the year preceding the LTR assessing: (1) prevalence and nature of the bio-psycho-social and RSS use changes and degree of attributed LTR risk potency; (2) number and type of definitely-contributing relapse factors within participants; (3) dynamic temporal onset and nature of high-risk LTR precipitants; (4) single most influential LTR risk factor.

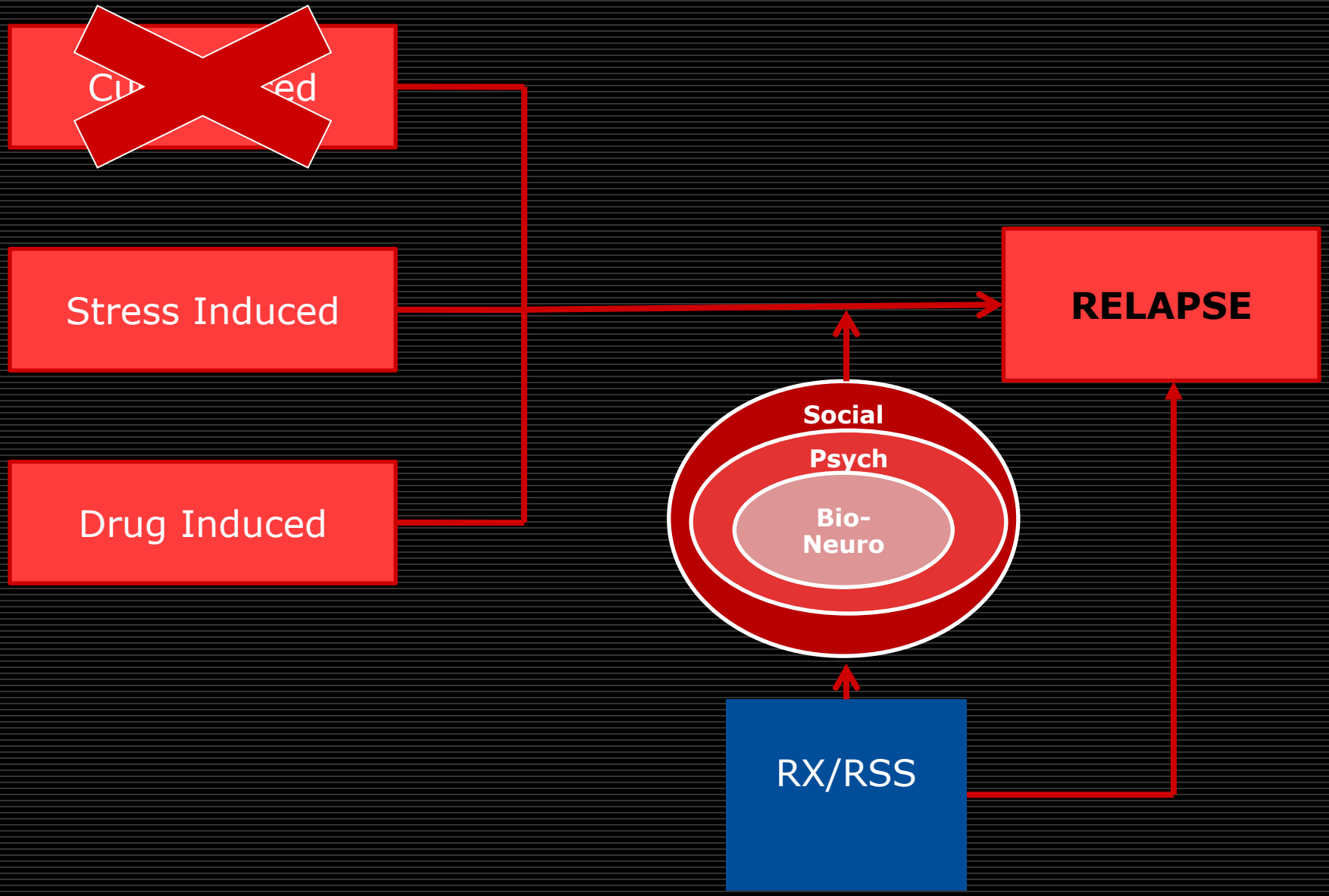
Results: Several bio-psycho-social and RSS changes occurred during the year preceding LTR varying in prevalence and potency. Some were prevalent, but not potent, in terms of definitely contributing to LTR (e.g., sleep, energy); others occurred infrequently, but were potent (e.g., physical pain, recreational drug use); others were both highly prevalent and highly potent (e.g., change in recovery vigilance). Within participants, median number of definitely contributing LTR factors = 4, covering 2 different domains, on average. Temporal accumulation of LTR risks tended to intensify toward the relapse horizon over the preceding year. The single most important relapse factor tended to cluster in psychological (e.g., recovery vigilance, mental health) and social domains.

Conclusions: Findings have implications for long-term disease management during AUD recovery providing a set of potential preliminary markers and mechanisms that might be assessed, monitored, and, when necessary,

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Main Precursor Relapse Risk Domains



Kelly, JF Yeterian, JD In: McCrady and Epstein *Addictions*: *A comprehensive Guidebook, Oxford University Press (2013)*

Factors involved in long-term AUD relapse

Biological Factors

- Pain (e.g., chronic or acute)
- Sleep (e.g., quality, duration, insomnia)
- Energy level (e.g., fatigue)
- Appetite and eating (e.g., changes in hunger or eating patterns)
- Medical problems (e.g., chronic conditions)
- Weight change (e.g., gain or loss)
- Tobacco use change (e.g., quit, reduced, continued)

Psychological Factors

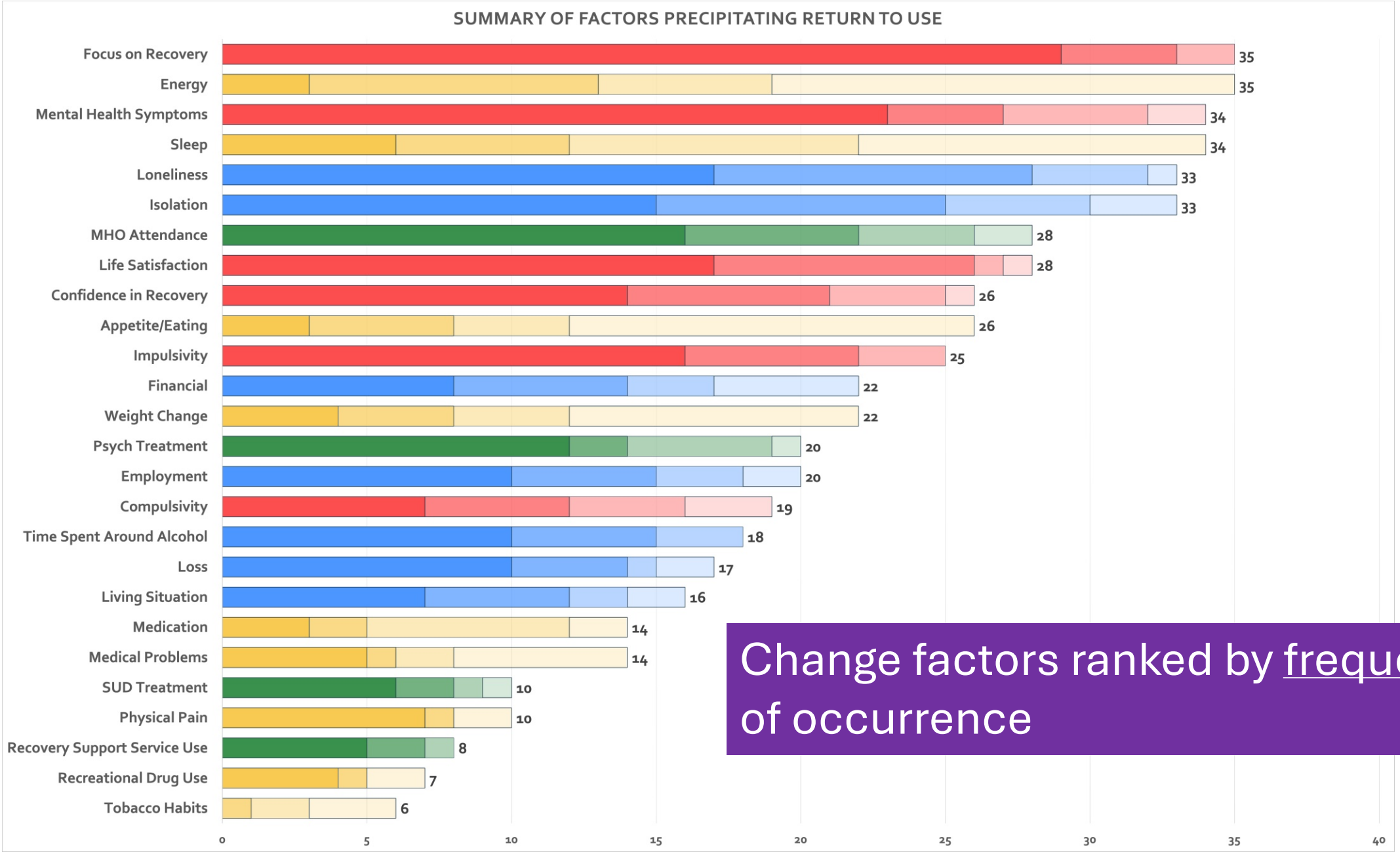
- Motivation and readiness to change
- Coping skills and emotion regulation
- Mental health conditions (e.g., depression, anxiety, trauma/PTSD)
- Self-efficacy and confidence in recovery
- Expectancies about alcohol and recovery
- Personality traits (e.g., impulsivity, sensation seeking, resilience)
- Meaning, purpose, and identity development

Social Factors

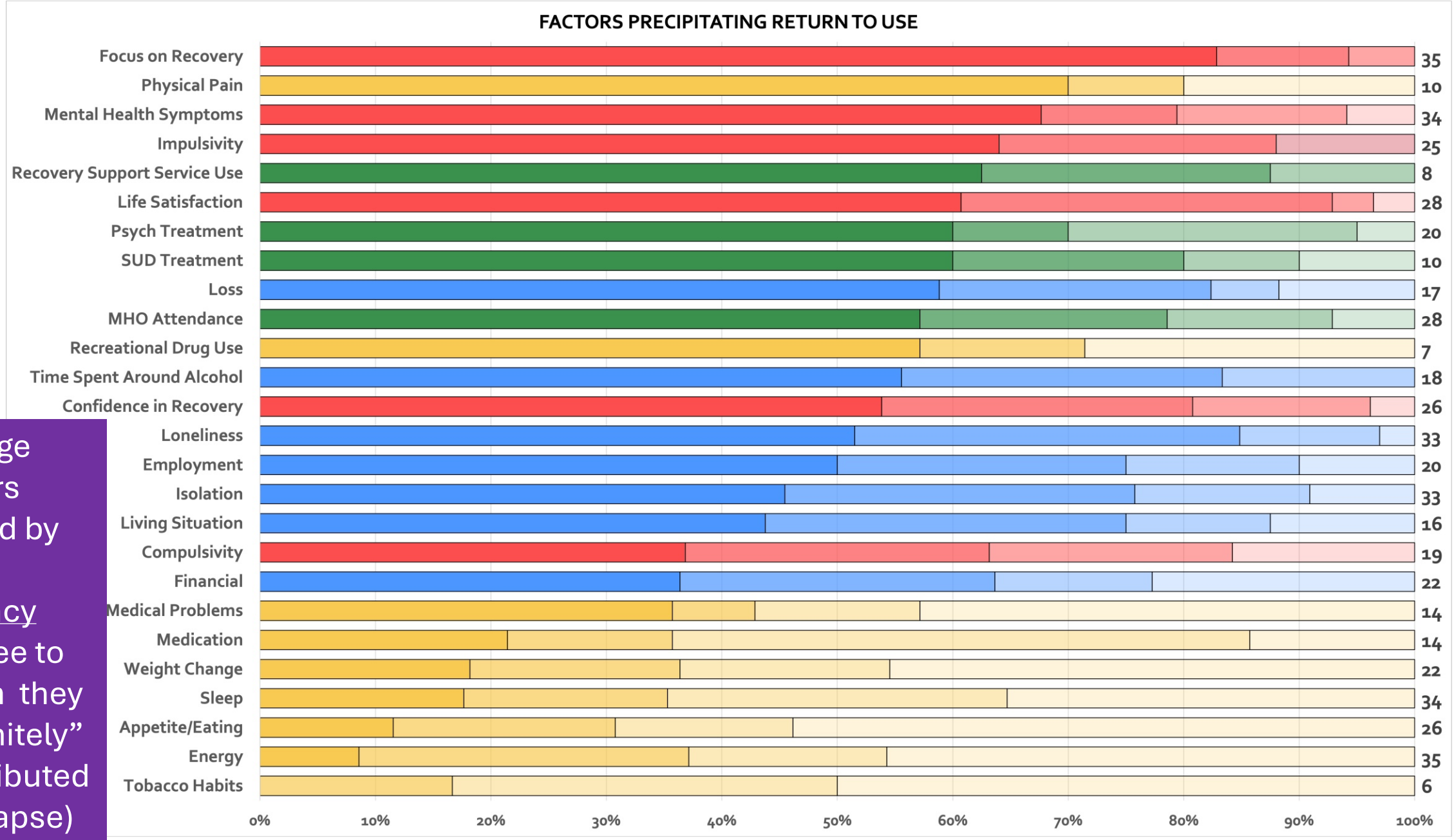
- Family relationships and support
- Peer networks and social norms
- Partner/spouse support
- Housing stability
- Employment and financial stability
- Exposure to alcohol in the environment
- Community connectedness and belonging
- Social determinants of health (e.g., stigma, discrimination, legal involvement)

Treatment / Recovery Services Factors

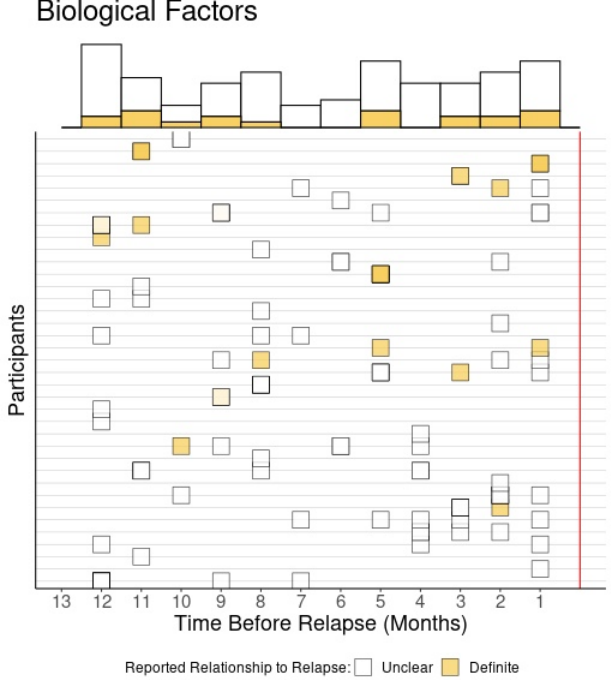
- Access to and engagement in treatment
- Type and intensity of services (e.g., outpatient, inpatient, residential)
- Medications for AUD (e.g., naltrexone, acamprosate, disulfiram)
- Participation in mutual-help and peer recovery supports (e.g., 12-step, SMART Recovery, recovery community organizations)
- Continuing care and aftercare planning
- Recovery-supportive systems (e.g., recovery housing, sobriety courts, employment/recovery programs)
- Quality, culturally responsive, and person-centered care

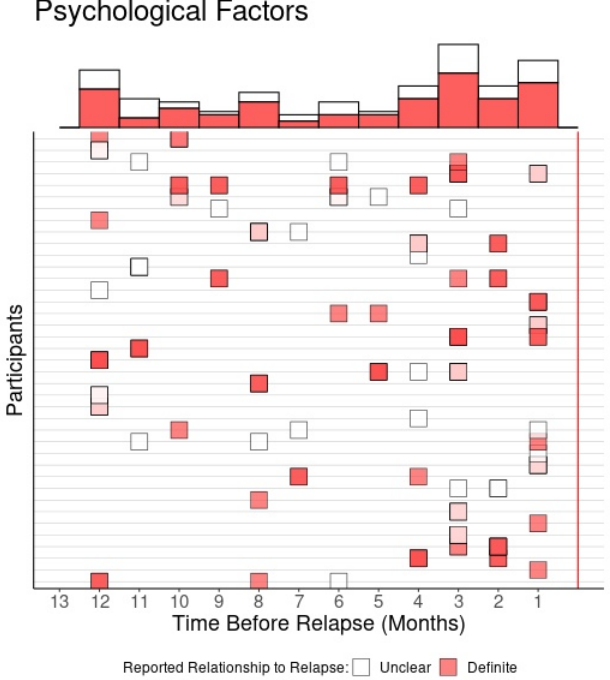


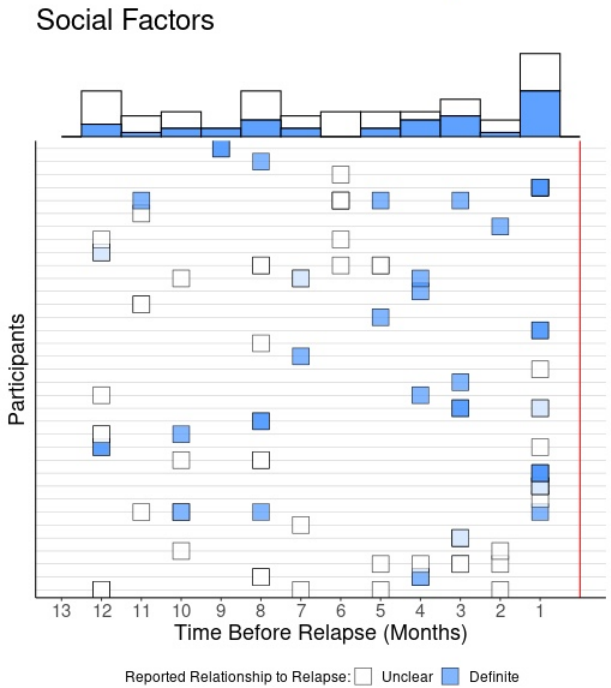
Change factors ranked by <u>frequency</u> of occurrence

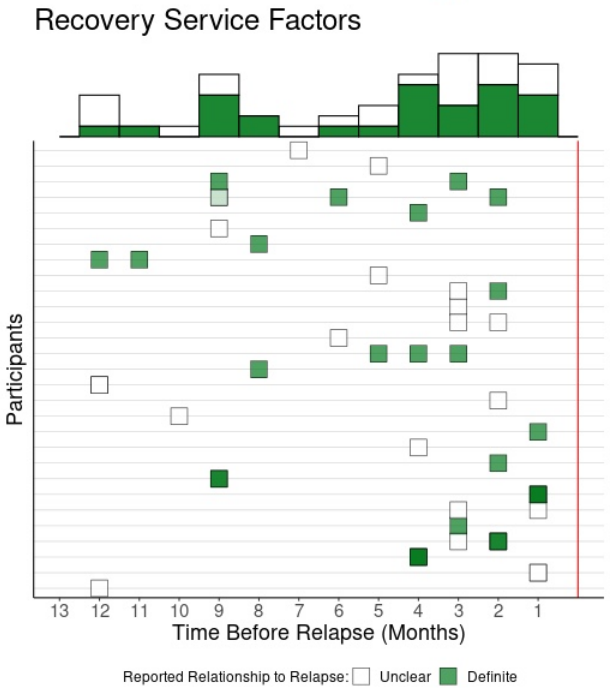


Change factors ranked by risk potency (degree to which they "definitely" contributed to relapse)









Note: boxes represent factors reported to have changed in the year prior to relapse.
Darker boxes result from an overlap of multiple changes indicated on the same time point.

Marginal graphs show change in frequency of reported change factors across 12 months prior to relapse horizon - darker colors represent proportion that "definitely contributed" across the entire sample

Limitations



Self-selecting sample, relatively small

- Participants were recruited from a recovery cohort and self-selected to participate, which may limit generalizability. The sample size, while appropriate for an in-depth qualitative study, was relatively small.



Recall bias and memory construction

- Participants retrospectively identified changes in the year preceding relapse, which may be subject to recall bias and influenced by current perspectives and meaning-making.



Many interrelated risk factors

- A large number of potential relapse risk factors were reported, and several were likely related to increases in risk within individuals, making it difficult to determine the relative contribution of specific factors.



Complex, dynamic process

- Findings underscore a multifaceted and dynamic long-term relapse risk scenario involving multiple, likely intersecting, factors that warrant continued research to better understand their nature and temporal sequencing.

Clinical Implications for Long-Term Disease Management



Checklist for patients to complete prior to ongoing visits

- Based on the variety of psychological, social, recovery health services, and biological factor changes that occurred in the year preceding long-term AUD relapse in this study, we developed a **checklist** for patients to complete prior to ongoing visits involved in long-term disease management.
- This checklist highlights several key markers and potential mechanisms that could be incorporated into routine clinical care.



Checklist may serve as a stimulus and foundation for broader clinical discussion

- The presence of one or more of these factors may **alert a clinician to focused discussion and intervention;** otherwise, the checklist can serve as a stimulus and foundation for broader clinical discussion about the need for continued AUD recovery focus.
- Using this checklist in ongoing care can help identify emerging risks, address challenges early, and support sustained recovery, ultimately helping to prevent further morbidity and mortality associated with AUD recurrence.

APPENDIX I

POTENTIAL DISEASE MANAGEMENT AND MONITORING QUESTIONNAIRE FOR USE IN CLINCIAL RESEARCH ON ALCOHOL USE DISORDER RECOVERY AND LONG-TERM RELAPSE BASED ON STUDY FINDINGS

Rate your level of agreement with the following statements about significant changes you may have experienced since your last appointment

Biological

	Not at all	A little bit	Moderately	Quite a bit	A lot
	0	1	2	3	4
I have been having problems with sleep.					
I have been experiencing changes in my energy levels.					
I have been having problems with appetite and/or eating habits.					
I have been experiencing significant weight changes.					
I have been suffering from chronic/ ongoing pain.					
I have been using recreation drugs to get high or change how I am feeling.					
I have been making changes in my use of tobacco (started using or quitting tobacco).					
I have been having physical health problems.					
My medications have changed.					

Psychological

	Not at all	A little bit	Moderately	Quite a bit	A lot
	0	1	2	3	4
I have been feeling more impulsive than usual					
I have been focusing less on my own recovery					
I have been feeling less confident I can sustain my recovery					
I have been feeling dissatisfied with my life					
I have been feeling more compulsive than usual					
I have been having trouble with mental health symptoms					

Social

	Not at all	A little bit	Moderately	Quite a bit	A lot
	0	1	2	3	4
I have been spending more time around alcohol.					
I have become more socially isolated.					
I have been feeling lonely.					
My employment situation has changed.					
I have been affected by the loss of someone close to me					

Such a clinical checklist might be deployed in long-term disease management (e.g., in recovery management check-ups)…

Kelly et al (2026) *Frontiers in Public Health*

Monitoring Long-Term Relapse Risk in AUD

Brief assessment of meaningful changes since the patient's last appointment

BIOLOGICAL

- Sleep problems
- Energy changes
- Appetite/eating changes
- Weight changes
- Chronic/ongoing pain
- Recreational drug use
- Tobacco-use changes
- Physical health problems
- Medication changes

PSYCHOLOGICAL

- Greater impulsivity
- Less focus on recovery
- Lower confidence in sustaining recovery
- Life dissatisfaction
- Greater compulsivity
- Mental health symptoms

SOCIAL

- More time around alcohol
- Social isolation
- Loneliness
- Employment change
- Loss of someone close
- Living-situation change
- Financial change

RECOVERY SUPPORT

- Change in addiction treatment
- Change in mutual-help/12-step attendance
- Change in recovery-support services
- Change in psychiatric medication or counseling

How the Assessment Can Be Used

A simple 0–4 response scale supports both structured monitoring and clinical conversation

0	1	2	3	4
Not at all	A little bit	Moderately	Quite a bit	A lot

DOMAIN SCORING

Biological _____ /36

Psychological _____ /24

Social _____ /28

Recovery support services _____ /16

TOTAL _____ /104

CLINICAL USE

- Look for new or worsening changes across domains—not just the total score.
- Use endorsed items to identify potential threats to recovery stability.
- Any endorsed item can become a focused point of clinical discussion.
- Repeat over time to make changes in recovery vigilance and supports visible.

Questionnaire scoring: Biological /36; Psychological /24; Social /28; Recovery Support Services /16; Total /104

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Thank you!

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recoveryanswers.org

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