Digital recovery management: Leveraging social network sites to enhance addiction treatment and recovery outcomes

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Introduction

11% of individuals 18+ with SUD received any SUD service (e.g., including mutual-help)

Source: SAMHSA NSDUH 2016
Introduction

• 60% drink/use drugs in the first post-treatment year

• 1.6 million adults seek services despite no longer meeting for SUD

• Three Major Needs:
  o Increase easy access to recovery-supportive resources
  o Buffer against post-treatment relapse (i.e., continuing care)
  o Support individuals in recovery management framework

• Emerging adults (18-25; 18-29, etc.) with SUD are particularly challenging
Network Support is Important in SUD Treatment & Recovery

• Social network: A model of the connections between and among people (in real or virtual space)

• Social network composition (e.g., % heavy drinkers) relates to SUD onset and offset; network changes are recovery-related MOBCs

• Yalom’s group therapy factors in sample of 12-step mutual-help organization (MHO) emerging adult attendees (Labbe et al. 2014)
  o 43% universality/cohesion
  o 24% installation of hope
  o 13% altruism
Ways to Leverage Technology in SUD Treatment/Recovery
Social Network Sites Defined

Social Network Sites (SNSs; Ellison & boyd, 2013) are networked communication platforms:

- Profiles
- Observable and navigable connections
- Create and interact with user-generated content
- Ex. Facebook, Instagram, Twitter, but not Snapchat

Overall, 88% of 18-29. Source: Dahne & Lejuez (2015)

70% overall, similar in sample of outpatient SUD treatment seekers (Ashford et al., in press)

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<td>SMS capability (n = 223)</td>
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<tr>
<td>Other</td>
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</table>
Research on Social Network Sites & Health Behavior Change

• Modest changes in physical activity and weight loss (Maher 2014)

• Participation in smoking cessation online community 4-5 times better rates of 30-day abstinence (Baker et al. 2015; Papandonatos et al. 2016)

• Limited data targeting online forums and communities for alcohol (Urbanoski et al. 2016; Carah et al. 2015) and other drugs (D’Agostino et al., 2017)
  o Range of severity and goals
  o Modest levels of engagement
  o Focus on content analyses, not participants
  o Outcomes not tested

• Alcohol and marijuana content exposure on SNSs predicts increased substance use (Boyle/Labrie, Moreno)
  o Peer belonging may sensitize individuals (Bergman et al., under review)
Objectives

1) To examine recovery-related online tech use among individuals in the National Recovery Study

2) To examine participation and perceived benefit in a recovery-specific social network site

3) To examine social network site engagement among emerging adults in outpatient SUD treatment

4) Future directions: Now and Later
Online Technology in Substance Problem Resolution: Macro Perspective
Research Questions

1) How prevalent is online technology use “to cut down on substance use, abstain from substances, or strengthen one’s recovery” (i.e., recovery-related use of online technology; ROOT)

2a) What demographic factors are associated with ROOT?
2b) Controlling for demographics, what clinical and other substance use related factors are associated ROOT?
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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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.
• National Recovery Study (NRS; Kelly et al. 2017)
  o US adults who “used to have a problem with alcohol or drugs, but no longer do” ($N = 2002$)
  o Derived from nationally representative sample
  o $M$ problem resolution = 11.8 years
  o Half (54%) with history of service utilization
  o Half (52%) were currently abstinent from all substances
Method

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<thead>
<tr>
<th>Demographics</th>
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</tr>
<tr>
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<tr>
<td>Male</td>
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<tr>
<td>Age</td>
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<tr>
<td>18–24 yrs (emerging adulthood)</td>
<td>7.1</td>
<td>1.16</td>
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<tr>
<td>25–49 yrs (young adults)</td>
<td>45.2</td>
<td>1.63</td>
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<tr>
<td>50–64 yrs (mid-life stage adults, CDC)</td>
<td>34.7</td>
<td>1.43</td>
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<td>65+ yrs (older adults)</td>
<td>13.0</td>
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<td>17.3</td>
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<tr>
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<td>1.7</td>
<td>0.30</td>
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</tbody>
</table>

Primary problem substance

- did not identify any problem substance: 12.7, 1.14
- Alcohol: 51.2, 1.61
- Cannabis (e.g., marijuana, hashish): 11.0, 1.13
- Cocaine (e.g., coke, crack, freebase): 10.0, 0.92
- Methamphetamine (crank, meth, crystal): 7.3, 0.90
- Opioids (e.g., heroin, unprescribed fentanyl, methadone): 5.3, 0.77
- Other: 2.6, 0.50
Method

• Online technologies
  o Online mutual-help organizations (MHOs)
  o Social network sites: general-interest and recovery-specific
  o “Non-social” smartphone apps and other online resources

• Demographics
  o Age, gender, education, race/ethnicity, income, household internet access

• Clinical/substance factors
  o Primary substance, total abstinence, treatment program, SUD medication, recovery support services, arrested/drug court, number substances, age of first use, psychological distress, quality of life, recovery capital, years since problem resolution
Method

Clinical/Substance Variable

Set of Demographics

ROOT (yes/no)
Findings: ROOT Prevalence

11.0% Overall

Platform Choice Among Online Tech Users

- Online MHO: 83.6% (9.2%)
- General-Interest SNS: 44.2% (4.9%)
- Recovery-Specific SNS: 27.3% (3.0%)
- Other: 50.9% (5.6%)
Findings: ROOT Correlates

• Demographics Alone
  o Age (18-29 > 45-59 and 60+)
  o Education (Less than high school > High school diploma)
  o Race/ethnicity (Hispanic > White)
  o Income (Less than 30k > 100k)
  o Household internet access (Yes > No, \( p = .055 \))
Findings: ROOT Correlates

Other significant ROOT correlates
Younger age of first use (OR = .93)
More psychological distress (OR = 1.08)

Notable
Time since problem resolution 8.4 years for ROOT vs. 12.3 years no ROOT, ns
Summary

• 2.5 million US adults with ROOT
  o Impact = Reach x Effectiveness
  o Research on effectiveness first, strategies to increase reach second

• Younger age explained by more recent problem resolution and greater psychological distress; over time, “older” individuals will do just fine

• Challenges for consideration
  o Greater severity related to greater baseline ROOT propensity
  o 50% with pay-as-you go plans in Dahne et al.
Study 2: Focusing on a Recovery-Specific Social Network Site
Research Questions

1) What resources and activities do participants use on a recovery-specific SNS, InTheRooms.com (ITR)?

2) To what extent do participants perceive benefit from ITR on motivation, self-efficacy, reduced craving, recovery identity?

3) For questions 1 and 2, are there differences for those with 1+ year abstinent vs. less/not abstinent (i.e., sustained remission)?
BRIEF REPORT

Digital Recovery Management: Characterizing Recovery-Specific Social Network Site Participation and Perceived Benefit

Brandon G. Bergman, Nathaniel W. Kelly, Bettina B. Hoeppner, Corrie L. Vilsaint, and John F. Kelly
Massachusetts General Hospital, Boston, Massachusetts, and Harvard Medical School

Research shows that digital social network sites (SNSs) may be valuable platforms to effect health behavior change. Little is known specifically about their ability to help address alcohol and other drug problems. This gap is noteworthy, given that individuals are already participating in existing, recovery-specific SNSs (hereafter referred to as recovery SNSs): online communities with the functionality of conventional SNSs (e.g., Facebook) that focus on substance use disorder (SUD) recovery. For example, InTheRooms.com (ITR) is a large, well-known recovery SNS that is available for free 24 hr/day via website and mobile smartphone applications. It offers recovery tools within a digital social milieu for over 430,000 registered users. To augment the knowledge base on recovery SNS platforms, we conducted an online survey of 123 ITR participants ($M = 50.8$ years old; 56.9% female; 93.5% White; $M = 7.3$ years of abstinence, range of 0–30 years; 65% cited alcohol as their primary substance). Respondents engaged with ITR, on average, for about 30 min/day several times each week. Daily meditation prompts and live online video meetings were the most commonly utilized resources. Participants generally endorsed ITR as a helpful platform, particularly with respect to increased abstinence/recovery motivation and self-efficacy. Compared to individuals abstinent for 1 or more years, those abstinent less than 1 year (including nonabstinent individuals) showed similar rates of engagement with ITR activities and similar levels of perceived benefit. Our findings suggest that longitudinal studies are warranted to examine the clinical utility of ITR and other recovery SNSs as SUD treatment adjuncts and/or recovery self-management tools.

Keywords: e-health, social network sites, substance use disorder, mutual help organizations
Method

• Cross-sectional survey of individuals recruited from ITR who participated for their “own current or former substance problem" ($N = 123$)

• $M = 50.8$ years (12% 18-35); 94% White, 57% Female

• 7.3 years abstinent, on average ($SD = 9.3$)
Method

- Primary substance: 65% alcohol, 18% opioids, 12% stimulants, 4% cannabis, 1% "more"

- Hx of treatment/recovery support activities common (e.g., 80% f2f mutual-help attendance past 6 months)

- Recovery-related constructs (e.g., recovery capital), comparable to community recovery samples (1+ with greater levels than <1)

- 90% with smartphones and 75% daily SNS use
Findings: Engagement Basics

- Average User: Several times per week for 30 minutes
- Similar for 1+ and <1 ($p > .05$; <1 with $d = .21$ more time per day)
- Time spent via ITR smartphone “app” overall: one-third 50% or more, one-third 5 - 45%, one third 0%
Findings: Engagement Activities

Similar for 1+ and <1 (p > .05; rs = .01 - .154)
Findings: Perceived Benefit

Mean agreement/disagreement

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<th>Disagree</th>
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<tr>
<td>Self-Efficacy</td>
<td>4.31</td>
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<tr>
<td>Craving</td>
<td>3.89</td>
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<tr>
<td>Identity</td>
<td>3.96</td>
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</tbody>
</table>

Similar for 1+ and <1
Implications

• Recovery SNSs warrant longitudinal investigation
  o Self-management (reminder: 89% do not seek services)
  o Clinical service to expand “network support for recovery”
    o During treatment
    o Continuing care

• MOBC and dismantling research
  o *What* is it about recovery SNSs that explain benefit? Ubiquitous social interaction and support? Easy to access recovery activities? Etc.

• Youth and recovery SNSs
  o 90% of 18-29 year olds use SNSs (“digital natives”)

Social Network Site Participation in a Clinical Sample of Emerging Adults with SUD
Research Questions

1) What is the frequency and intensity of general-interest SNS participation in emerging adults presenting for outpatient SUD evaluation?

2) How much of the time are they a) being exposed to alcohol and other drug content on SNSs, and b) seeking out recovery and other health content?

3) Do they report a) increased craving when exposed to substance content, and b) increased motivation for change when seeking out recovery/health content?
Method

• Individuals presenting for SUD evaluation at outpatient program for adolescents and emerging adults (14-26 years)

• Survey in evaluation packet (N = 51; 55% response) supplemented with clinical chart review
  - $M$ age = 22 years ($SD = 2.3$); 65% male; 80% White; 66% with some college+
  - 33% opioid primary, 31% alcohol, 28% cannabis
  - $M$ dependence severity = 11/30; 90-day abstinence motivation = 4.9/10 alcohol, 6.9/10 other drugs
  - 18% with past 90 days injection drug use; 68% with co-occurring psych disorder based on chart review
• \( n = \frac{49}{51} = 96\% \) with any SNS participation in the past month

• Logging in daily/multiple times per day: 28 (57\%) with a computer and 40 (82\%) with a mobile device

• **Active on SNSs 1+ hours per day:** 28 (58\%)
Increased Craving? (n = 38)

Any, n = 41/48 (85%)

Increased Motivation? (n = 15)

Any, n = 18/47 (38%)

Median-split high motivation group sought recovery/health content more often in the past month ($p = .07; d = .55$); no other group differences ($p > .05, d < .5$)
Conclusions and Implications

- Small, single setting self-selected sample of emerging adults with SUD: SNSs popular, 85% exposed to substance content and 38% seek recovery/health content
  - 42% with increased craving; 87% with increased motivation

- Treatment seekers vs. SUD more broadly

- Longitudinal research needed with moderator and MOBC analyses
  - E.g., in Boyle, Labrie et al.’s (2016) sample of college students, T1 SNS exposure predicts T2 drinking over and above T1 drinking and descriptive norms – but more so for males – and with different, yet incomplete pathways through max drinking descriptive norms, college alcohol beliefs, and enhancement drinking motives
To Recap...

• One in 10 who resolved a substance problem used online technology as part of the process (6.8% SNS)
  o More psychosocial challenges and other service utilization related to ROOT

• Participants on a recovery-specific social network site with <1 year abstinent (or not abstinent) regard participation as helpful as those with 1+ years

• Emerging adults with SUD who attended an outpatient evaluation – like gen pop young adults – are participating on general interest SNSs at high rates, and are likely to report passive exposure to substance-related content on these platforms
(My) Future Research Directions
Questions for Now

• Emerging adults with SUD: Does greater recovery SNS participation confer added benefit? In what ways and on which sites? How do we drive participation?

• Better for certain sub-groups of emerging adults (e.g., lower initial motivation)? Can it substitute for traditional services? Is it a conduit to face-to-face (i.e., “toe in water”)?

• How to measure social influences on SUD outcomes accounting for digital/online and face-to-face interactions? Do we capture greater variance in outcomes by including SNS-facilitated network support for drinking/drug use and recovery?
Working Design

• Longitudinal study of 200 EAs with moderate/severe AUD admitted to outpatient addiction treatment within past two weeks: assessments at baseline (BL), 4 weeks (4wk), 12 weeks (12wk)

• Off/on design
  o Off = Treatment-as-usual (TAU; n = 80)
  o On = TAU + 1-session, therapist-led recovery SNS orientation (n = 120)

• Weekly mobile diaries and objective markers to assess recovery SNS activity, coded Facebook data to create objective indices of digital network influences (supplementing self-reported measures), survey measures for other theorized mechanisms, breathalyzer and tox screen data for substance use
Questions for Later

• How to combine social network site platforms with existing, empirically-supported interventions for SUD
  o What is an optimal recovery-related SNS experience? How can it be personalized based on individual factors and needs?

• How to reach individuals with SUD outside treatment settings

• Privacy and other ethical issues? Are there “side effects” of linking individuals with SUD to online/smartphone technologies?
  o ROOT 4.2 times greater odds of “internet addiction” history
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