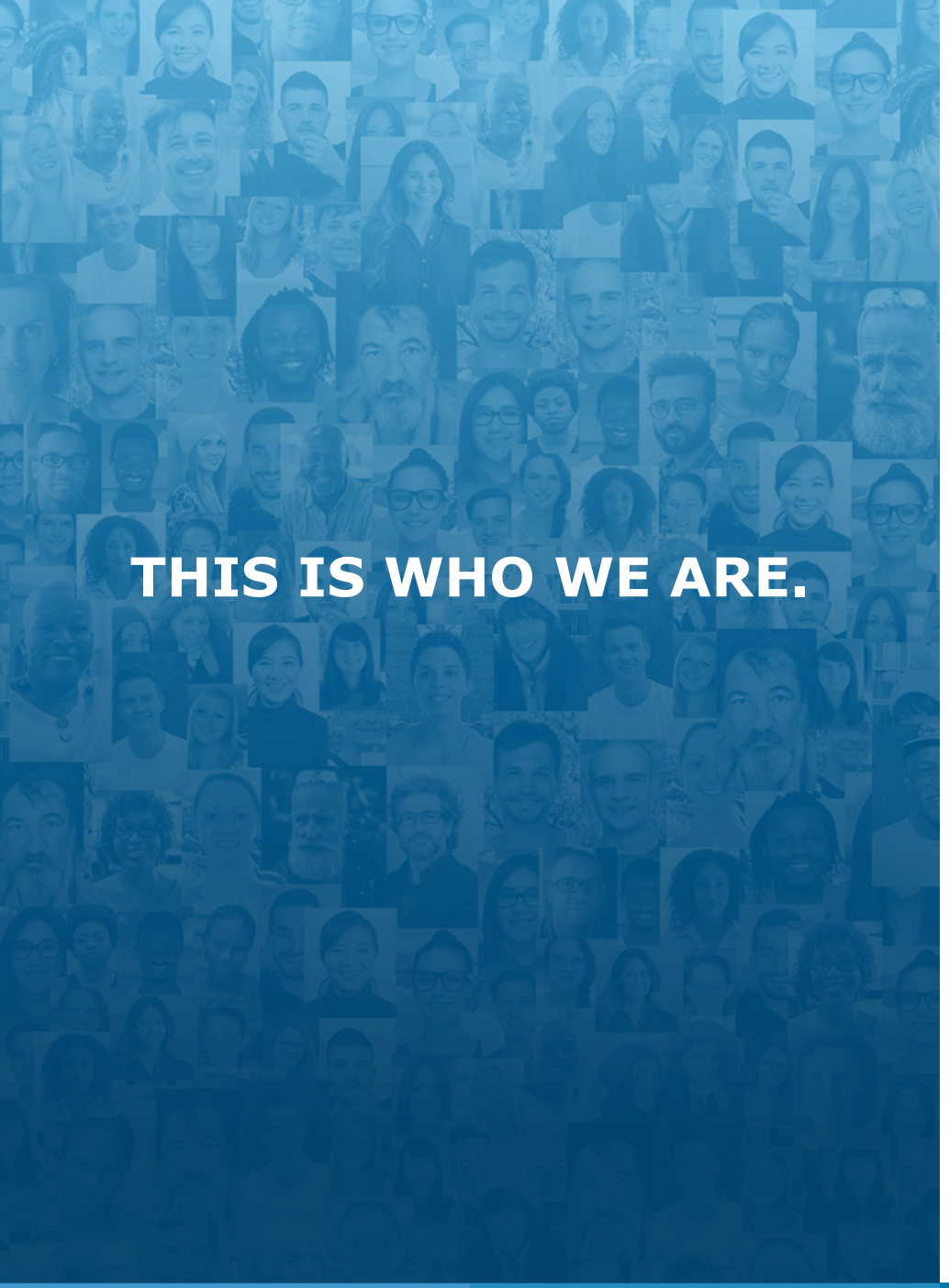

FACES & VOICES OF RECOVERY

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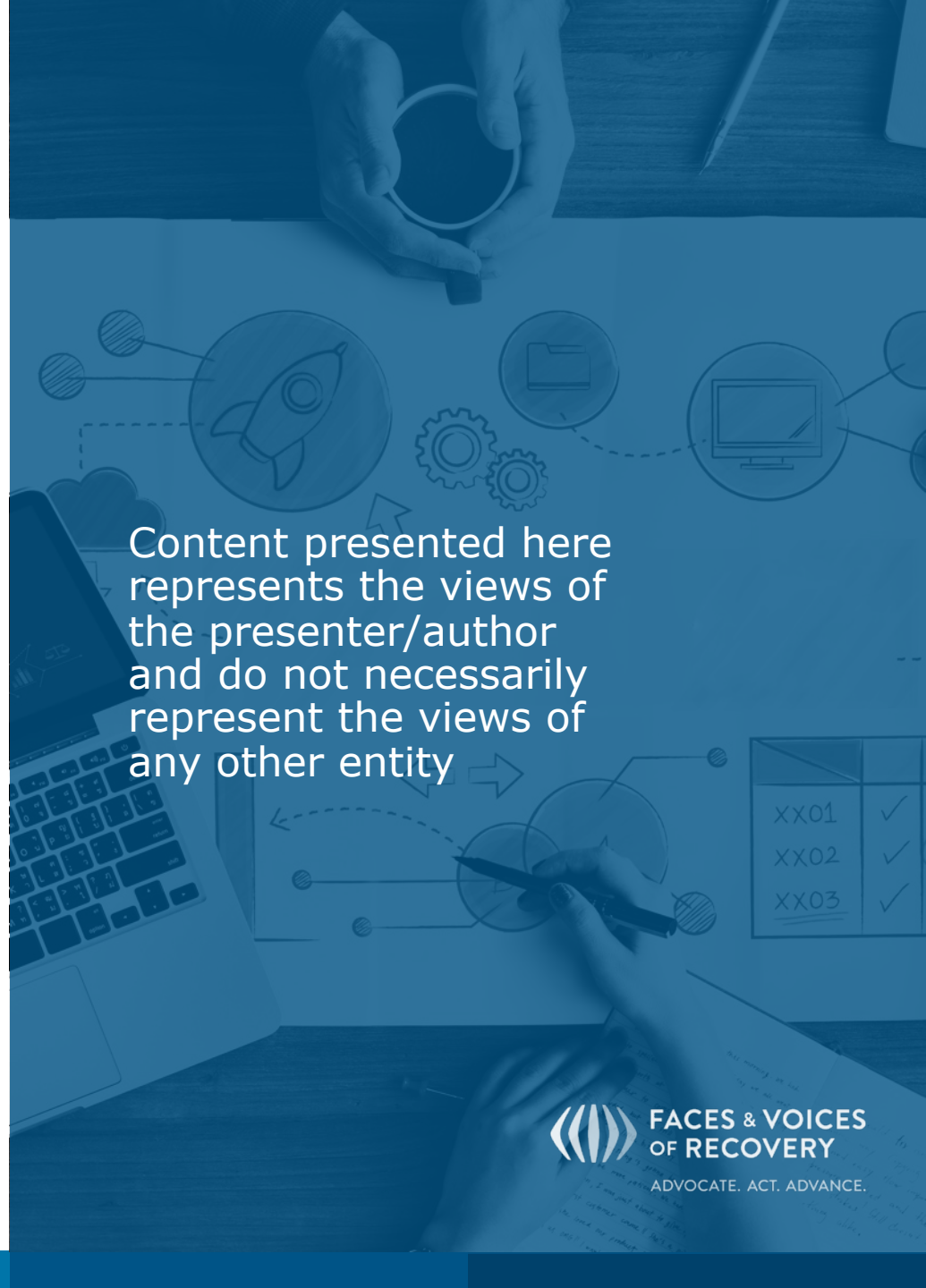
Recovery Community Centers: Science and Rationale

presented by

John F. Kelly, PhD ABPP
Elizabeth R. Spallin Professor of Psychiatry in Addiction Medicine
Harvard Medical School
Director Recovery Research Institute
Associate Director Center for Addiction Medicine
Massachusetts General Hospital



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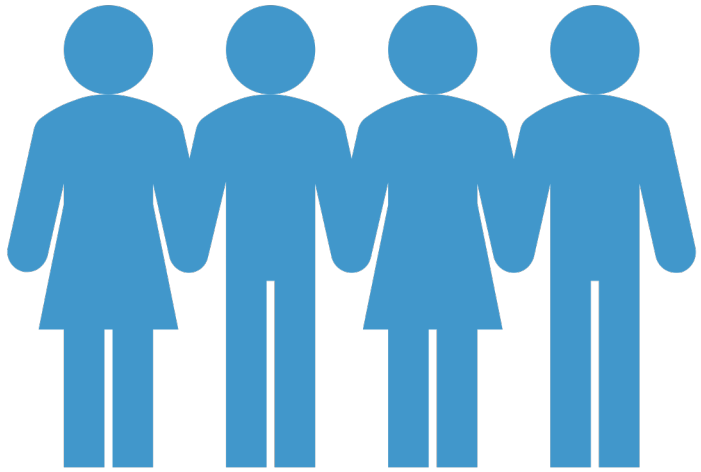
Rationale and Context for the Growth of Recovery Community Centers



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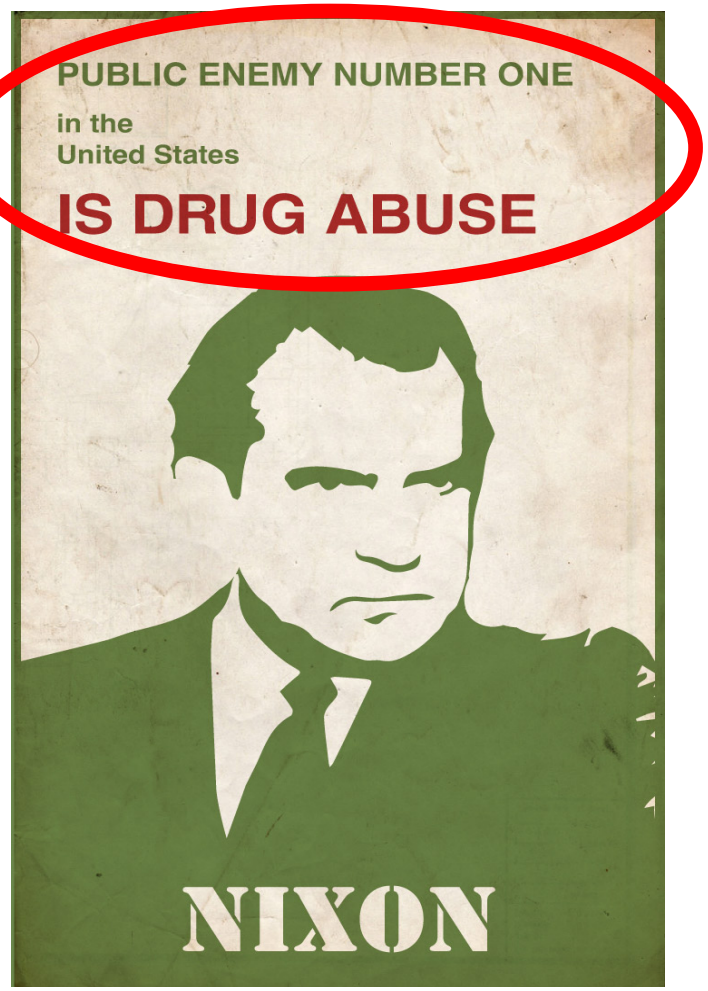
1970

During the past 50 yrs since “War on Drugs” declared, we have moved from “Public Enemy No. 1” to “Public Health Problem No. 1”



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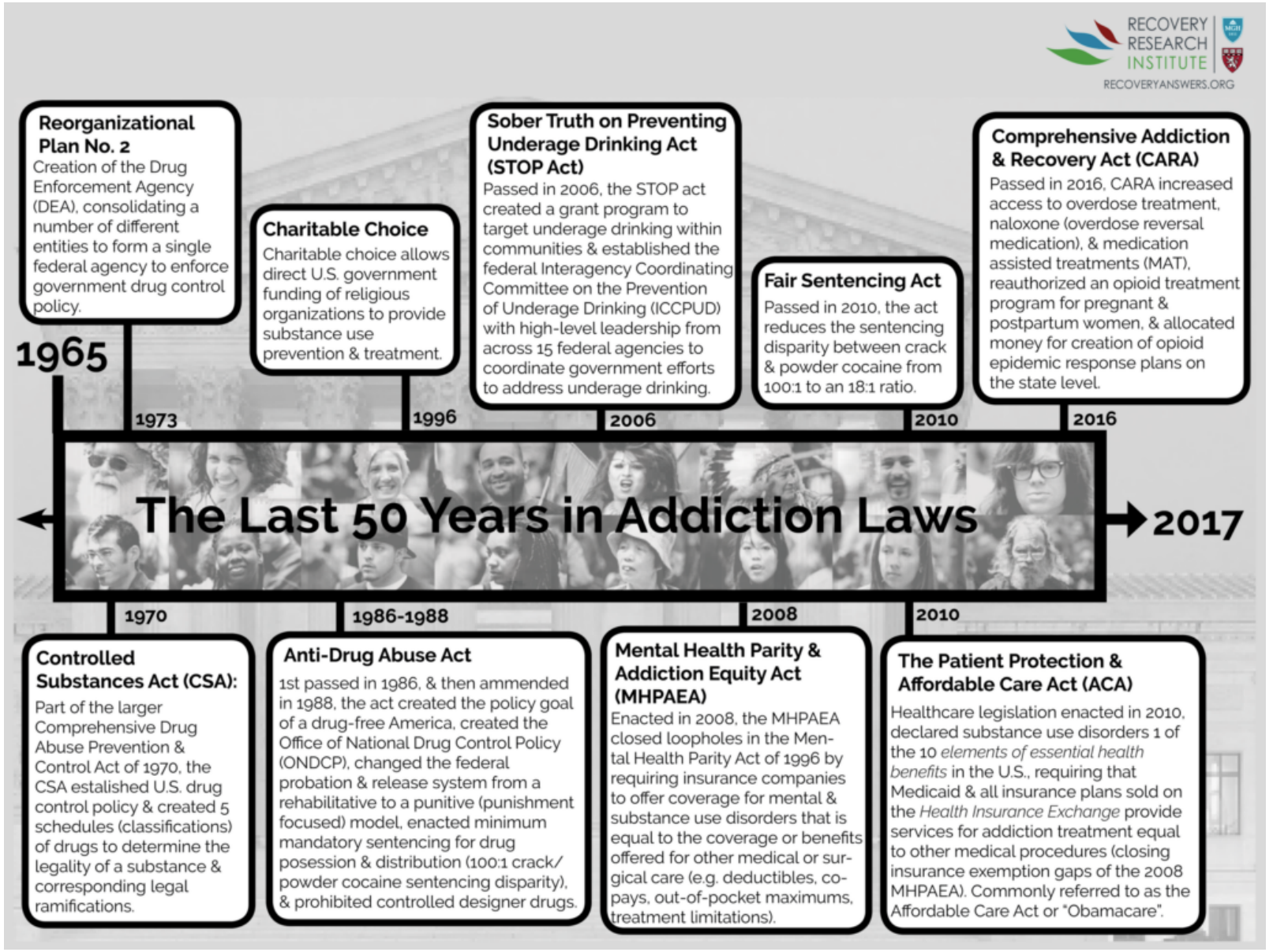

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Laws passed in the past 50 yrs have moved from more punitive ones to public health oriented ones…. increasing availability, accessibility and affordability of treatment..

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“War on drugs”

“War on the war” on drugs

BUT… not just about interdiction, supply reduction, incarceration….

Also, a great deal carried out on the demand reduction side…

The “war on drugs” was part of a national concerted effort to reduce “supply” but also “demand” that created treatment and public health oriented federal agencies..

NIAAA
National Institute on Alcohol Abuse and Alcoholism

NATIONAL INSTITUTES OF HEALTH

NIDA
NATIONAL INSTITUTE ON DRUG ABUSE

SAMHSA
Substance Abuse and Mental Health Services Administration

CSAT
Center for Substance Abuse Treatment
SAMHSA

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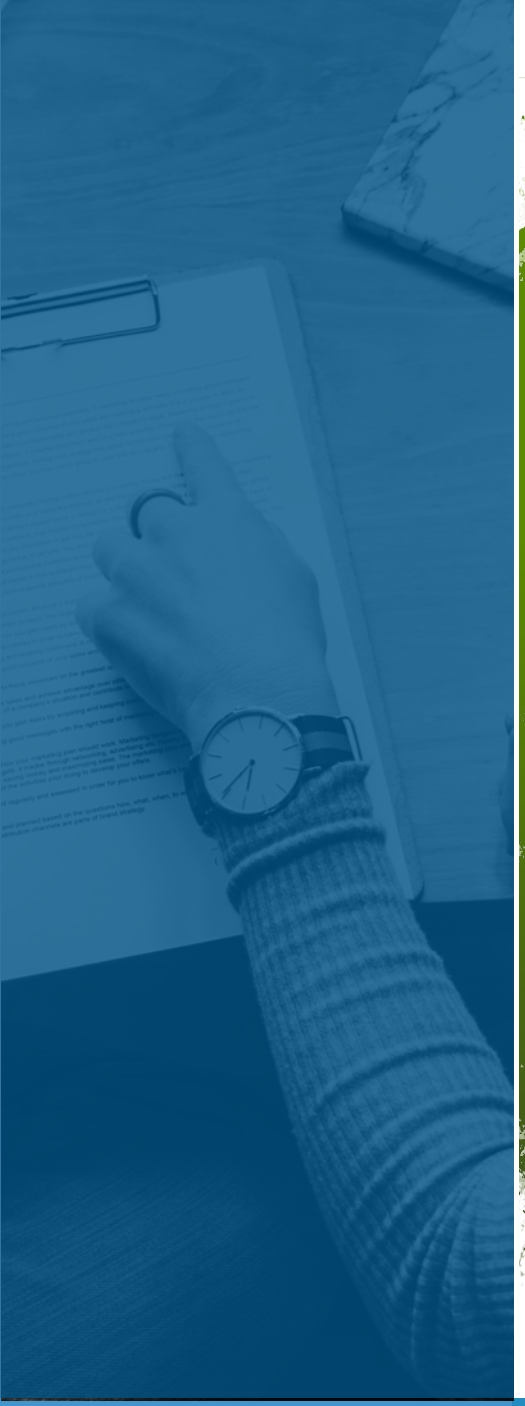

Paradigm Shifts

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Genetics, Genomics, Pharmacogenetics

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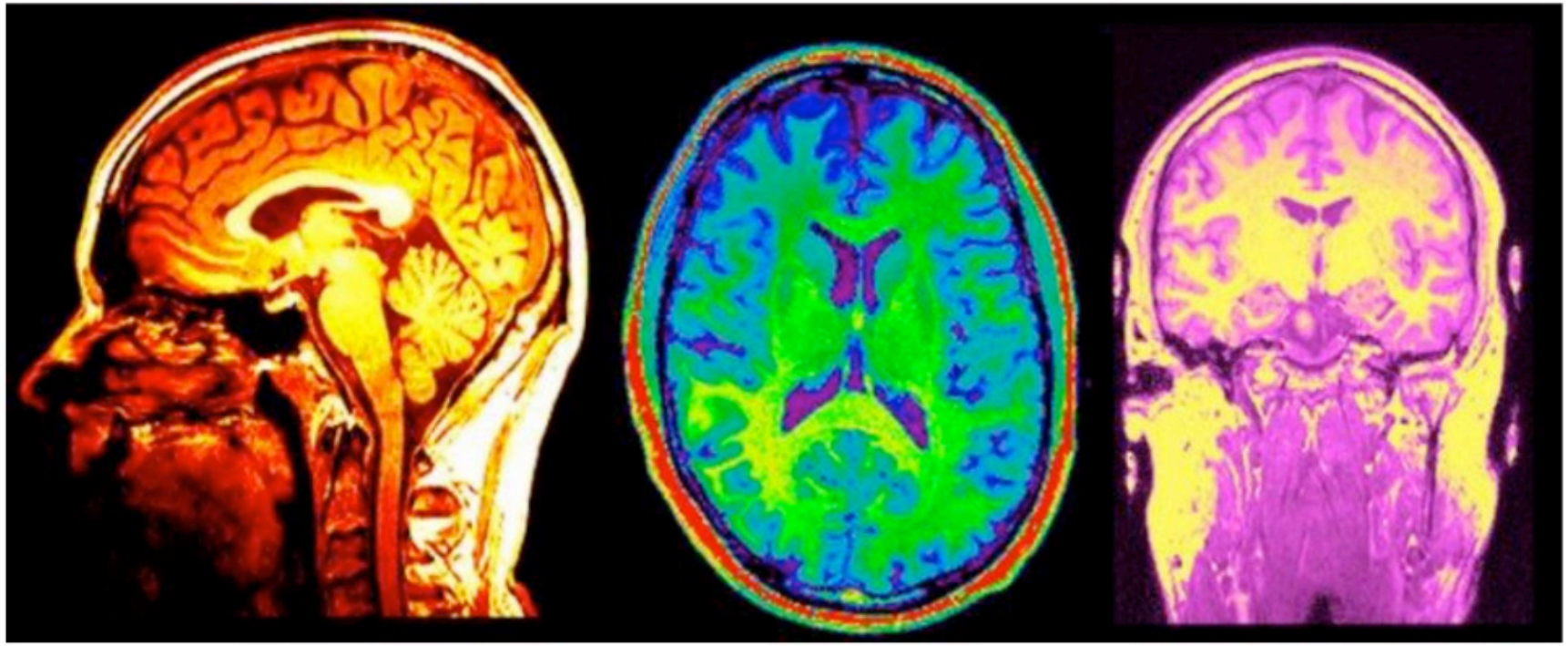
Neuroscience: Neural Plasticity



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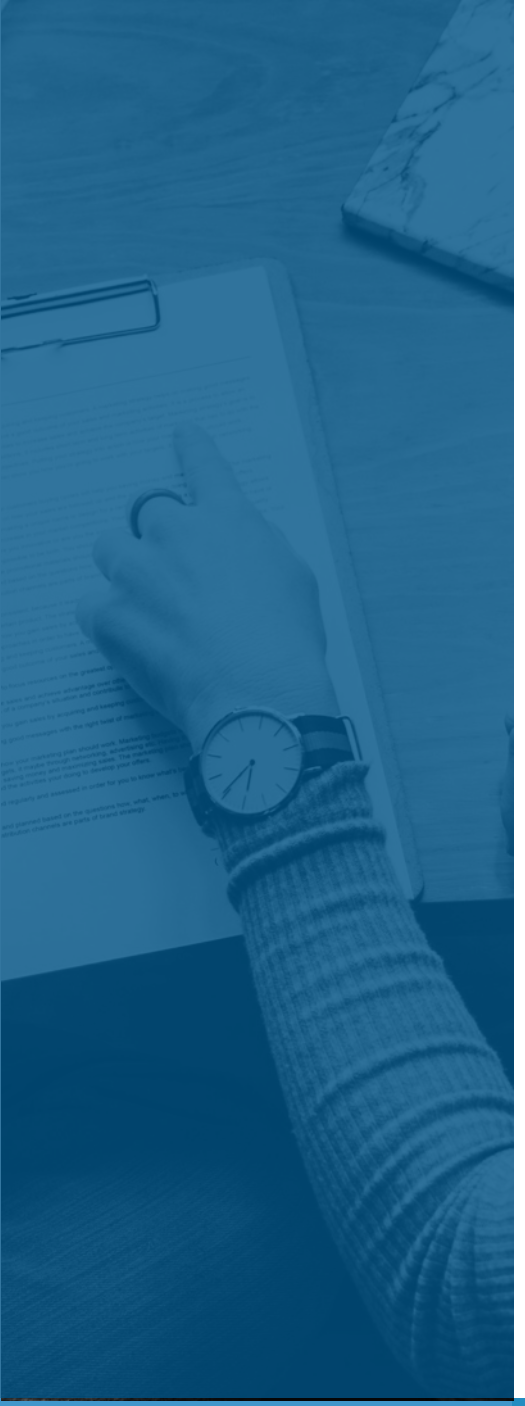
MULTIPLE PATHWAYS TO RECOVERY

- Acknowledges myriad ways in which individuals can recover:

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

- Non-clinical pathways (services not involving clinicians like AA)

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



"Quitting smoking is easy, I've done it dozens of times" –Mark Twain

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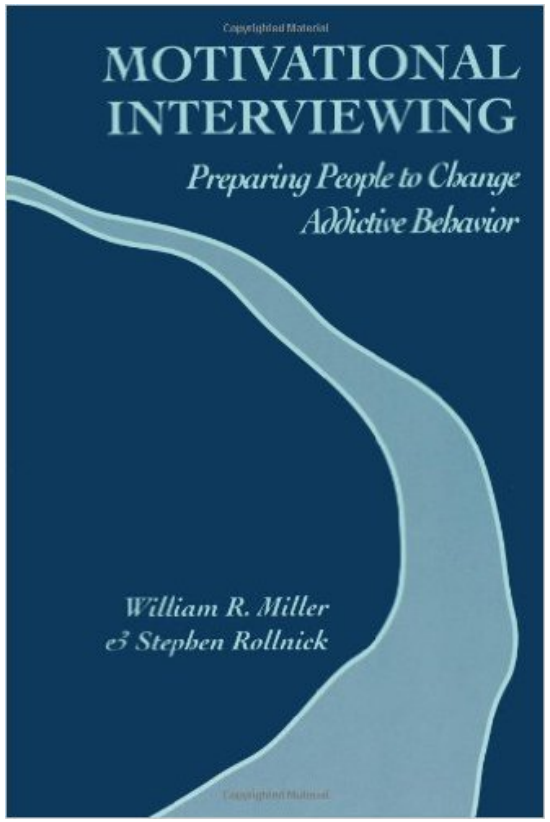
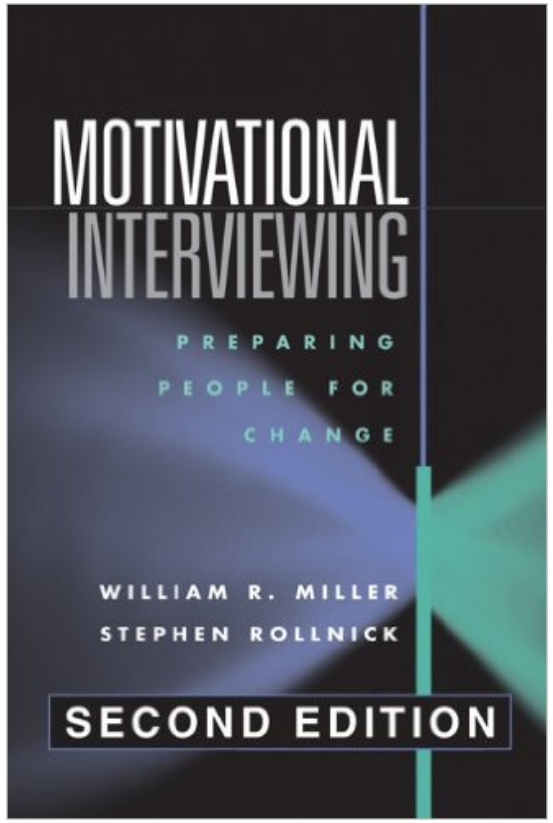
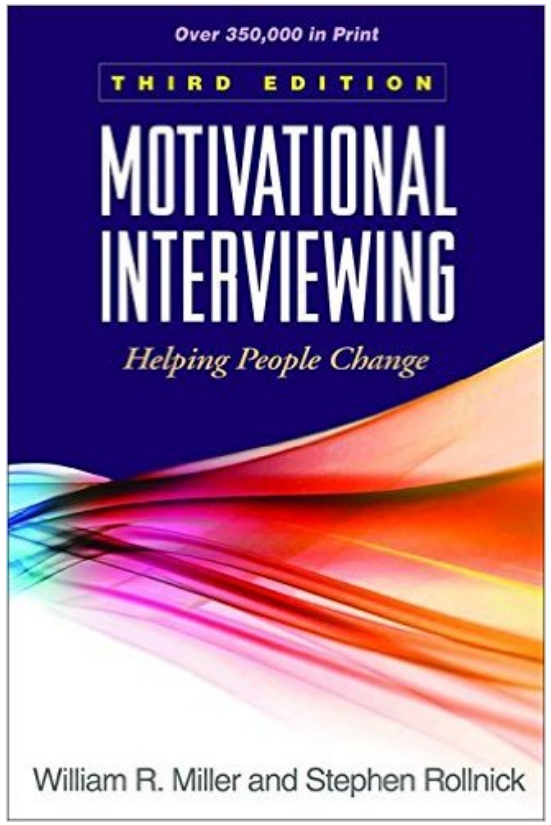
What people really need is a good listening to…







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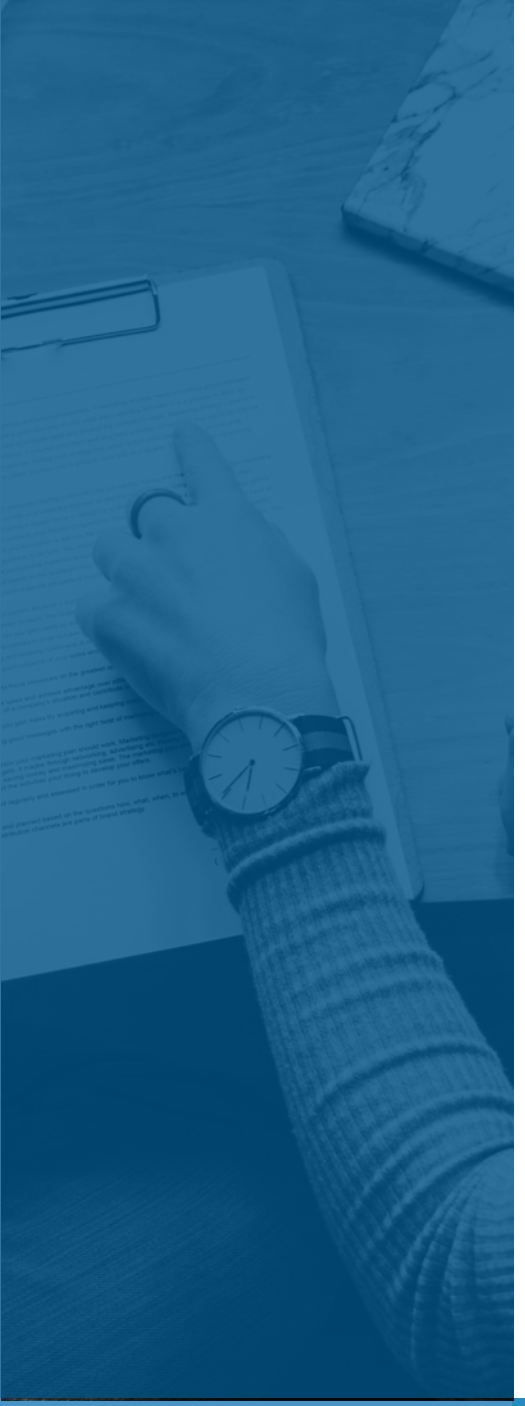
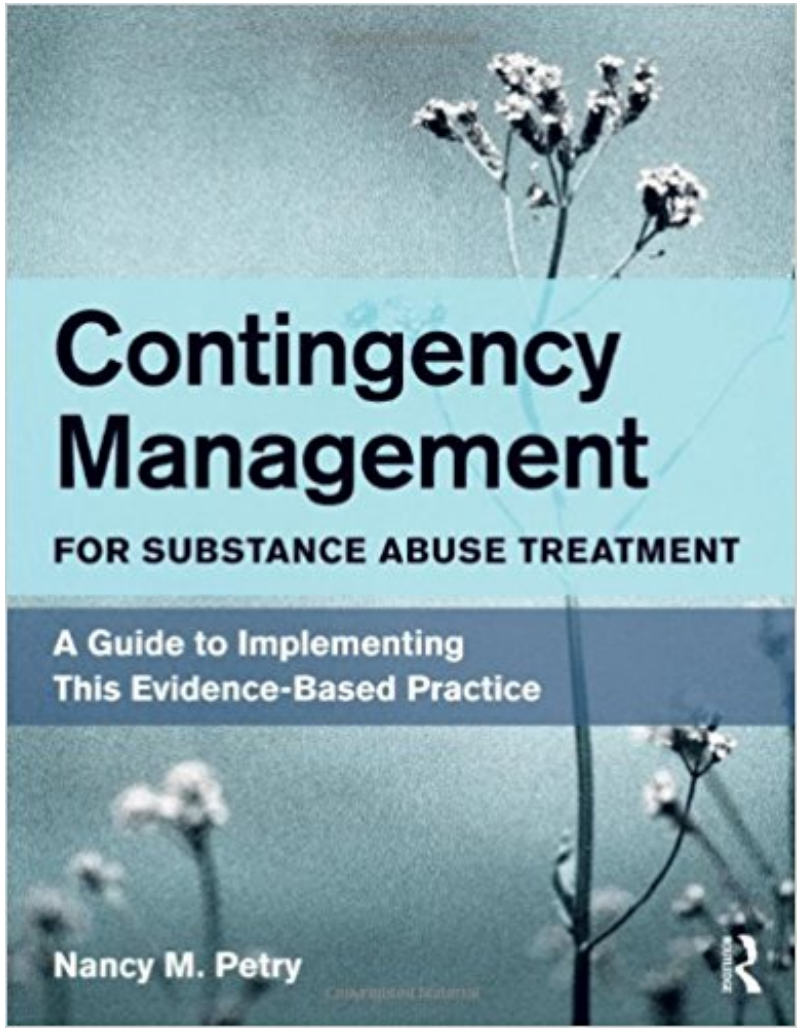


Swift, certain, modest, consequences shape behavioral choices…



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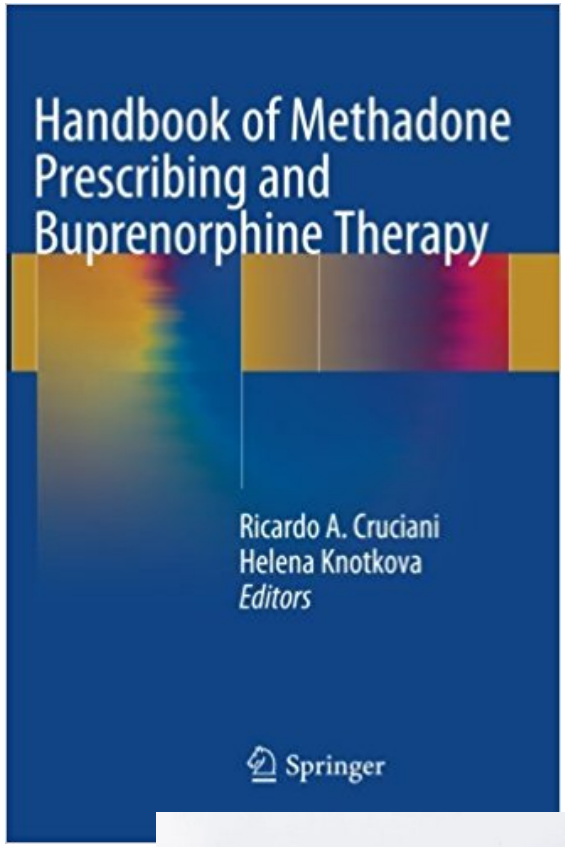

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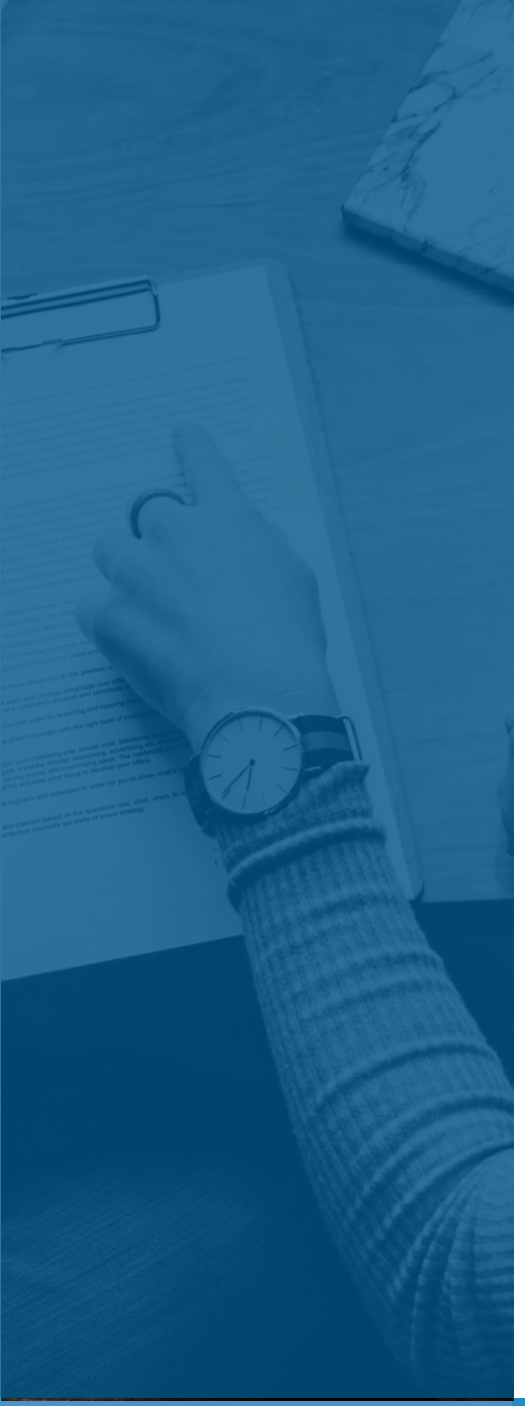

More recently, the first ever U.S. Surgeon General's Report on Alcohol, Drugs, and Health was published in 2016 describing the nature of addiction, treatment, and recovery based on 50 yrs of research and policy …

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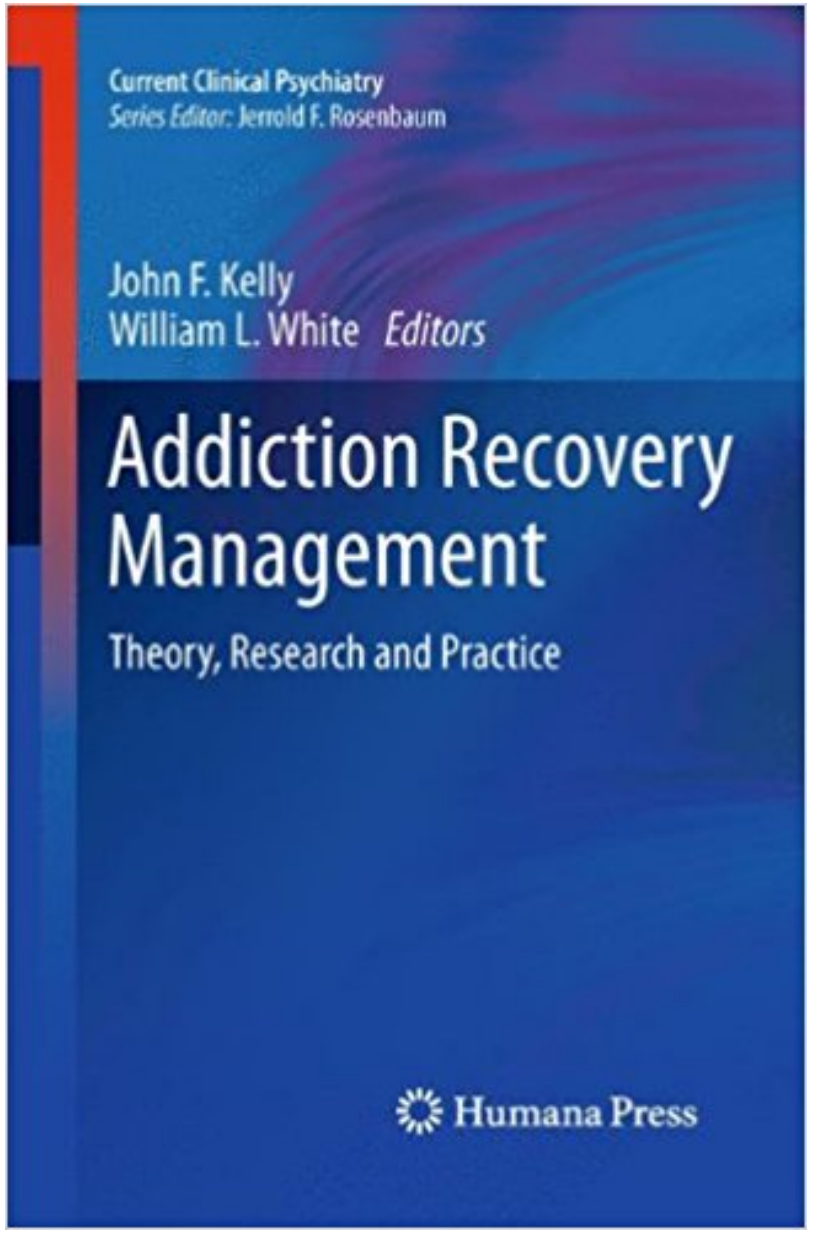

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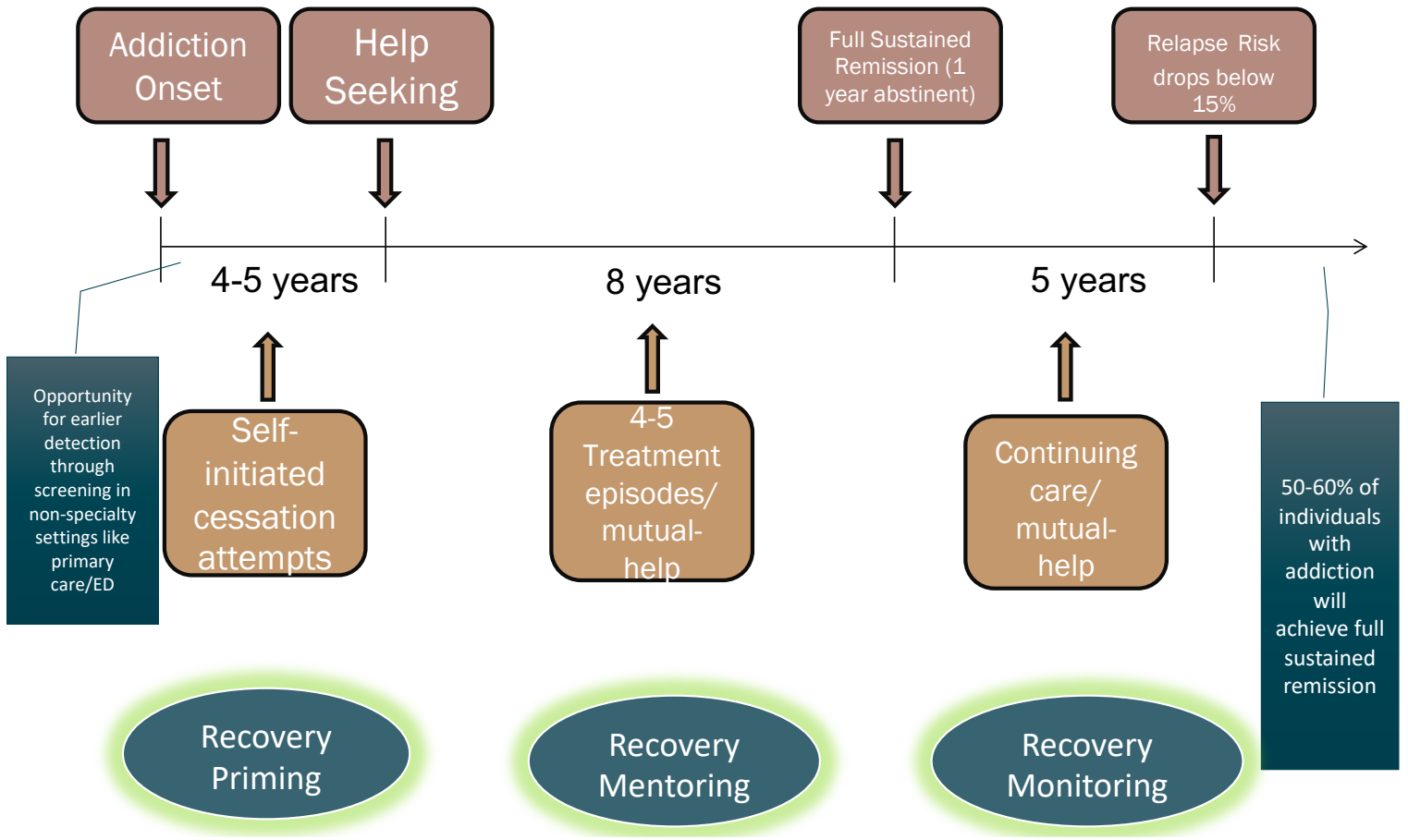
The clinical course of addiction and achievement of stable recovery can take a long time …



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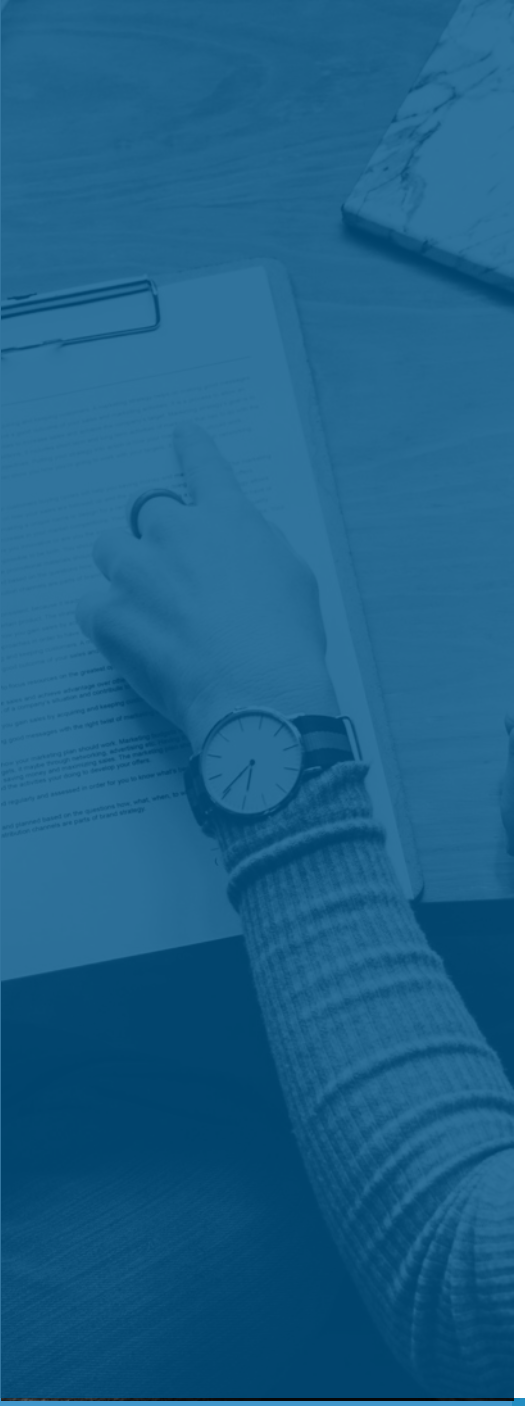

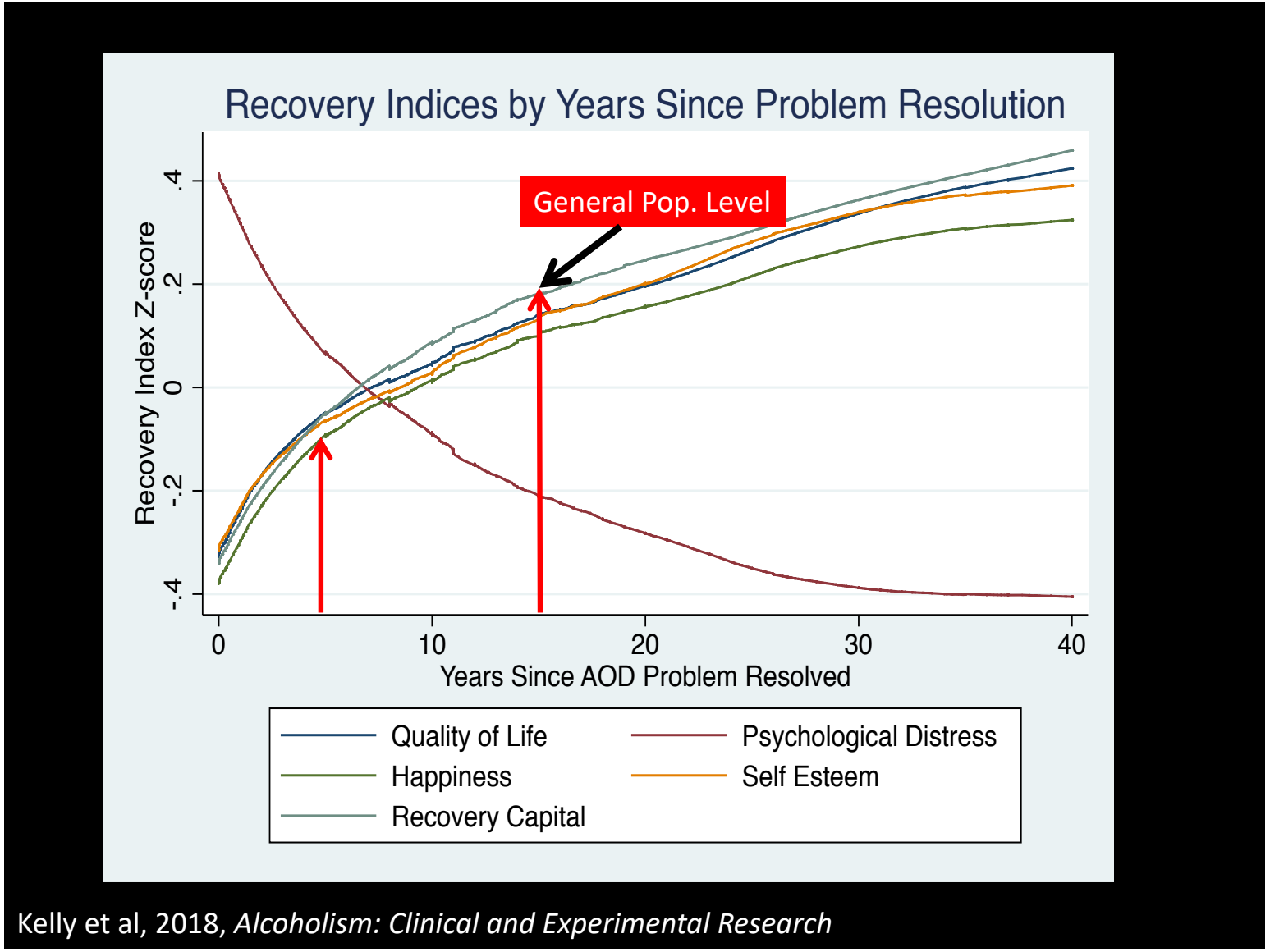

Kelly et al, 2018, *Alcoholism: Clinical and Experimental Research*

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Traditional addiction treatment approach: Burning building analogy

- **Putting out the fire** -good job
- **Preventing it from re-igniting** (RP) - less emphasis
- **Architectural planning** (recovery plan) –neglected
- **Re-building materials (recovery capital)** –neglected
- **Granting "rebuilding permits"** - (removing barriers)

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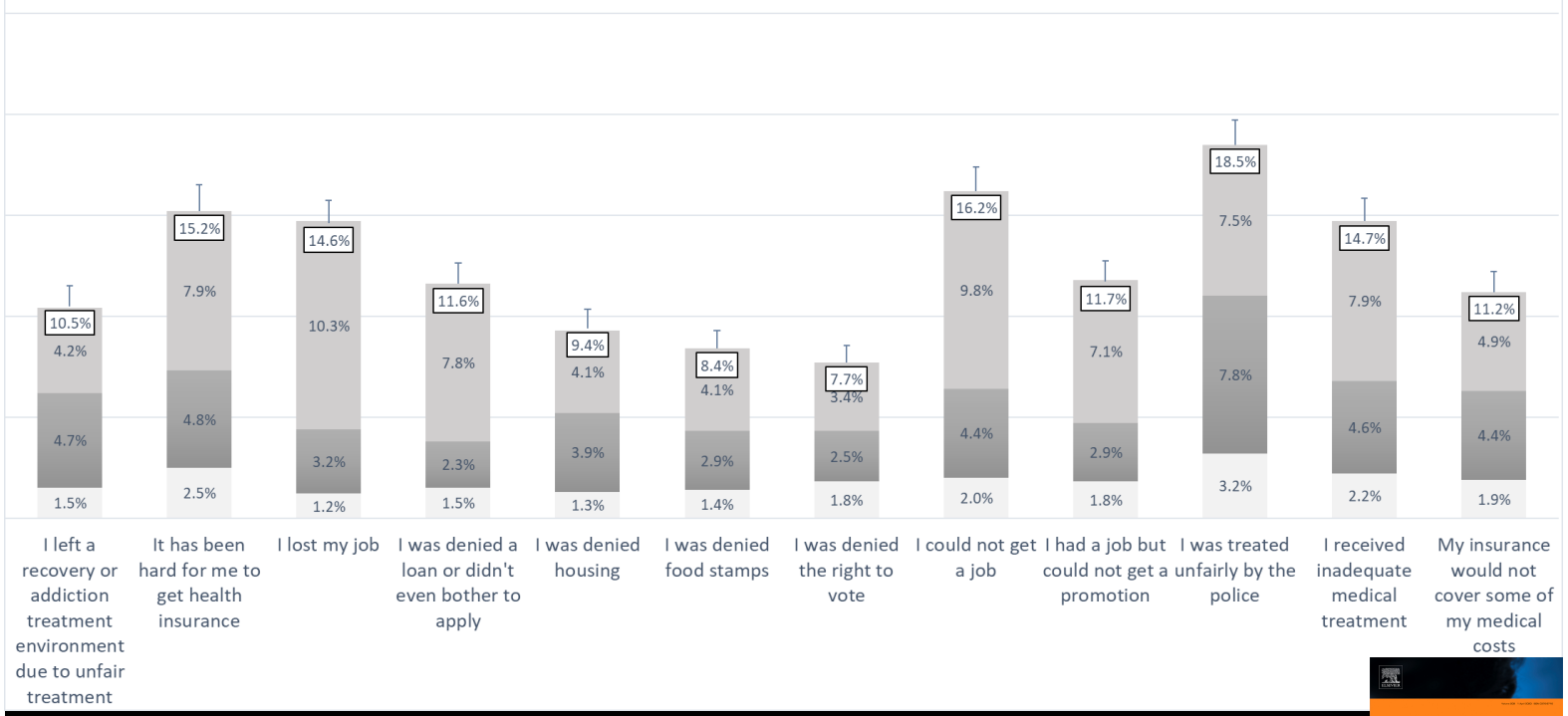
Recovery-Related Macro-discrimination after resolving an Alcohol or Other Drug Problem



Vilsaint, Hoffman, Kelly (2019) *Drug and Alcohol Dependence*

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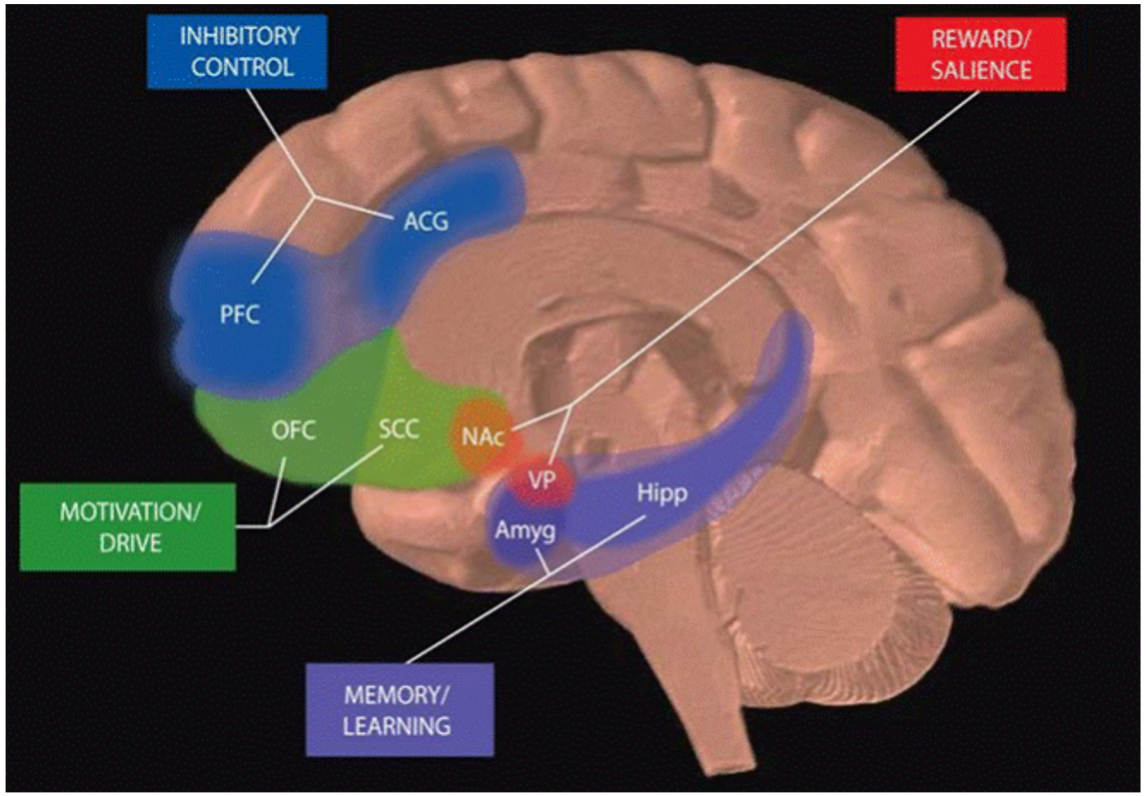
Circuits Involved in Drug Use and Addiction

Key:

PFC:	prefrontal cortex
ACG:	anterior cingulate gyrus
OFC:	orbitofrontal cortex
SCC:	subcallosal cortex
NAc:	nucleus accumbens
VP:	ventral pallidum
Hipp:	hippocampus
Amyg:	amygdala



All of these brain regions must be considered in developing strategies to effectively treat addiction.

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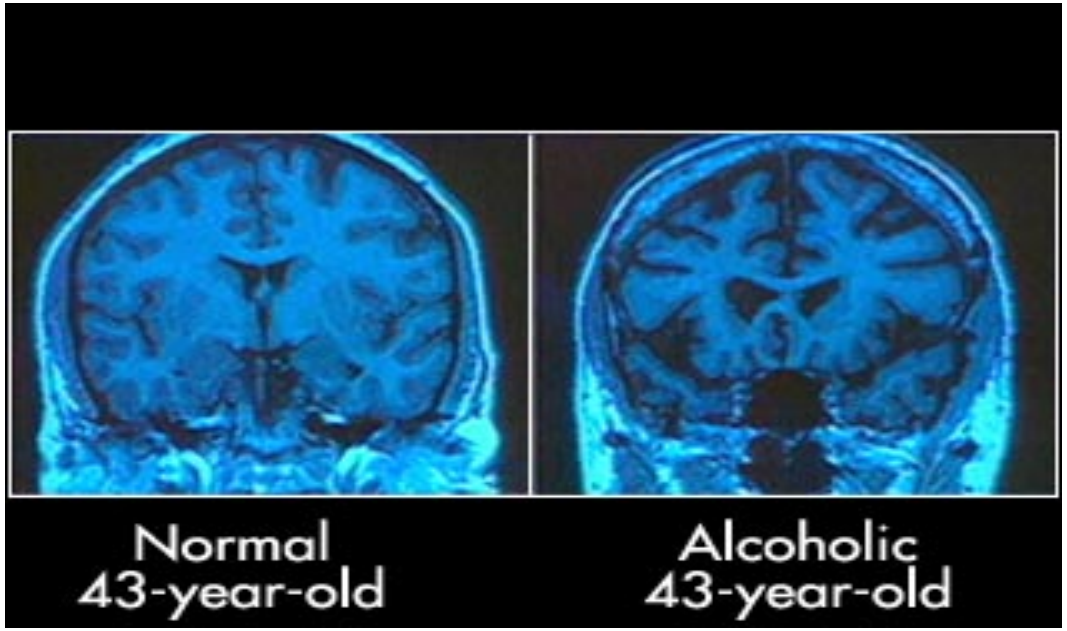

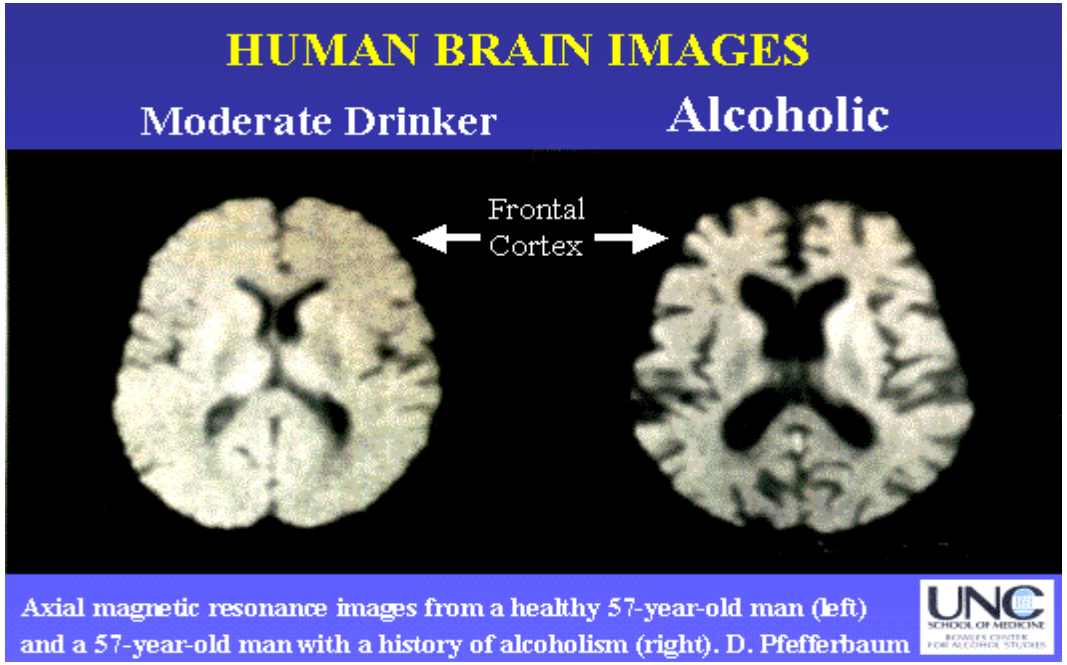

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Post-acute withdrawal effects:

- More stress and lowered ability to experience normal pleasures

Increased sensitivity to stress via…

- Increased activity in hypothalamic-pituitary-adrenal axis (HPA-axis) and CRF/Cortisol release

Lowered ability to experience normal levels of reward via…

- Down-regulated dopamine D2 receptor volume increasing risk of protracted dysphoria/anhedonia and relapse risk

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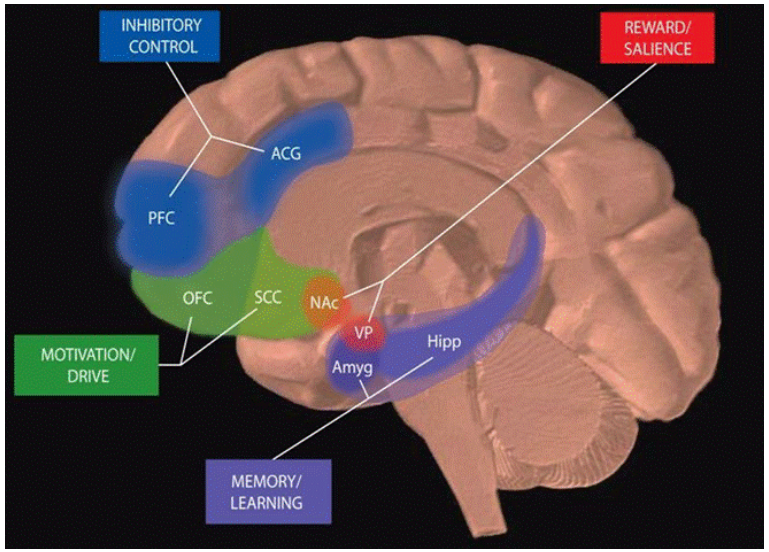
Neuroscience of Recovery Capital

- If addiction is a disease of the brain could jobs, recovery housing, and friends, change the brain, upregulate down-regulated receptor systems, and increase the chances of long-term remission?



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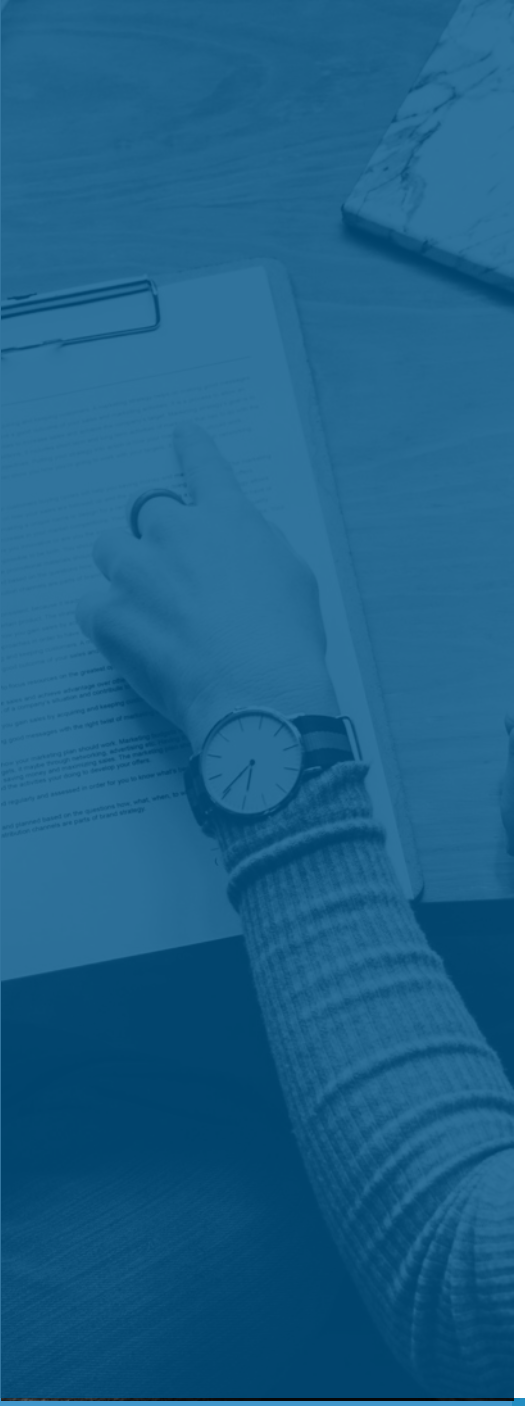

OPEN ACCESS Freely available online PLoS MEDICINE

Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad[1]*, Timothy B. Smith[2], J. Bradley Layton[3]

1 Department of Psychology, Brigham Young University, Provo, Utah, United States of America, **2** Department of Counseling Psychology, Brigham Young University, Provo, Utah, United States of America, **3** Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America

Abstract

Background: The quality and quantity of individuals' social relationships has been linked not only to mental health but also to both morbidity and mortality.

Objectives: This meta-analytic review was conducted to determine the extent to which social relationships influence risk for mortality, which aspects of social relationships are most highly predictive, and which factors may moderate the risk.

Data Extraction: Data were extracted on several participant characteristics, including cause of mortality, initial health status, and pre-existing health conditions, as well as on study characteristics, including length of follow-up and type of assessment of social relationships.

Results: Across 148 studies (308,849 participants), the random effects weighted average effect size was OR = 1.50 (95% CI 1.42 to 1.59), indicating a 50% increased likelihood of survival for participants with stronger social relationships. This finding remained consistent across age, sex, initial health status, cause of death, and follow-up period. Significant differences were found across the type of social measurement evaluated ($p<0.001$); the association was strongest for complex measures of social integration (OR = 1.91; 95% CI 1.63 to 2.23) and lowest for binary indicators of residential status (living alone versus with others) (OR = 1.19; 95% CI 0.99 to 1.44).

Conclusions: The influence of social relationships on risk for mortality is comparable with well-established risk factors for mortality.

Please see later in the article for the Editors' Summary.

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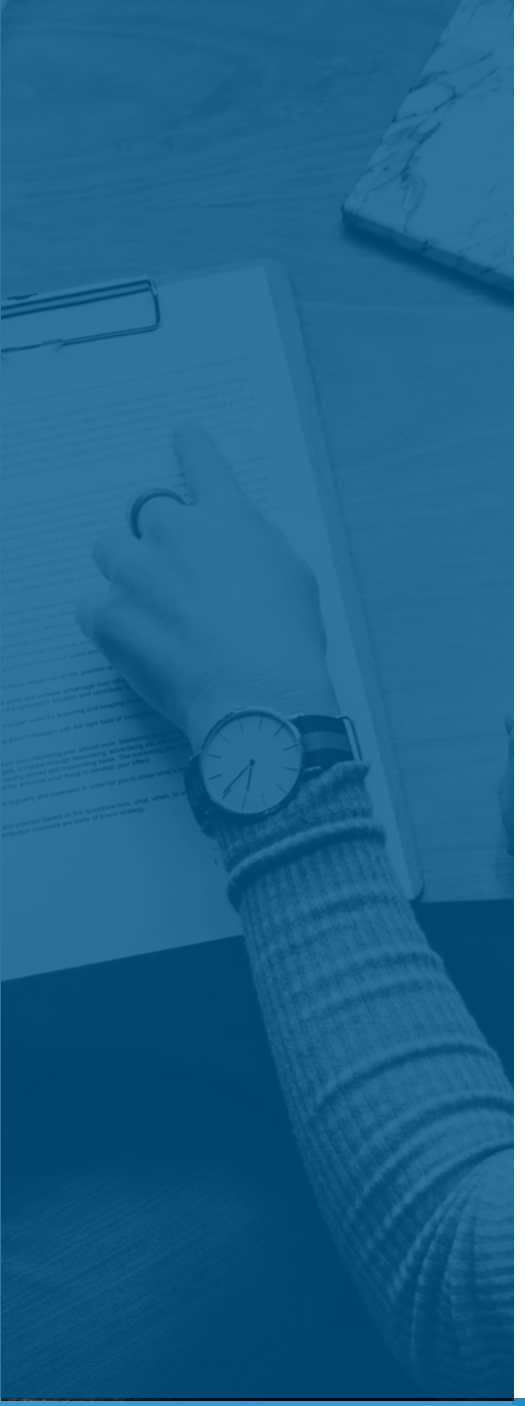

Social Buffering

- Stress-buffering effects of social relationships- one of the major findings of past century
- Mechanisms of this poorly understood

Psychological Bulletin

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0033-2909/13/$12.00 DOI: 10.1037/a0032671

Psychobiological Mechanisms Underlying the Social Buffering of the Hypothalamic–Pituitary–Adrenocortical Axis: A Review of Animal Models and Human Studies Across Development

Camelia E. Hostinar
University of Minnesota

Regina M. Sullivan
New York University Langone Medical Center

Megan R. Gunnar
University of Minnesota

Discovering the stress-buffering effects of social relationships has been one of the major findings in psychobiology in the last century. However, an understanding of the underlying neurobiological and psychological mechanisms of this buffering is only beginning to emerge. An important avenue of this research concerns the neurocircuitry that can regulate the activity of the hypothalamic–pituitary–adrenocortical (HPA) axis. The present review is a translational effort aimed at integrating animal models and human studies of the social regulation of the HPA axis from infancy to adulthood, specifically focusing on the process that has been named *social buffering*. This process has been noted across species and consists of a dampened HPA axis stress response to threat or challenge that occurs with the presence or assistance of a conspecific. We describe aspects of the relevant underlying neurobiology when enough information exists and expose major gaps in our understanding across all domains of the literatures we aimed to integrate. We provide a working conceptual model focused on the role of oxytocinergic systems and prefrontal neural networks as 2 of the putative biological mediators of this process, and propose that the role of early experiences is critical in shaping later social buffering effects. This synthesis points to both general future directions and specific experiments that need to be conducted to build a more comprehensive model of the HPA social buffering effect across the life span that incorporates multiple levels of analysis: neuroendocrine, behavioral, and social.

Keywords: stress, social support, early caregiving, oxytocin, prefrontal cortex

It is an empirical reality that some individuals succumb, whereas others thrive, when confronted with similar stressors. Having access to social support may be an important modulator of these widespread individual differences in responses to potentially stressful events. Indeed, some exciting experiments in humans (e.g., Heinrichs, Baumgartner, Kirschbaum, & Ehlert, 2003; Kirschbaum, Klauer, Filipp, & Hellhammer, 1995; Taylor et al., 2008) and animals (e.g., Hennessy, 1984, 1986; Vogt, Coe, & Levine, 1981) have identified a dampening of the hypothalamic–pituitary–adrenocortical (HPA) axis response to stressors by social factors as one of the possible mechanisms underlying the benefits of social support. Longitudinal studies also reveal relations between social support and basal levels of stress hormones such as salivary cortisol (Rosal, King, Ma, & Reed, 2004). Understanding the social buffering processes affecting this neuroendocrine axis would allow the possibility of interventions that might have cascading positive effects across multiple biological and psychological systems. Despite the important implications of this knowledge, our understanding of the underlying neurobiology and relevant components of social interaction that permit these HPA activity-regulating effects remains vastly incomplete.

General Framework

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Responding to Stress: Social Buffering

…and researchers have started to examine possible neurobiological connections between social support and individual stress responses

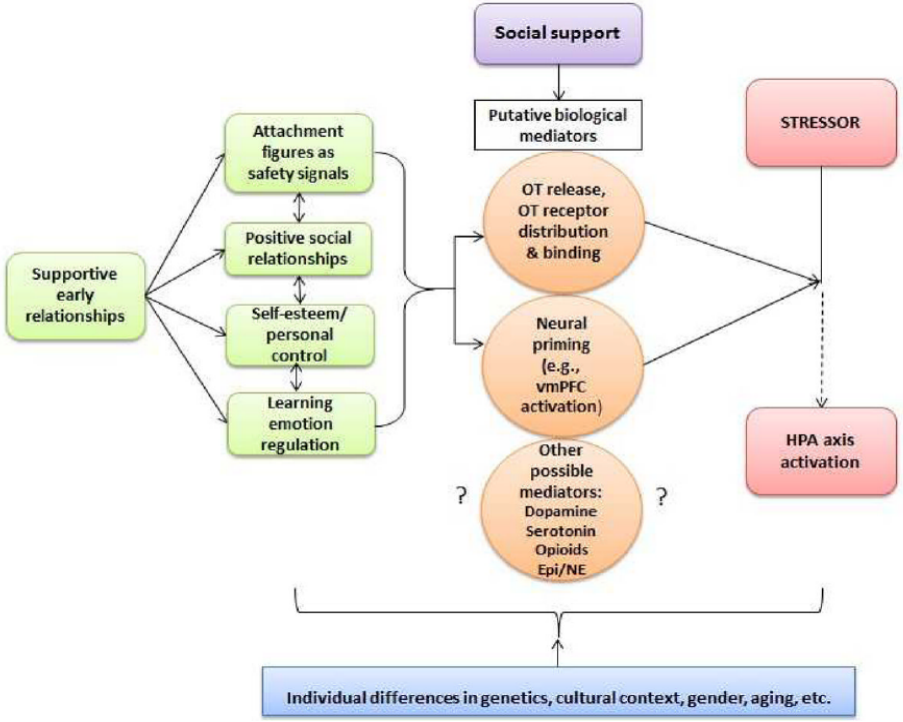

Figure 1. A Developmental Working Model of Social Buffering of the HPA Axis in Humans

OT = oxytocin, vmPFC = ventro-medial prefrontal cortex, Epi = epinephrine, NE = norepinephrine

Hostinar, C. E., Sullivan, R. M., & Gunnar, M. R. (2014). Psychobiological Mechanisms Underlying the Social Buffering of the HPA Axis: A Review of Animal Models and Human Studies across Development. Psychological Bulletin, 140(1).

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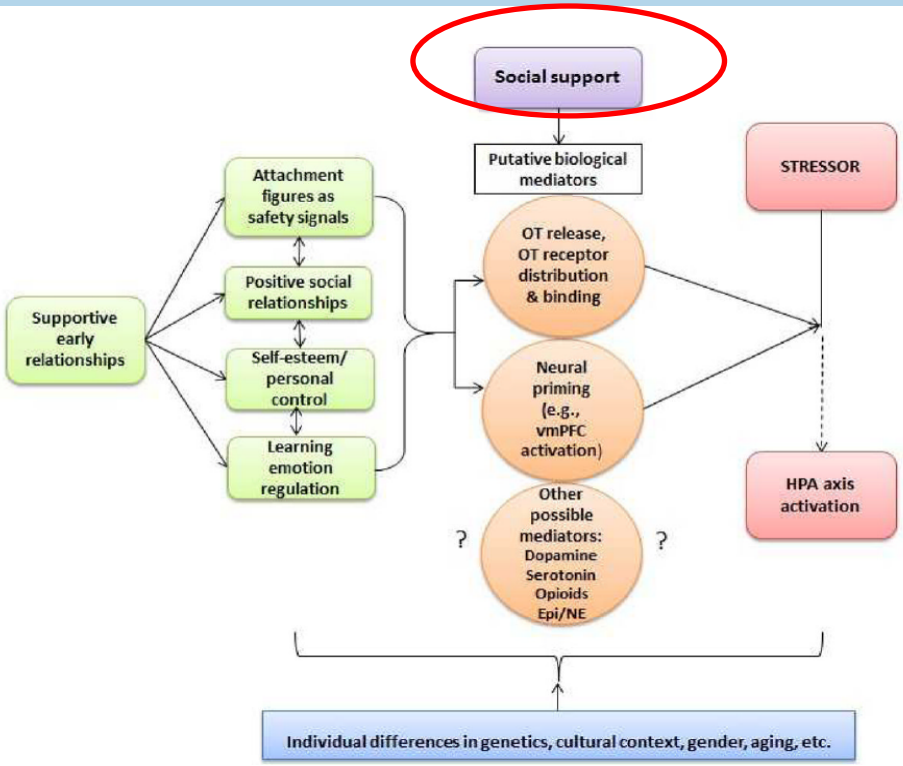

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D2/D3 RECEPTOR BINDING & SOCIAL STATUS AND SUPPORT

AIM

Assess whether $D_{2/3}$ receptor levels correlate with social status and social support (particularly, to determine if low social status and low social support correlate with low $D_{2/3}$ receptor binding)

SAMPLE

N = 14 healthy participants (i.e., non-smoking with no Axis I disorders, significant medical conditions, or use of medications before the scan) who were scanned using positron emission tomography (PET) imaging to measure $D_{2/3}$ receptor binding potential (BP)

MEASURES

- Barratt Simplified Measure of Social Status (BMSSS) to measure social status
- Scale of Perceived Social Support (MSPSS) to measure social support
- [^{11}C]raclopride to measure $D_{2/3}$ receptor binding in the striatum

OUTCOMES

- Positive correlation between **$D_{2/3}$ receptor** binding potential and **social status**
- Positive correlation between **$D_{2/3}$ receptor** binding potential and **perceived social support**
- Results similar to prior studies of nonhuman primates, which show higher $D_{2/3}$ receptor levels in monkeys who are dominant in their social hierarchy, compared to those who are subordinate

BRIEF REPORTS

Dopamine Type 2/3 Receptor Availability in the Striatum and Social Status in Human Volunteers

Diana Martinez, Daria Orlowska, Rajesh Narendran, Mark Slifstein, Fei Liu, Dileep Kumar, Allegra Broft, Ronald Van Heertum, and Herbert D. Kleber

Background: Previous positron emission tomography (PET) imaging studies in nonhuman primates have shown that striatal dopamine type 2/3 ($D_{2/3}$) receptors correlate with social hierarchy in monkeys and that dominant animals exhibit higher levels of $D_{2/3}$ receptor binding. The goal of the present study was to examine this phenomena in human subjects using PET and the radiotracer [^{11}C]raclopride.

Methods: Fourteen healthy volunteers were scanned with [^{11}C]raclopride to measure $D_{2/3}$ receptor binding potential (BP). Social status was assessed using the Barratt Simplified Measure of Social Status. In addition, participants were asked to assess their level of social support using the Multidimensional Scale of Perceived Social Support (MSPSS).

Results: A correlation was seen between social status and dopamine $D_{2/3}$ receptors, where volunteers with the higher status had higher values for [^{11}C]raclopride BP. A similar correlation was seen with the perceived social support, where higher [^{11}C]raclopride BP correlated with higher scores on the MSPSS.

Conclusions: The results of this study support the hypothesis that social status and social support is correlated with $D_{2/3}$ receptor binding.

Key Words: [^{11}C]raclopride, dopamine 2/3 receptor, PET imaging, social status

Previous studies in animals have shown a correlation between dopamine transmission in the brain and social hierarchy (1). In monkeys, dominant and subordinate social rank are determined by physical and social triumph and defeat. Dominant animals win more physical confrontations and receive more social attention, such as grooming or huddling. Two positron emission tomography (PET) imaging studies have investigated the relationship between social status and $D_{2/3}$ receptors in the striatum in monkeys. Both showed that social dominance was associated with higher $D_{2/3}$ receptor binding compared with subordinate animals (2,3).

In humans, social hierarchy is a more subtle phenomenon that can be approximated by measuring social status and social support (4). Thus, the goal of the present study was to examine the correlation between these factors and dopamine $D_{2/3}$ receptor binding in human subjects. Given the known effect of disease states on striatal $D_{2/3}$ receptors, including substance dependence, schizophrenia, and anxiety disorders (5–7), only healthy control volunteers were included in this study. Social status was measured using the Barratt Simplified Measure of Social Status (BMSSS) (8) and social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (9). Our hypothesis was that low social status and low levels of social support would correlate with low $D_{2/3}$ receptor binding in the striatum measured with [^{11}C]raclopride.

From the Departments of Psychiatry (DM, DO, MS, FL, DK, AB, HDK) and Radiology (RVH), Columbia University, College of Physicians and Surgeons, New York, New York; and Department of Radiology (RN), University of Pittsburgh, Pittsburgh, Pennsylvania.

Address correspondence to Diana Martinez, M.D., New York State Psychiatric Institute, 1051 Riverside Drive, Box #31, New York, NY 10032; E-mail: dm437@columbia.edu.

Received Dec 18, 2008; revised Jul 23, 2009; accepted Jul 28, 2009.

Methods and Materials

The study was approved by the Institutional Review Board of the New York State Psychiatric Institute and all subjects provided written informed consent. Study participants were nonsmoking healthy control subjects and were required to have no DSM-IV Axis I disorder (including substance abuse or dependence), no significant medical conditions, and no use of medications before the scan (6 months for medications that could affect dopamine, 2 weeks for all others). Subjects (nine men and five women) were recruited from the New York City metropolitan area. Participant screening included a psychiatric assessment with the *Structured Clinical Interview for DSM-IV Axis I Disorders* (10), physical examination, electrocardiogram, and laboratory tests. All subjects were asked for data to complete the Barratt Simplified Measure of Social Status and to complete the Multidimensional Scale of Perceived Social Support. The scans performed on female subjects were not controlled for menstrual cycle phase.

[^{11}C]raclopride was prepared as previously described (11), and PET studies were acquired using a bolus injection of the radiotracer. The PET scans were obtained on the ECAT EXACT HR+ (Siemens/CTI, Knoxville, Tennessee) in three-dimensional (3-D) mode. Emission data were obtained as 15 frames of increasing duration up to 60 minutes. The PET images were reconstructed by filtered backprojection (Shepp .5 filter) with attenuation correction using the data from a 10-minute transmission scan.

All image analysis was performed in MEDx (Sensor Systems, Inc, Sterling, Virginia). Each subject underwent a transaxial T1 magnetic resonance imaging (MRI) scan, acquired on the GE Signa EXCITE 3 T/94 cm scanner (GE Medical Systems, Milwaukee, Wisconsin), for delineation of the regions of interest (ROIs). The regions of interest outlined on the MRI included the subdivisions of the striatum, which have been previously described (12). Briefly, these included the ventral striatum (VST), the dorsal caudate rostral to the anterior commissure (AC) (precommissural dorsal caudate [preDCAU]), the dorsal putamen rostral to the AC (precommissural dorsal putamen [preDPU]), the caudate caudal to the AC (postcommissural caudate [postCAU]), and the putamen caudal to the AC (postcommissural putamen [postPUT]).

Martinez, D., Orlowska, D., Narendran, R., Slifstein, M., Liu, F., Kumar, D., . . . Kleber, H. D. (2010). Dopamine type 2/3 receptor availability in the striatum and social status in human volunteers. *Biological Psychiatry, 67*(3), 275-278. doi:10.1016/j.biopsych.2009.07.037

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D2/D3 RECEPTOR BINDING & SOCIAL STATUS AND SUPPORT

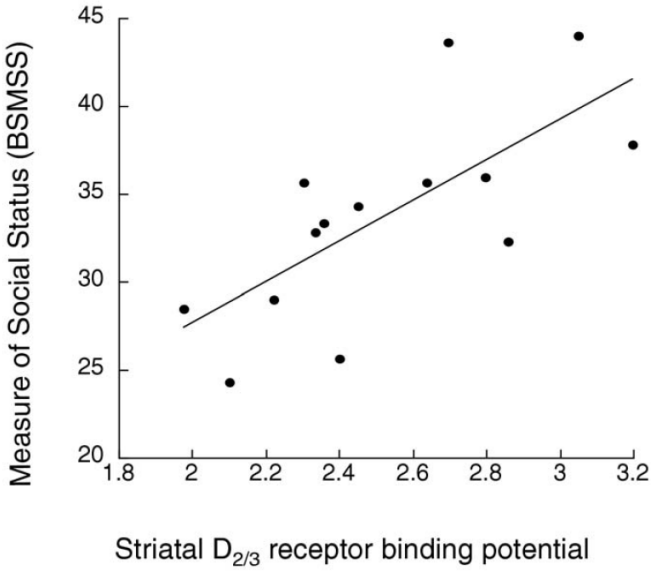

Figure 1. Correlation between [^{11}C]raclopride BP (x axis) and social status, measured with the Barratt Simplified Measure of Social Status (BSMSS). A positive correlation was seen, where higher BP correlated with higher BSMSS ($r = .71$, $p = .004$, age-corrected $p = .007$). BP, binding potential.

$D_{2/3}$ receptor binding increases as **social status** increases.

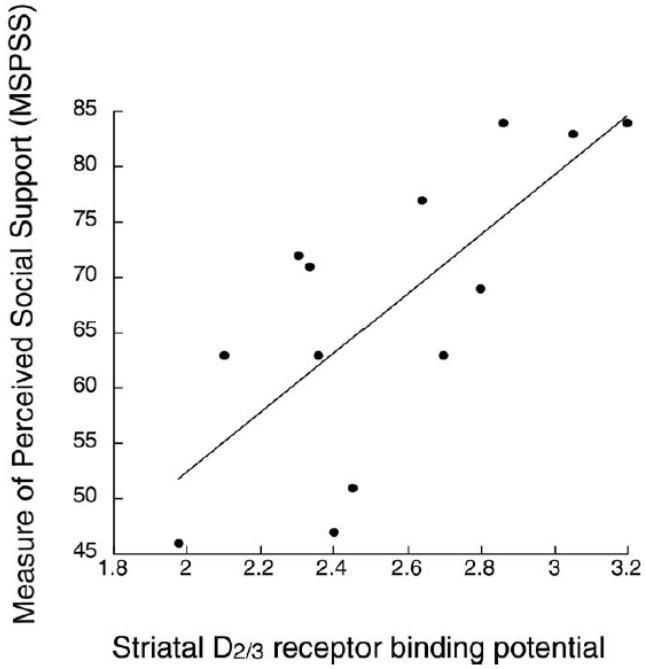

Figure 2. Correlation between [^{11}C]raclopride BP (x axis) and score on the Multidimensional Scale of Perceived Social Support (MSPSS). A positive correlation was seen, where higher BP correlated with higher score on the MSPSS ($r = .73$, $p = .005$, age-corrected $p = .02$). BP, binding potential.

$D_{2/3}$ receptor binding increases as **social support** increases.

Martinez, D., Orlowska, D., Narendran, R., Slifstein, M., Liu, F., Kumar, D., . . . Kleber, H. D. (2010). Dopamine type 2/3 receptor availability in the striatum and social status in human volunteers. *Biological Psychiatry, 67*(3), 275-278. doi:10.1016/j.biopsych.2009.07.037

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Social dominance in monkeys: dopamine D_2 receptors and cocaine self-administration

Drake Morgan[1], Kathleen A. Grant[1], H. Donald Gage[2], Robert H. Mach[1,2], Jay R. Kaplan[3], Osric Prioleau[1], Susan H. Nader[1], Nancy Buchheimer[2], Richard L. Ehrenkaufer[2] and Michael A. Nader[1,2]

[1] *Department of Physiology and Pharmacology,* [2]*Department of Radiology,* [3]*Departments of Pathology (Comparative Medicine) and Anthropology, Wake Fores*

Correspond

Published

Monkeys, like humans, love to be with each Other, and also like cocaine…

Disruption of the dopaminergic system has been implicated in the etiology of many pathological conditions, including drug addiction. Here we used positron emission tomography (PET) imaging to study brain dopaminergic function in individually housed and in socially housed cynomolgus macaques ($n = 20$). Whereas the monkeys did not differ during individual housing, social housing increased the amount or availability of dopamine D_2 receptors in dominant monkeys and produced no change in subordinate monkeys. These neurobiological changes had an important behavioral influence as demonstrated by the finding that cocaine functioned as a reinforcer in subordinate but not dominant monkeys. These data demonstrate that alterations in an organism's environment can produce profound biological changes that have important behavioral associations, including vulnerability to cocaine addiction.

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The importance of social context, control over environment, and relapse risk

- When all monkeys were individually housed no difference in DA D2 receptor volume
- After 3 months of social housing, dominant monkeys showed 22% increase in DA D2 volume; subordinate monkeys - no change
- Increase in DA D2 associated with lower likelihood of cocaine use
- "Dominance" defined as: easy access to food and water, social mobility, and greater environmental control.
- Human Implications: facilitating greater access to and availability of recovery capital may instill hope, empower people, help them have more control over their environment, increase social contact and social mobility through the environment, and thereby induce neurochemical changes that reduces relapse risk

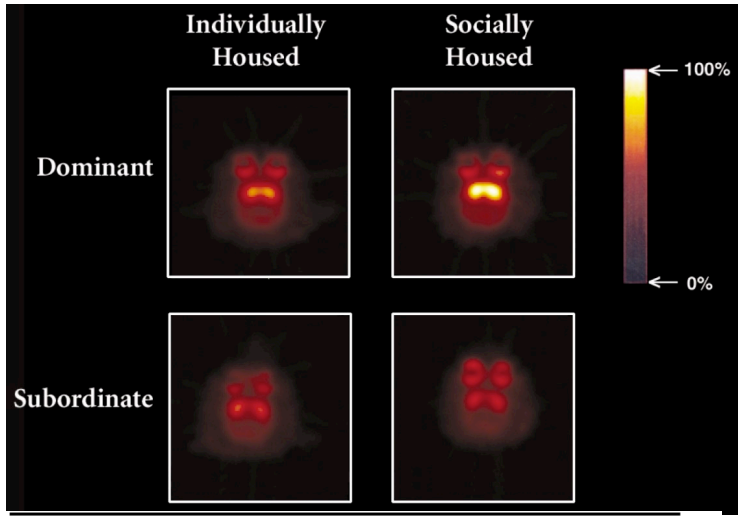

Table 1. Dopaminergic characteristics of monkeys.

Social rank[a]	[^{18}F]FCP distribution volume ratios		
	Individually housed	Socially housed	Percent change
1	2.49 ± 0.08	3.04 ± 0.23[b,c]	+22.0 ± 8.8
2	2.58 ± 0.13	2.99 ± 0.13	+16.7 ± 6.0
3	2.58 ± 0.13	2.88 ± 0.30	+13.4 ± 15.3
4	2.40 ± 0.06	2.49 ± 0.10	+3.9 ± 5.3

Mean ± s.e.m. [^{18}F]FCP DVR as determined with PET imaging in male cynomolgus monkeys as a function of social rank while individually and socially housed. [a]For individually housed scans, these numbers represent eventual social rank. [b]Significantly higher than individually housed 'dominants.' [c]Significantly higher than socially housed subordinates.

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Historically, two Major Ways most Societies have addressed endemic alcohol/drug problem…

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Now, third wave of services emerging… to try to meet addiction needs of recovery capital…

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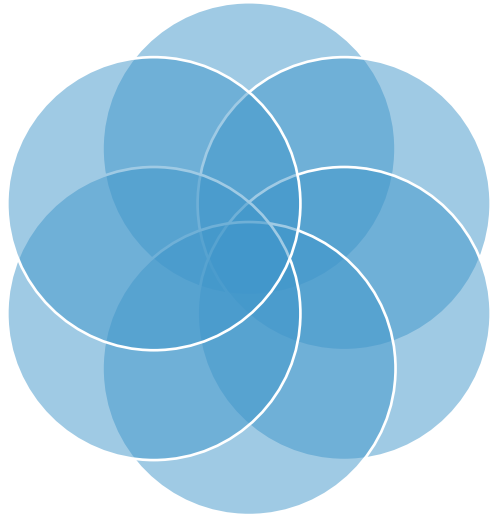
Treatment and Recovery Support Services ideally should be…



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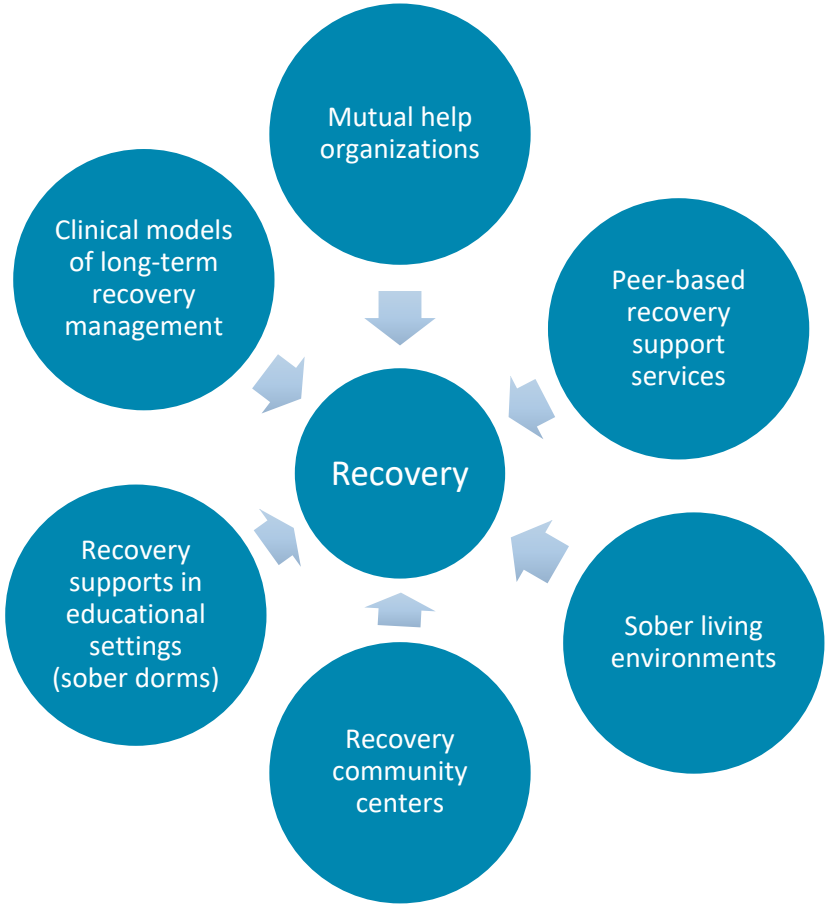
Cadre of Emerging and Growing Long-term Recovery Support Services Now Exist…



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RSS Goal

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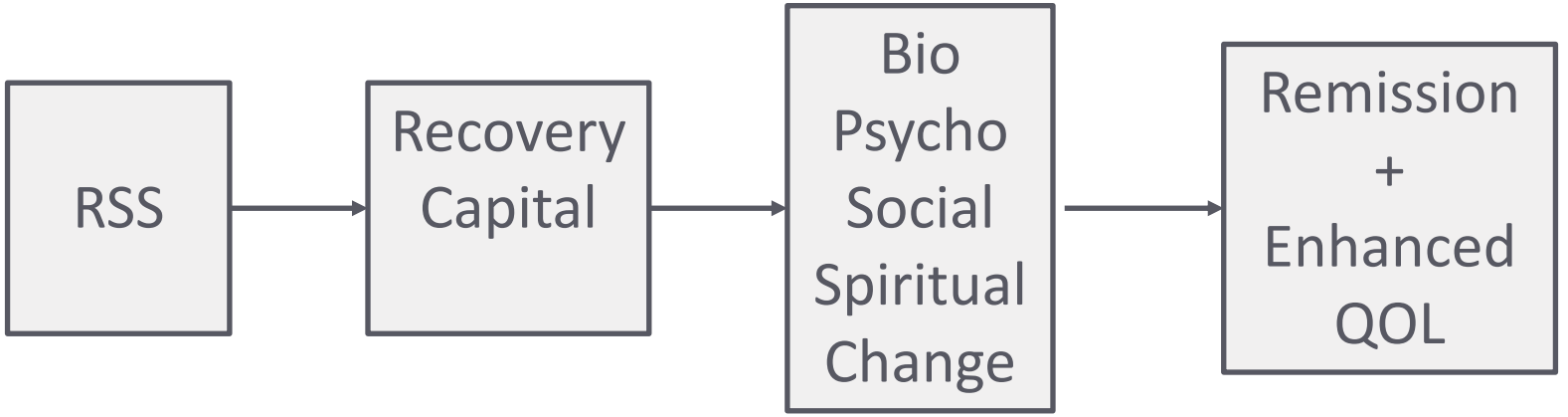
RSS Mechanisms



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Recovery Community Centers

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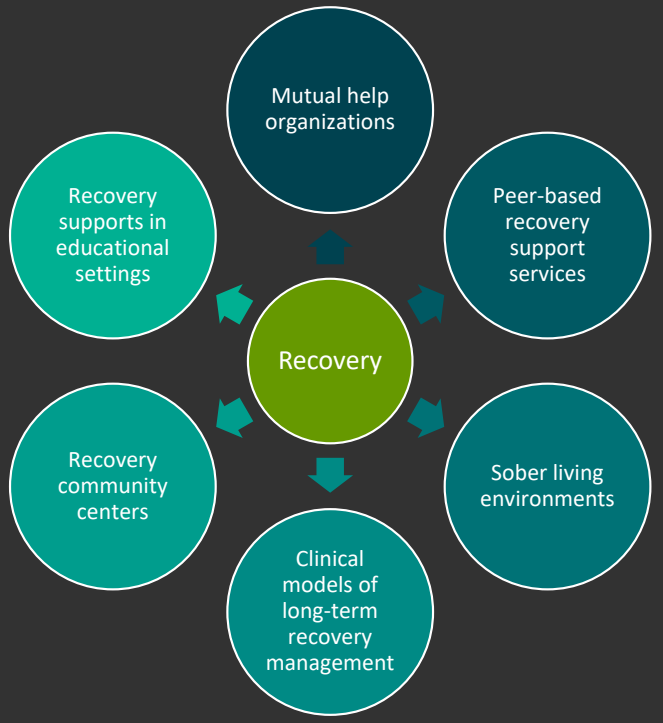
Recovery Community Centers



Anchor
Recovery Community Center
Peer-to-peer support services

HOPE for NEW HAMPSHIRE RECOVERY

CONNECTICUT COMMUNITY CCAR FOR ADDICTION RECOVERY

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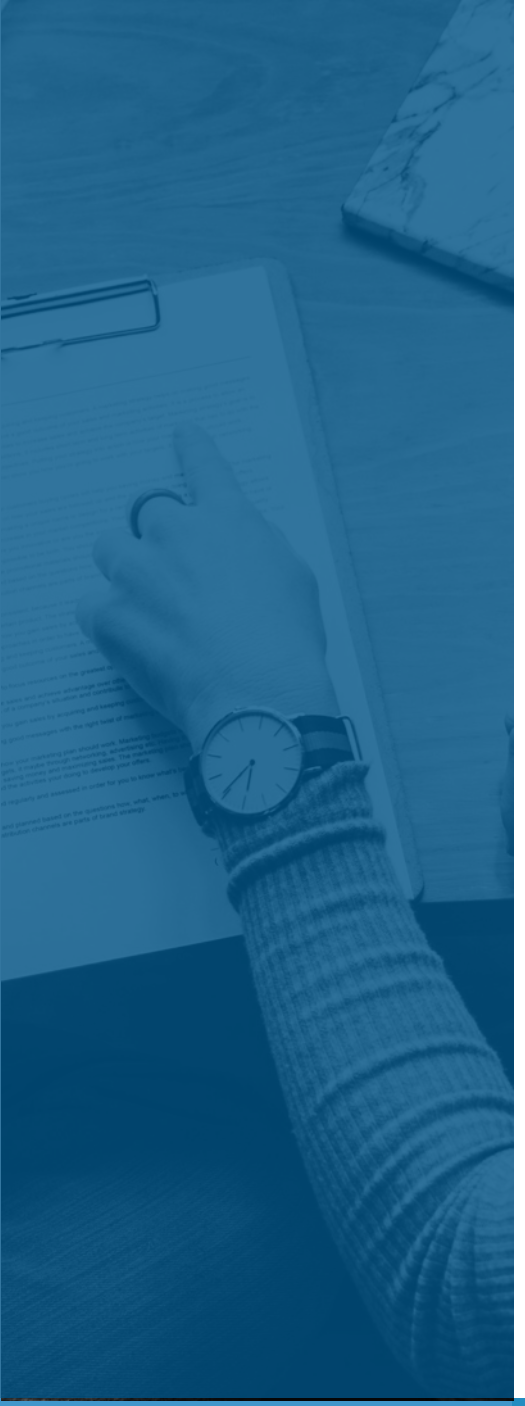

Recovery Community Centers are…

Locatable sources of community-based recovery support beyond the clinical setting, helping members achieve sustained recovery by building and successfully mobilizing personal, social, environmental, and cultural resources.

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RCCs in the United States

There are currently more than 80 centers operating nationally

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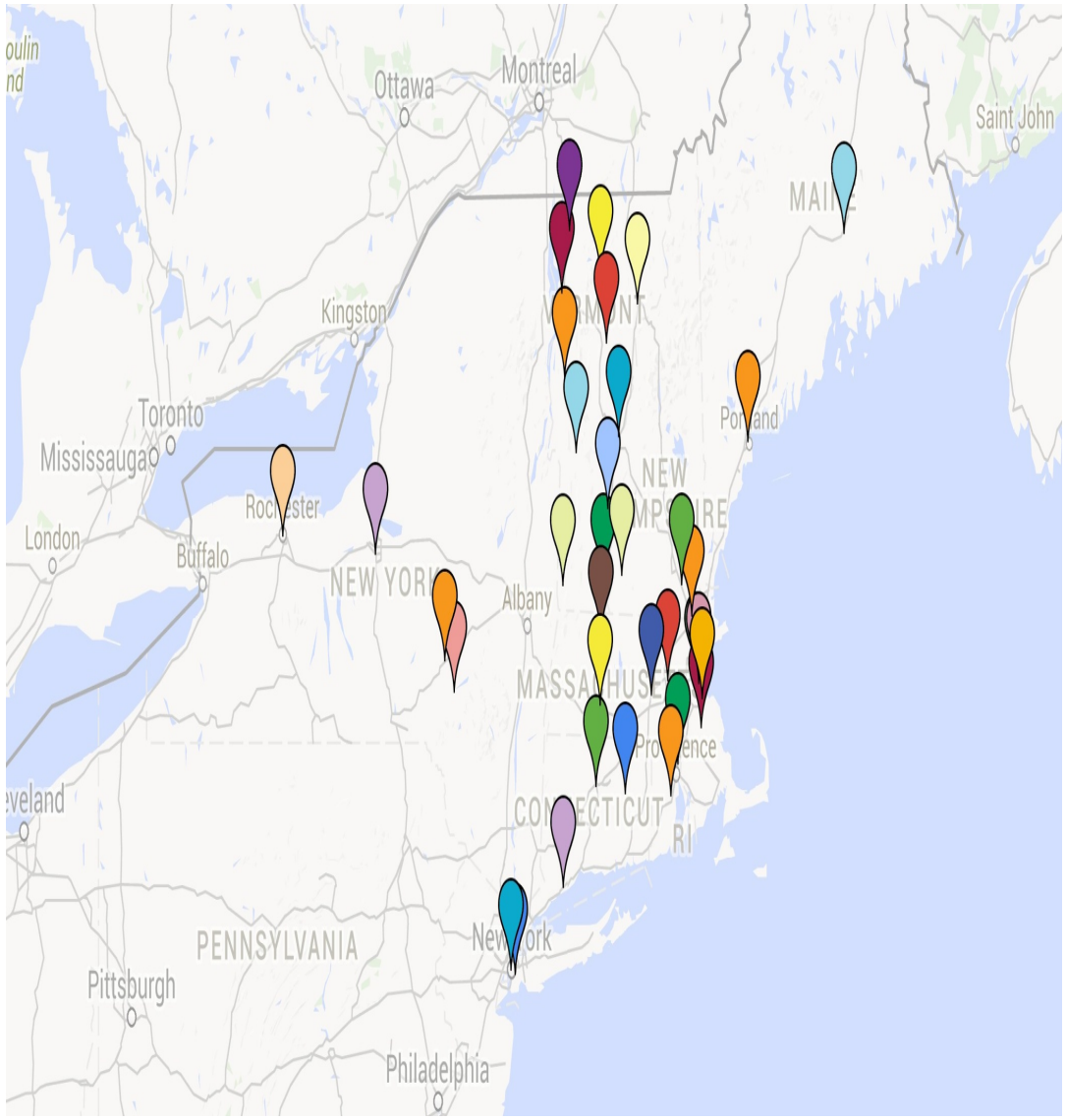

There are 35 centers currently operating throughout New England and New York.

RCCs in New York and New England

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Residential centers

Sober living environments

Treatment centers

12-step clubhouses

Drop-in centers

Recovery Community Centers are NOT…

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Principles of RCCs

Source of recovery capital at the community level

- Provide different services than formal treatment
- Offer more formal and tangible linkages to social services, employment, training and educational agencies than do mutual-help organizations

There are many pathways to recovery

- RCCs are not allied with any specific recovery philosophy or model

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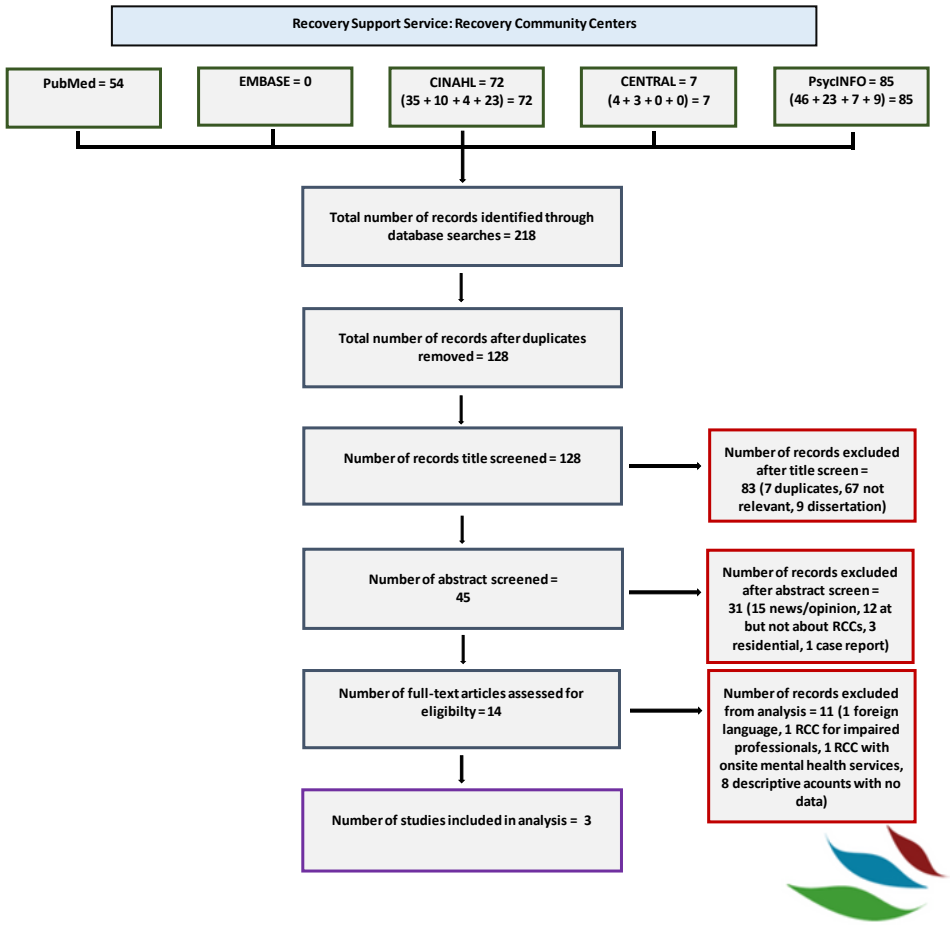
Recovery Community Centers

CONSORT Diagram

- **128** records identified after duplicates removed
- **14** full-text articles assessed
- **3** studies included in analysis:
  - 3 single-group prospective



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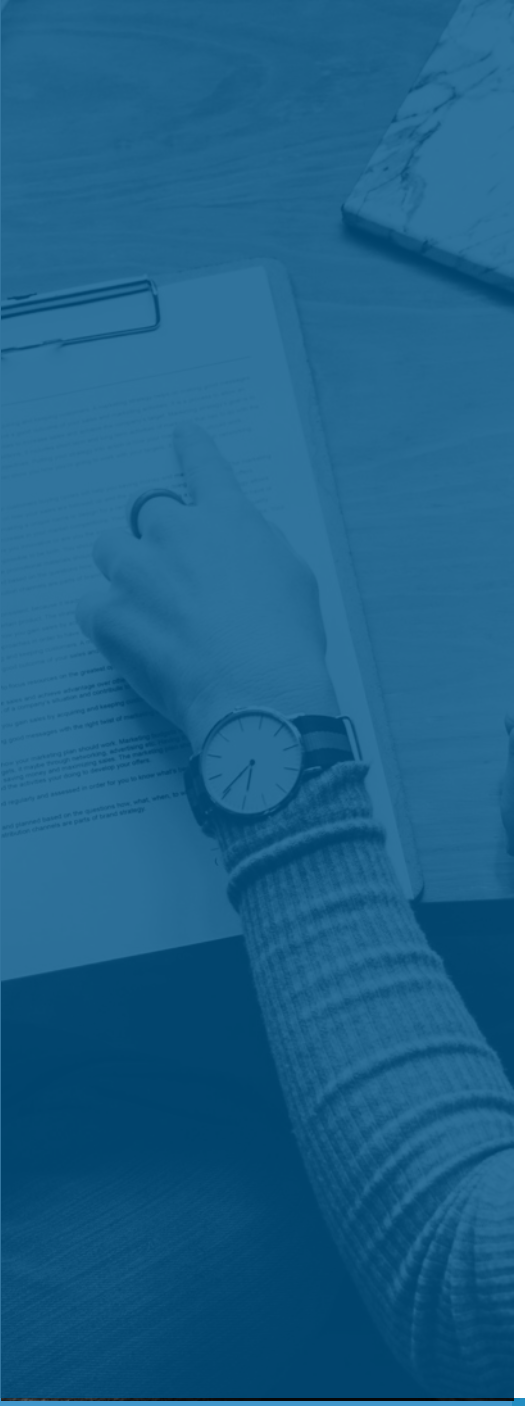

Recovery Community Centers

Summary Table

Article	Sample size (N), Gender (% female)	Follow-ups	Retention rate	Primary substance	Substance use and related outcomes (include effect size, if applicable)
Haberle, Conway, Valentine, Evans, White & Davidson, 2014	N = 385 (F = 50%, M = 50%)	6 months	6%, combined recruitment and retention rate from overall population	Any	• Stability on abstinence and mental health symptoms • Increases on independent living conditions (53% owning/renting vs. 30%), employment (22% full-time vs. 10%; 16% part-time vs. 11%)), income (41% vs. 21% from wages)
Mericle, Cacciola, Carise & Miles, 2014	N = 290 (F = 34%, M = 66%)	6 months	90%	Any	• Less likely to use substances at 6-month follow-up (OR=0.5 for alcohol, 0.4 for drugs) • Gains in employment status (5% vs. 14%)
Armitage, Lyons & Moore, 2010	N = 55 (F = not reported, M = not reported)	6 months	Not reported	Any	• 86% reported being abstinent from alcohol and drugs • High service satisfaction, with 89% rating services as helpful and 92% rating provided materials as helpful

- For all three studies:
  - **Study design** = “single-group prospective”
  - **Intervention** = “use of RCC”
  - **Participants** = “RCC participants”

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Recovery Community Centers
Main Findings

Limitations

- To date, **only 3 papers** reporting outcome data on RCCs
- In 2/3 papers, **unclear recruitment and/or retention rates**

Outcomes

- Current evidence suggests that **RCCs are effective in:**
  - **maintaining or enhancing abstinence**
  - **attain important vocational and educational shifts**

More evidence urgently needed, especially evidence that:

- Uses **group-comparison** designs
- Assesses **additional outcomes** (e.g., quality of life)
- Tracks **recruitment and retention** rigorously

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Global Quality Ratings of Empirical Support for Recovery Community Centers

Quantity of Evidence	Quality of Evidence	Support for Recovery Service
Small	Weak	Weak
Small-medium	Weak-moderate	Weak-moderate
Medium	Moderate	Moderate
Medium-large	Moderate-Strong	Moderate-Strong
Large	Strong	Strong

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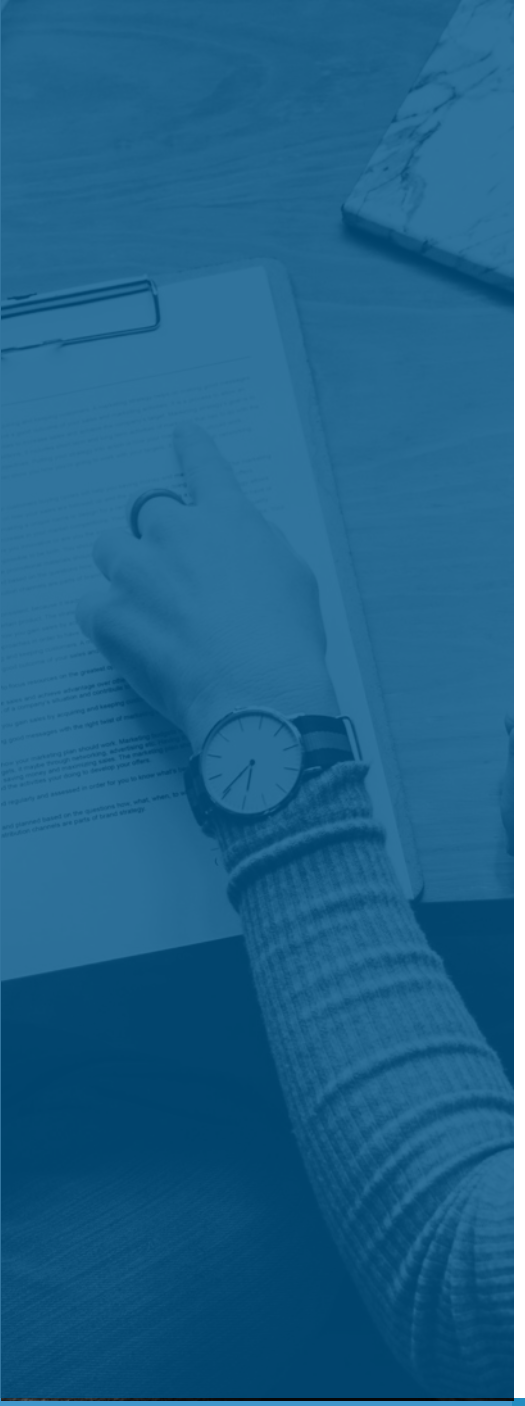

Recovery community centers: New FIndings

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Journal of Substance Abuse Treatment 111 (2020) 1–10

Contents lists available at ScienceDirect

Journal of Substance Abuse Treatment

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

New kid on the block: An investigation of the physical, operational, personnel, and service characteristics of recovery community centers in the United States

John F. Kelly[a,*], Nilofar Fallah-Sohy[a], Corrie Vilsaint[a], Lauren A. Hoffman[a], Leonard A. Jason[b], Robert L. Stout[c], Julie V. Cristello[a], Bettina B. Hoeppner[a]

[a] Recovery Research Institute, Massachusetts General Hospital and Harvard Medical School, Harvard Medical School, 151 Merrimac Street, Boston, MA 02114, United States of America
[b] Decision Sciences Institute, Providence, RI, United States of America
[c] DePaul University, United States of America

ARTICLE INFO

Keywords:
Recovery community centers
Recovery
Addiction
Support services
Recovery coaching
Addiction
Substance use disorder

ABSTRACT

Background: Professional treatment and non-professional mutual-help organizations (MHOs) play important roles in mitigating addiction relapse risk. More recently, a third tier of recovery support services has emerged that are neither treatment nor MHO that encompass an all-inclusive flexible approach combining professionals and volunteers. The most prominent of these is Recovery Community Centers (RCCs). RCC's goal is to provide an attractive central recovery hub facilitating the accrual of recovery capital by providing a variety of services (e.g., recovery coaching; medication assisted treatment [MAT] support, employment/educational linkages). Despite their growth, little is known formally about their structure and function. Greater knowledge would inform the field about their potential clinical and public health utility.

Method: On-site visits (2015–2016) to RCCs across the northeastern U.S. (K = 32) with semi-structured interviews conducted with RCC directors and online surveys with staff assessing RCCs': physicality and locality; operations and budgets; leadership and staffing; membership; and services.

Results: Physicality and locality: RCCs were mostly in urban/suburban locations (90%) with very good to excellent Walk Scores reflecting easy accessibility. Ratings of environmental quality indicated neighborhood/grounds/buildings were moderate-good attractiveness and quality. *Operations*: RCCs had been operating for an average of 8.5 years (SD = 6.2; range 1–33 years) with budgets (mostly state-funded) ranging from $17,000–$760,000/year, serving anywhere from a dozen to more than two thousand visitors/month. *Leadership and staffing*: Center directors were mostly female (55%) with primary drug histories of alcohol (62%), cocaine (19%), or opioids (19%). Most, but not all, directors (90%) and staff (84%) were in recovery. *Membership*: A large proportion of RCC visitors were male (61%), White (72%), unemployed (50%), criminal-justice system-involved (43%) and reported opioids (35%) or alcohol (33%) as their primary substance. Roughly half were in their first year of recovery (49%), but about 20% had five or more years. *Services*: RCCs reported a range of services including social/recreational (100%), mutual-help (91%), recovery coaching (77%), and employment (83%) and education (63%) assistance. Medication-assisted treatment (MAT) support (43%) and overdose reversal training (57%) were less frequently offered, despite being rated as highly important by staff.

Conclusions: RCCs are easily accessible, attractive, mostly state-funded, recovery support hubs providing an array of services to individuals in various recovery stages. They appear to play a valued role in facilitating the accrual of social, employment, housing, and other recovery capital. Research is needed to understand the relative lack of opioid-specific support and to determine their broader impact in initiating and sustaining remission and cost-effectiveness.

* Corresponding author at: Recovery Research Institute, 151 Merrimac Street, 6th Floor, Boston, MA 02114, United States of America.
E-mail address: jkelly11@mgh.harvard.edu (J.F. Kelly).

https://doi.org/10.1016/j.jsat.2019.12.009
Received 2 August 2019; Received in revised form 9 October 2019; Accepted 17 December 2019
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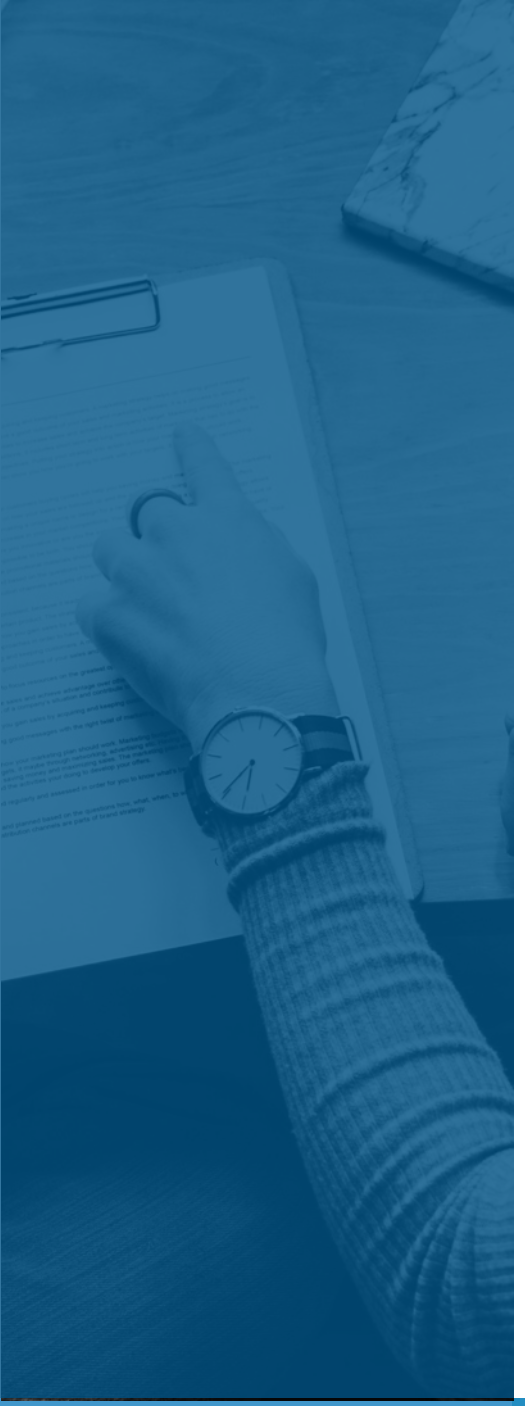

AIM, DESIGN, MEASURES

'New Kid On The Block':

STUDY DESIGN: Cross sectional study across 32 RCCs

PARTICIPANTS: 30 directors interviewed, 59 staff members completed online survey

AIMS WERE TO DETERMINE:

I. Physicality and locality: Structural characteristics , attractiveness, location
II. Operations and Budgets: Years in operation, how they are funded and staffed
III. Leadership and Staffing: Who is running RCCs?
IV. Membership: Who is using RCCs?
V. Services Provided: Perceived importance to recovery as rated by center staff.
VI. Correlational associations among **center characteristics and usage of centers**

MEASURES INCLUDE:

- Environmental rating scale
- Walk score
- Survey of Structures and Operations
- Demographics
- Substance Use History
- Employment History
- Member characteristics
- Referral source
- Services provided

RCCs have emerged as the second most common source of recovery community support, and have yet not been subjected to any systematic study

Kelly JF et al. New Kid on the Block: An Investigation of the Physical, Operational, Personnel and Service Characteristics of Recovery Community Centers in The United States

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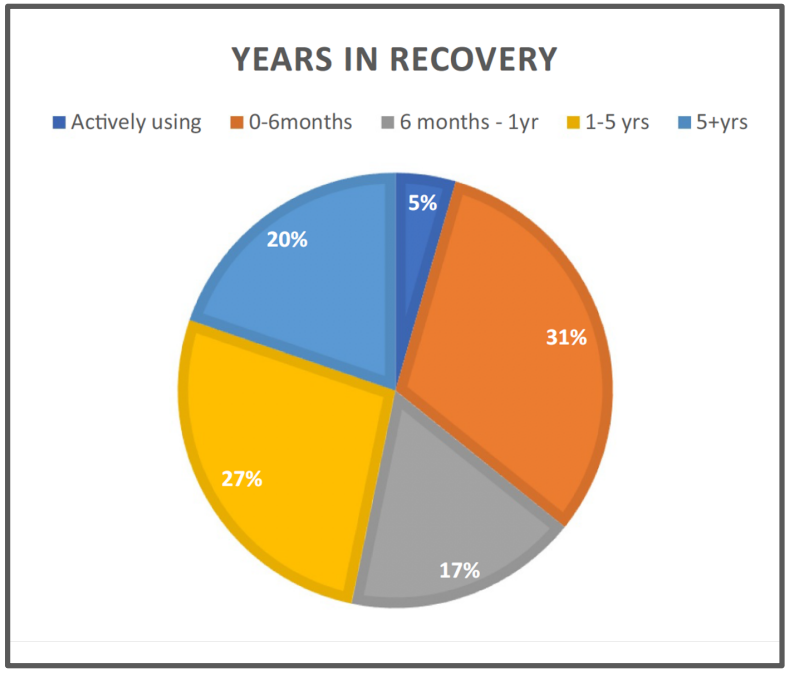
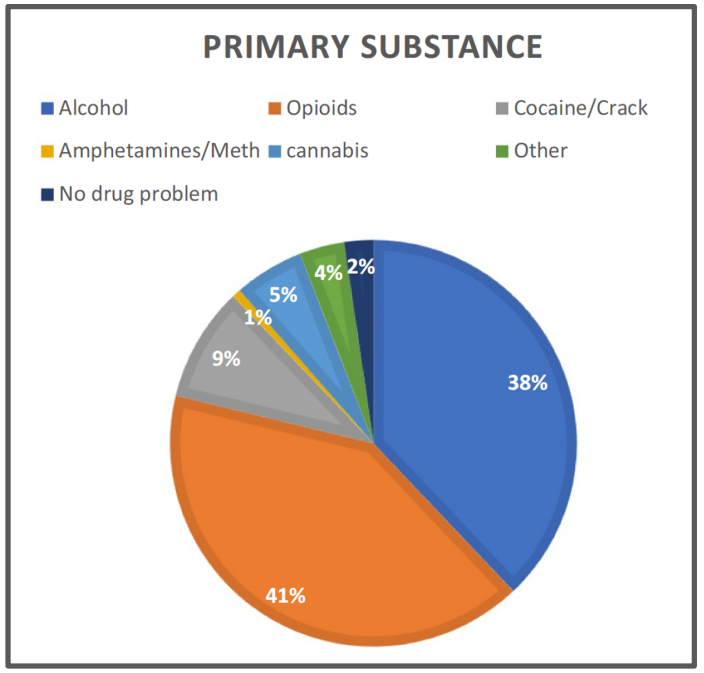
RESULTS

'New Kid On The Block'





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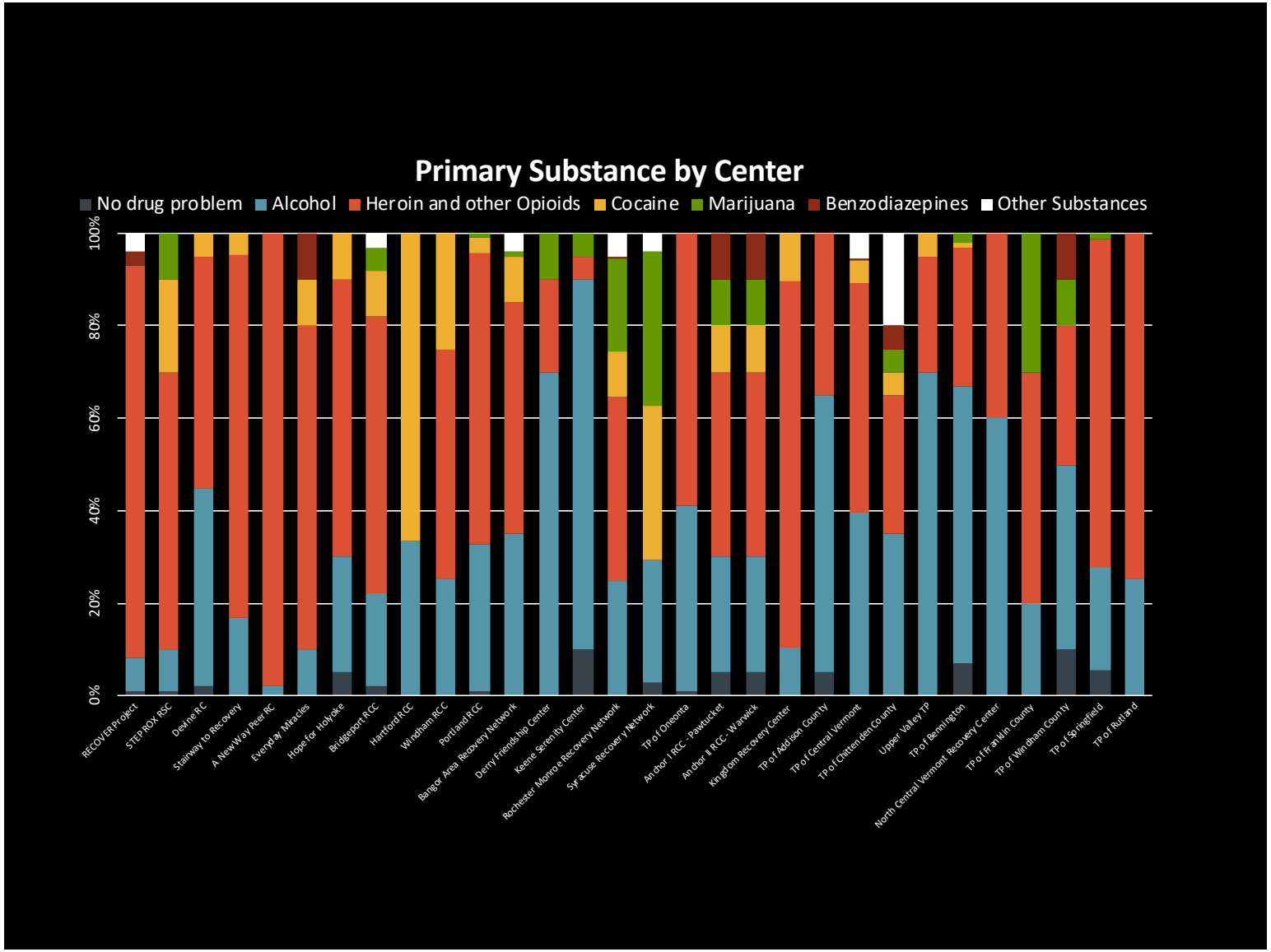

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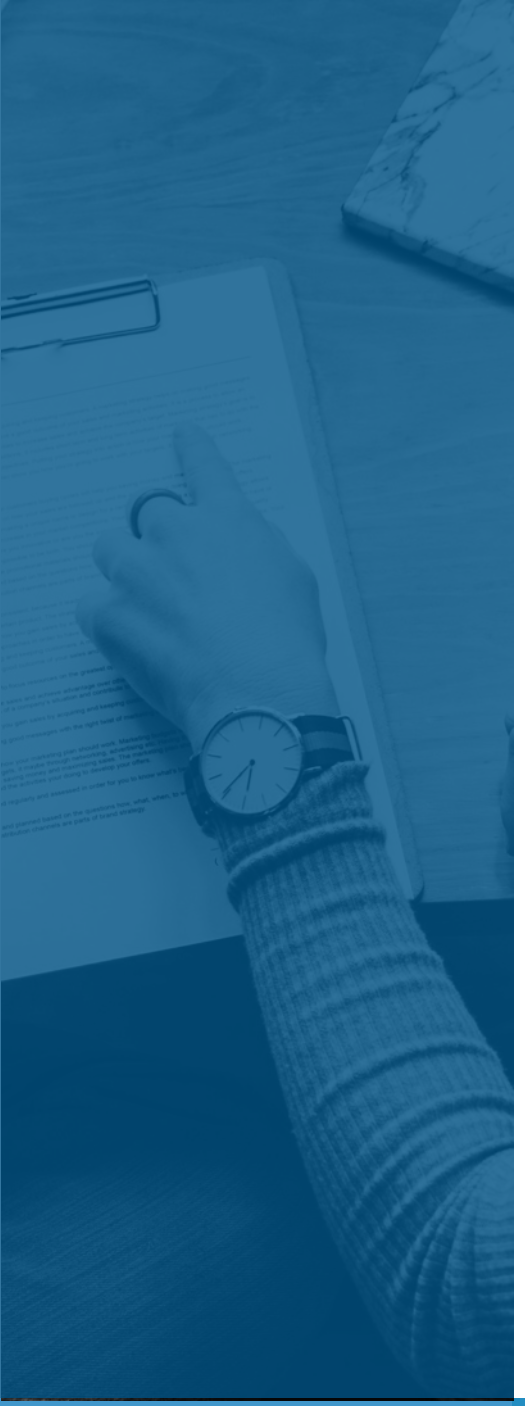

RESULTS

'New Kid On The Block'

- Mostly in urban/suburban locations, have moderate-good attractiveness/ quality and are easy to walk around

- Operating for an average of **8.5 years** with a dozen to more than two thousand visitors/month

- Center directors were mostly **female** with primary drug histories of alcohol , cocaine, or opioids.
  - Most, but not all, directors and staff were in recovery.

- RCC **visitors:** Male, White, unemployed, criminal-justice system-involved

- RCCs reported a **range of services** including
  - Social/Recreational
  - Mutual-Help
  - Recovery Coaching
  - Employment and Education Assistance
  - Medication-assisted treatment (MAT) support and overdose reversal training were less frequently offered, despite their high ratings by staff

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RESULTS: Referral Source

'New Kid On The Block'

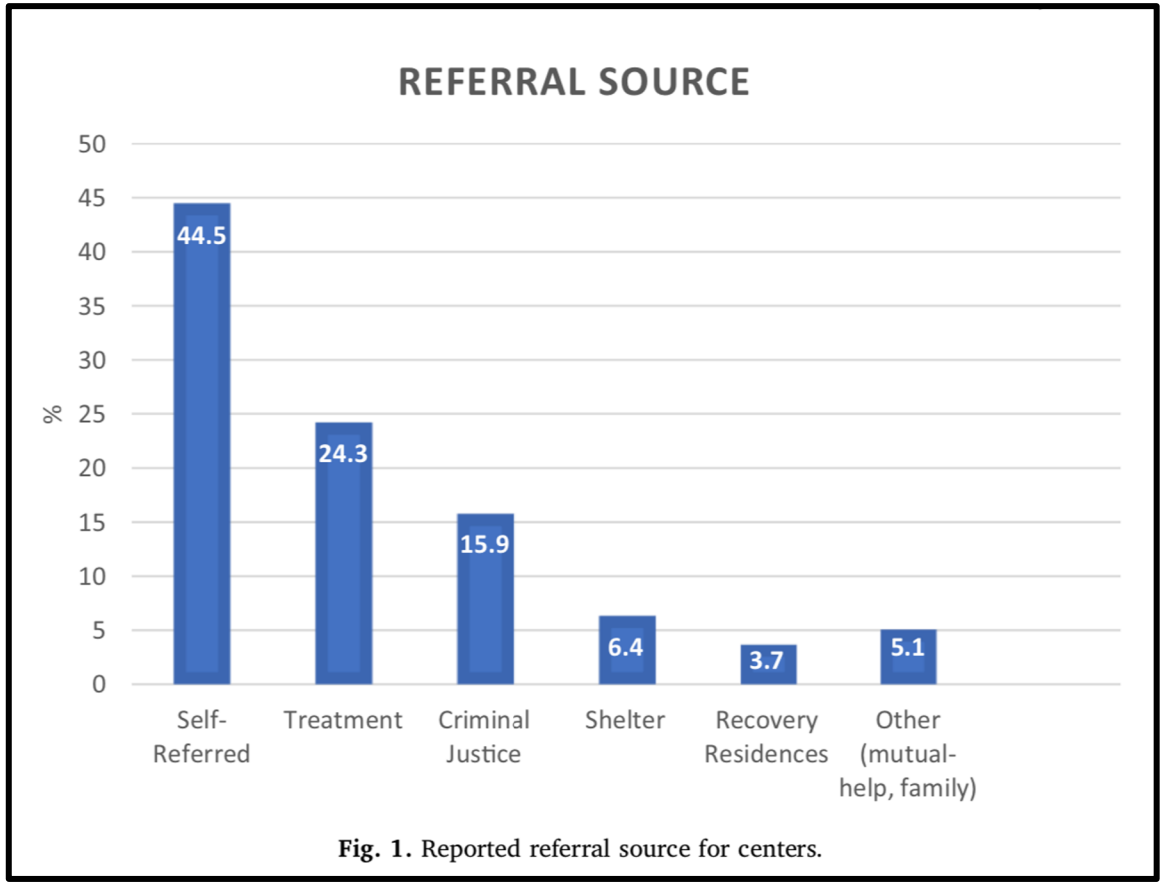

Fig. 1. Reported referral source for centers.

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ALCOHOLISM: CLINICAL AND EXPERIMENTAL RESEARCH

Vol. 44, No. 3
711-721

One-Stop Shopping for Recovery: An Investigation of Participant Characteristics and Benefits Derived From U.S. Recovery Community Centers

John F. Kelly, Robert L. Stout, Leonard A. Jason, Nilofar Fallah-Sohy, Lauren A. Hoffman, and Bettina B. Hoeppner

Background: Recovery community centers (RCCs) are the "new kid on the block" in providing addiction recovery services, adding a third tier to the 2 existing tiers of formal treatment and mutual-help organizations (MHOs). RCCs are intended to be recovery hubs facilitating "one-stop shopping" in the accrual of recovery capital (e.g., recovery coaching; employment/educational linkages). Despite their growth, little is known about who uses RCCs, what they use, and how use relates to improvements in functioning and quality of life. Greater knowledge would inform the field about RCC's potential clinical and public health utility.

Methods: Online survey conducted with participants (N = 336) attending RCCs (k = 31) in the northeastern United States. Substance use history, services used, and derived benefits (e.g., quality of life) were assessed. Systematic regression modeling tested a priori theorized relationships among variables.

Results: RCC members (n = 336) were on average 41.1 ± 12.4 years of age, 50% female, predominantly White (78.6%), with high school or lower education (48.8%), and limited income (45.2% < $10,000 past-year household income). Most had either a primary opioid (32.7%) or alcohol (26.8%) problem. Just under half (48.5%) reported a lifetime psychiatric diagnosis. Participants had been attending RCCs for 2.6 ± 3.4 years, with many attending <1 year (35.4%). Most commonly used aspects were the socially oriented mutual-help/peer groups and volunteering, but technological assistance and employment assistance were also common. Conceptual model testing found RCCs associated with increased recovery capital, but not social support; both of these theorized proximal outcomes, however, were related to improvements in psychological distress, self-esteem, and quality of life.

Conclusions: RCCs are utilized by an array of individuals with few resources and primary opioid or alcohol histories. Whereas strong social supportive elements were common and highly rated, RCCs appear to play a more unique role not provided either by formal treatment or by MHOs in facilitating the acquisition of recovery capital and thereby enhancing functioning and quality of life.

Key Words: Recovery Community Centers, Recovery, Addiction, Support Services, Recovery Coaching, Addiction, Substance Use Disorder.

PROFESSIONAL TREATMENT SERVICES often play a vital role in addressing substance use disorders in the United States and around the world. Such clinical services can provide life-saving medically managed detoxification and stabilization as well as deliver medications and psychosocial interventions that can alleviate cravings and help prevent relapse. Extending the framework and benefits of these professional treatment efforts, peer-led mutual-help organizations (MHOs), such as Alcoholics Anonymous (AA), Narcotics Anonymous (NA), SMART Recovery, and many others are commonly used to provide additional long-term free recovery support over time in the communities in which people live (Bøg et al., 2017; Kelly, 2017; Kelly et al., 2017a). Adding to these resources in recent years has been a new dimension of recovery support services that are neither professional treatment nor MHOs. These new services (e.g., recovery community centers [RCCs], recovery residences, recovery coaching, recovery high schools, and collegiate recovery programs; Kelly et al., in press; White et al., 2012, 2012) combine voluntary, peer-led initiatives, with professional activities, and are intended to provide flexible community-based options to address the psychosocial barriers to sustained remission (White et al., 2012, 2012).

RCCs are one of the most common of these new additions to recovery support infrastructure and are growing rapidly (Cousins et al., 2012; Kelly et al., in press; Kelly et al., 2017b). RCCs are literally and metaphorically, "new kids on the block," as these novel entities are most often located on

From the Recovery Research Institute (JFK, NF-S, LAH, BBH), Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts; DePaul University (RLS), Chicago, Illinois; and Decision Sciences Institute (LAJ), Providence, Rhode Island.

Received for publication October 11, 2019; accepted December 27, 2019.

Reprint requests: John F. Kelly, PhD, Recovery Research Institute, Massachusetts General Hospital and Harvard Medical School, 151 Merrimac Street, 6th Floor, Boston, MA 02114; Tel.: 617-643-1980; Fax: 617-643-7667; E-mail: jkelly11@mgh.harvard.edu

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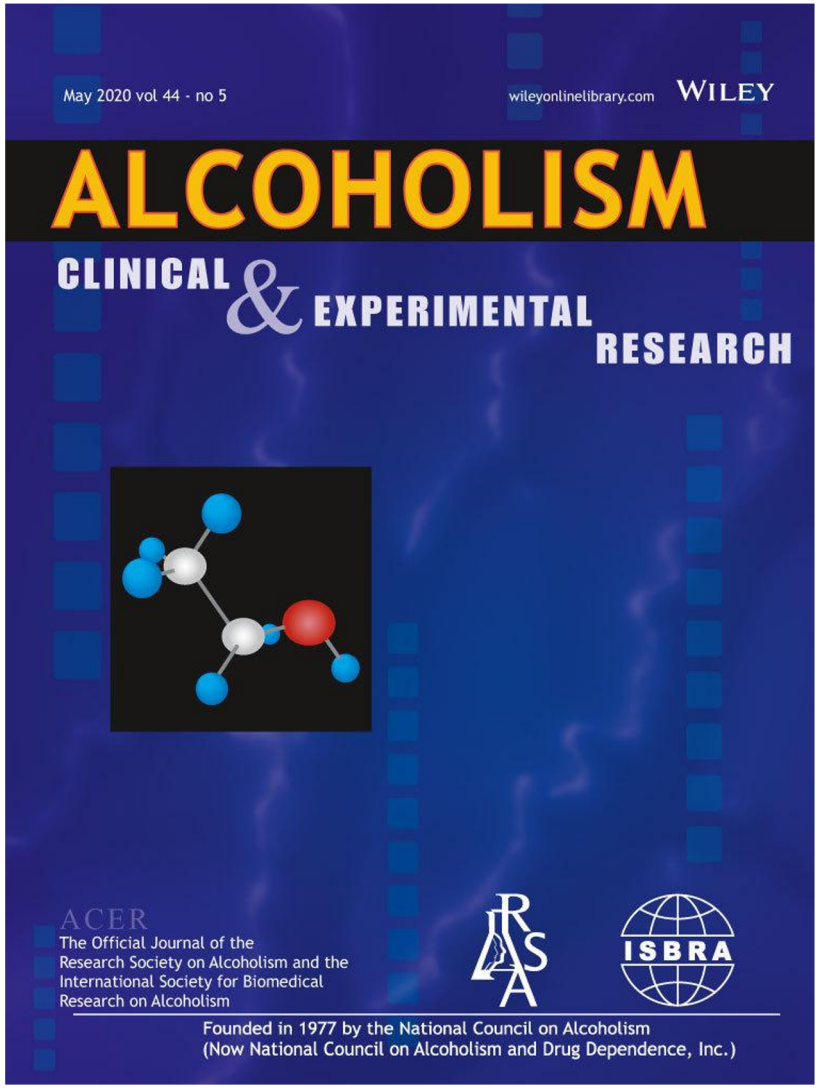
DOI: 10.1111/acer.14281



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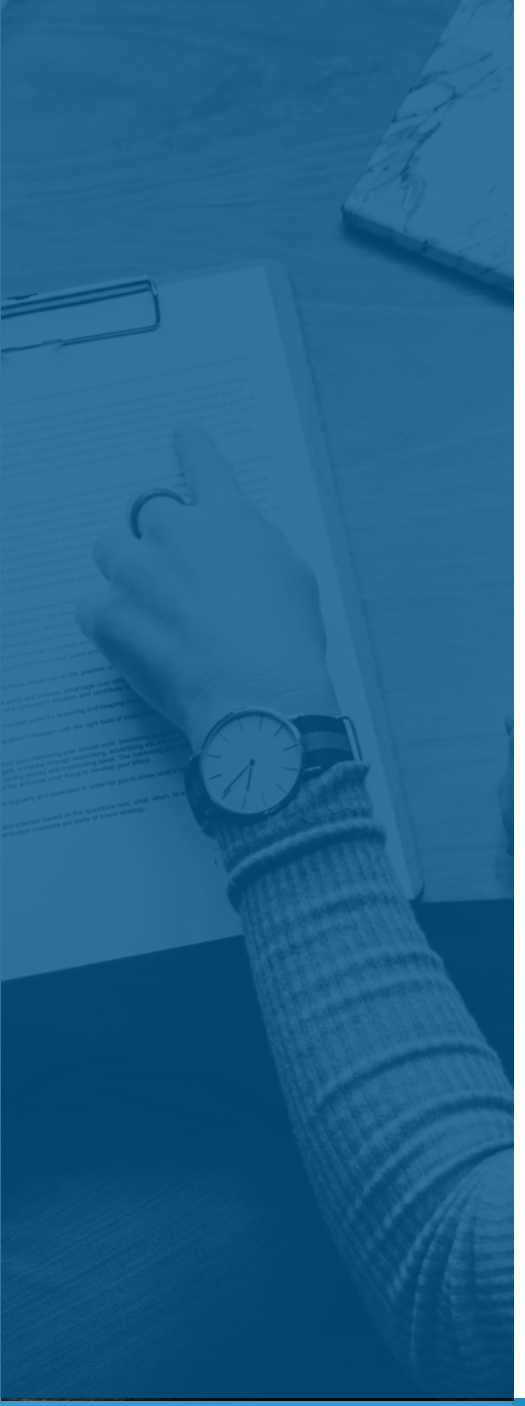

AIMS

'One-Stop Shopping For Recovery'

I. **Assess** demographic, substance use, mental health, and recovery experience characteristics of active participants across almost 3 dozen RCCs in the northeastern United States

I. **Examine** the types of available services uses by RCC members across RCCs and describe how helpful members found them

I. **Investigate** the relationship between the extent of RCC exposure and length of time in recovery and the associations among RCC exposure and measures of recovery capital and social support and how these constructs may be related to other indices of quality of life and functioning, and psychological and emotional well-being

Little is known about who uses RCCs, types and helpfulness of services used, effect on recovery capital and effect on quality of life

Kelly JF, Stout RL, Jason LA, Fallah-Soy N, Hoffman LA, Hoeppner BB. One Stop-Shopping for Recovery: An Investigation of Participant Characteristics and Benefits Derived From U.S. Recovery Community Centers

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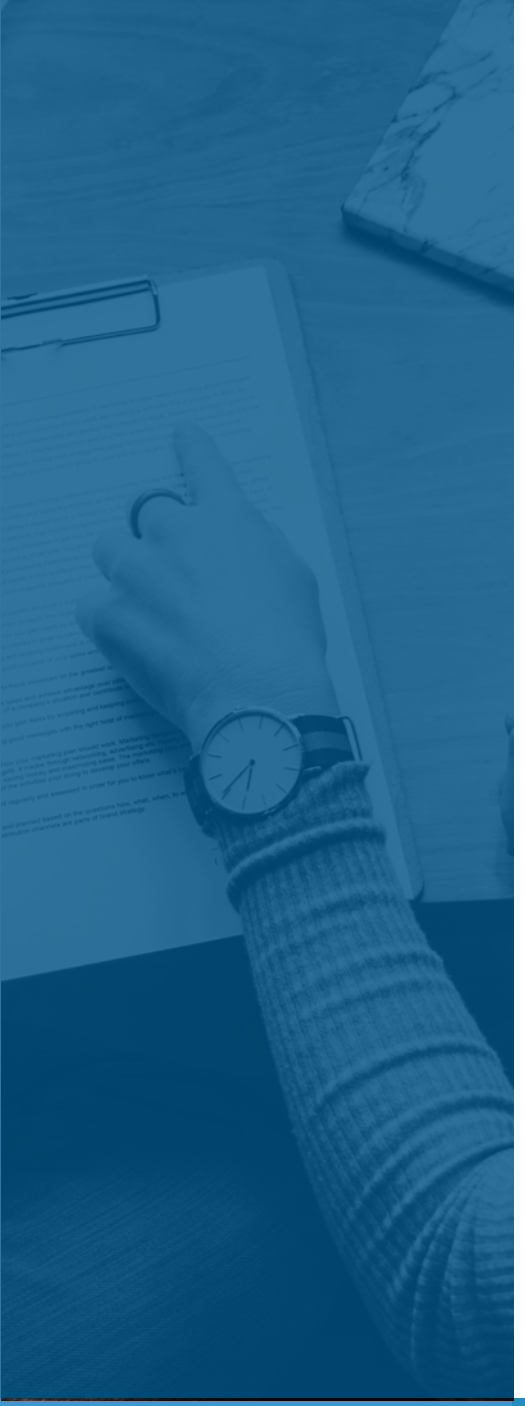

METHODS

'One-Stop Shopping For Recovery'

DESIGN:

- Cross-sectional
- Survey

PARTICIPANTS:

- N=336 RCC members
- Across 31 New England RCCS

MEASURES INCLUDE:

- Demographics
- Recovery
- Substance Use
- Mental Health
- RCC Experience
- RCC Services
- RCC Appraisals
- Recovery Assets
- Quality of Life

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RESULTS

'One-Stop Shopping For Recovery'

Table 2. RCC Services Used and Their Perceived Helpfulness

RCC service	Used service %	Used service (*n*)	Rated helpfulness Mean	Rated helpfulness (SD)
All recovery meetings	64.9	(218)	6.1	(1.2)
Mutual-help groups	58.6	(197)	6.1	(1.3)
Peer-facilitated recovery support groups	54.2	(182)	6.1	(1.2)
Opportunity to volunteer/give back to the center	44.3	(149)	6.6	(0.8)
Recreational/social activities	40.8	(137)	6.2	(1.1)
Recovery coaching	37.8	(127)	6.3	(1.2)
Technology/Internet access	27.1	(91)	6.5	(0.9)
Employment assistance	26.5	(89)	5.9	(1.5)
Recovery advocacy outreach and opportunities	24.1	(81)	6.5	(0.9)
NARCAN training and/or distribution	21.1	(71)	6.4	(1.0)
Health, exercise, and nutrition programs	17.0	(57)	6.1	(1.1)
Basic needs assistance	16.4	(55)	6.4	(1.2)
Housing assistance	15.2	(51)	5.8	(1.4)
Medication-assisted treatment	14.9	(50)	5.3	(1.4)
Expressive arts	14.9	(50)	6.2	(1.1)
Education assistance	13.1	(44)	5.8	(1.4)
Mental health support	12.8	(43)	5.9	(1.4)
Family support services	8.0	(27)	6.4	(1.1)
Smoking cessation support	7.7	(26)	5.7	(1.7)
Legal assistance	7.4	(25)	5.6	(1.8)
Health insurance education	5.7	(19)	5.4	(1.5)
Financial services	3.9	(13)	5.2	(2.0)
Childcare services	0.9	(3)	7.0	(0.0)

Helpfulness rated on a 1- to 7-point scale, where 1 = "Not at All Helpful" and 7 = "Extremely Helpful"; only participants who indicated using a service were asked to rate it.

Most commonly used services at RCCs

Services rated most useful

- RCCs are utilized by an array of individuals with few resources and primary opioid or alcohol histories.

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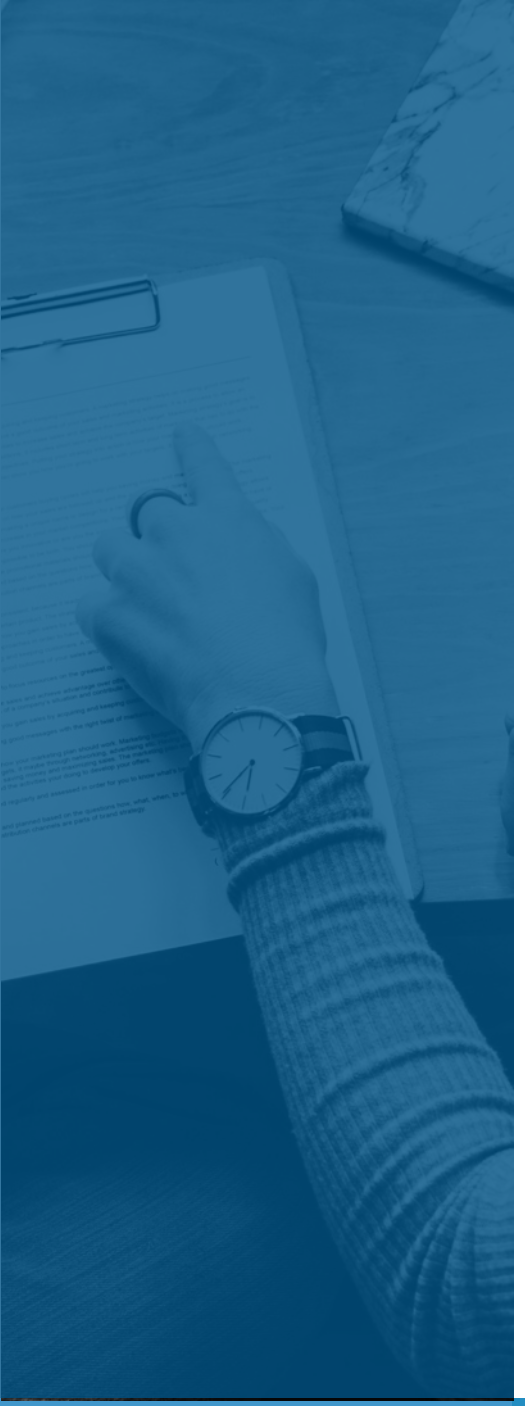

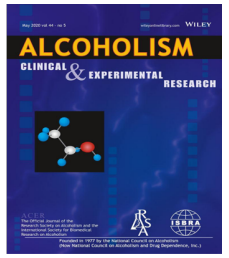

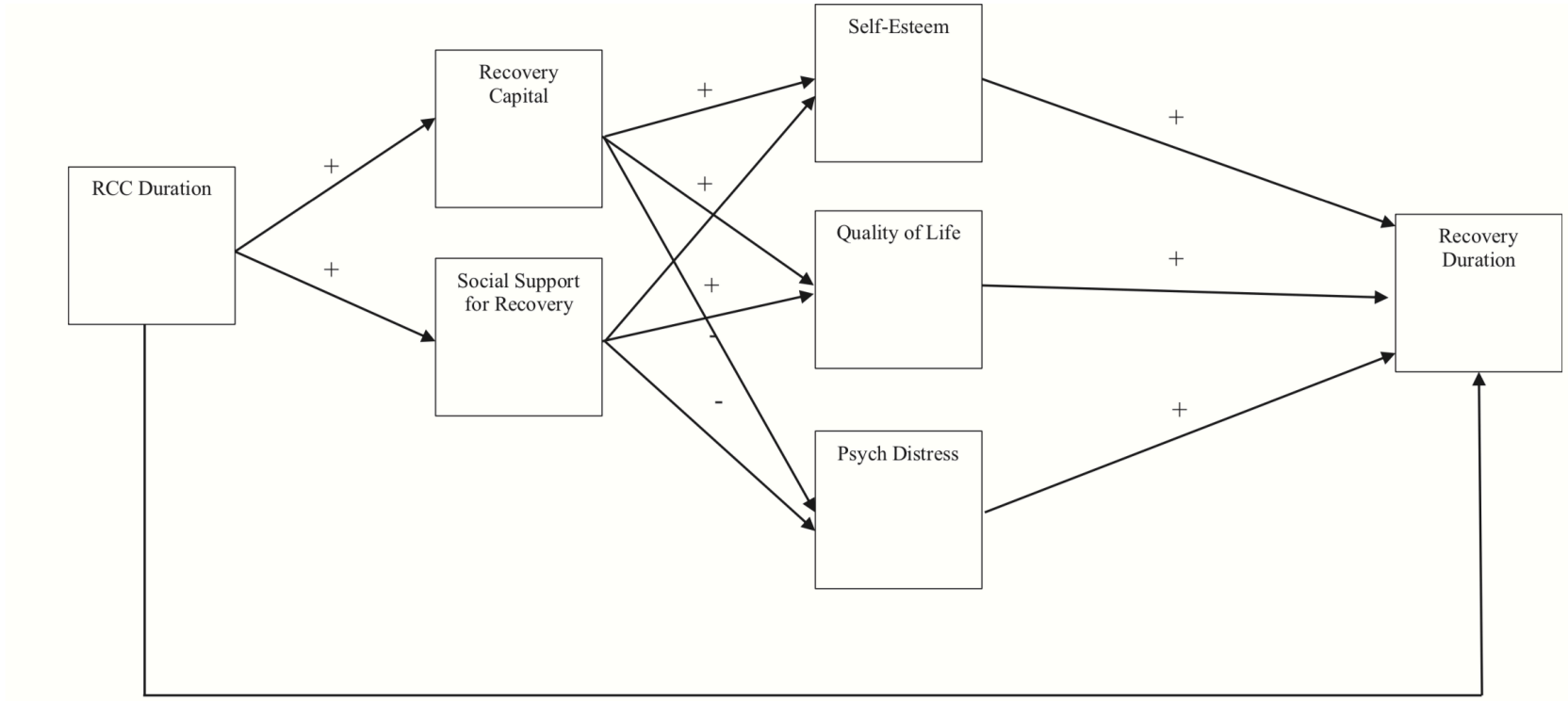

Fig. 1. Conceptual model of the theorized relationships among RCC duration and length of recovery with anticipated intermediate variables. Note: "+" = theorized positive association among linked variables; "–" = theorized negative association among linked variables.

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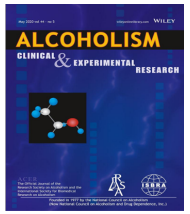

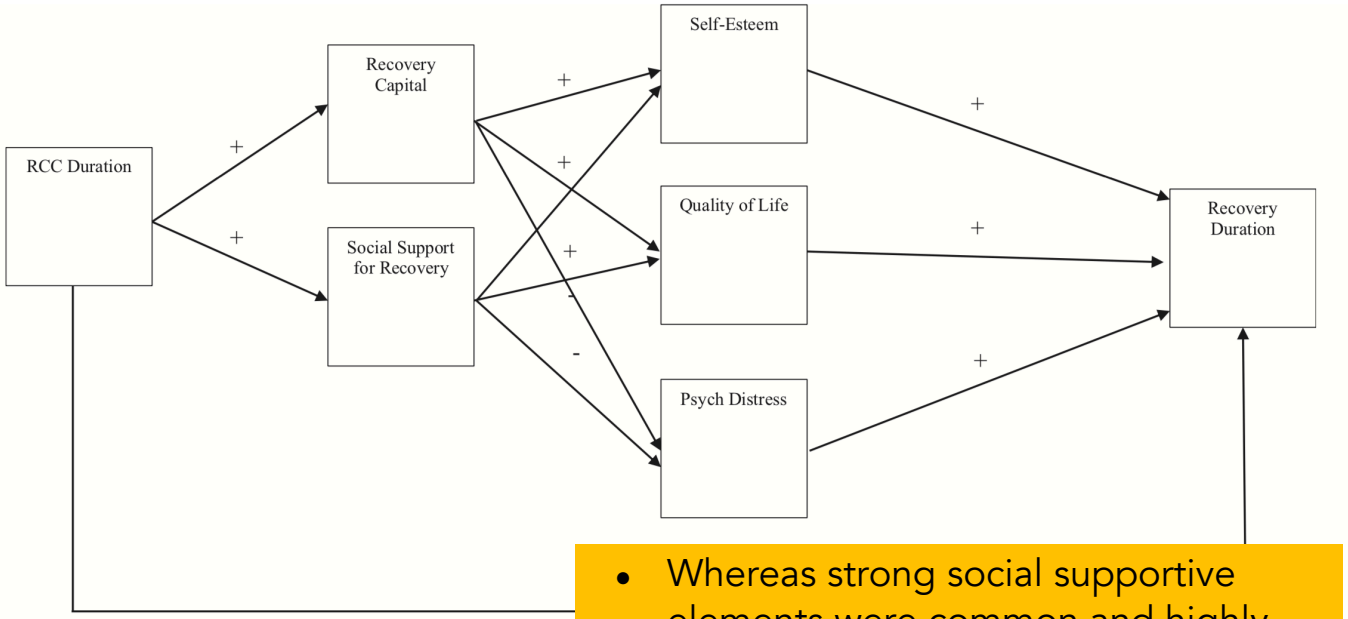

Fig. 1. Conceptual model of the theorized relationships among
"+" = theorized positive association among linked variables; "–" =
ote:

- Whereas strong social supportive elements were common and highly rated, **RCCs appear to play a more unique role not provided either by formal treatment or by MHOs** in facilitating the acquisition of recovery capital and thereby enhancing functioning and quality of life.

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RCC Summary

- Past 50yrs seen great progress in novel interventions and greater recognition of need for ongoing care and provision of recovery support services
- Address clinical pathology and build recovery capital
- RCCs are utilized by individuals mostly with few resources and higher addiction pathology and comorbidities, mostly with opioid and alcohol histories
- RCCs are new kids on the block – appear to provide, perhaps uniquely, access to recovery capital, not provided by either treatment or mutual-help
- Preliminary results appear promising, but more systematic research is needed to understand more about the clinical and public health utility and societal health and other cost-offset potential of RCCs….

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