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BRIEF REPORT

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

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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

Social networks have been shown to relate strongly to substance use disorder (SUD) onset and remission (Galea, Nandi, & Vlahov, 2004; Kelly, Hoeppner, Stout, & Pagano, 2012; Kelly, Stout, Greene, & Slaymaker, 2014; Stout, Kelly, Magill, & Pagano, 2012). Clinically, changes in network composition help explain benefit derived from psychosocial SUD treatment and other recovery support services (Kelly, Hoeppner, et al., 2012; Litt, Kadden, Kabela-Cormier, & Petry, 2009; Litt, Kadden, Tennen, & Kabela-Cormier, 2016; Longabaugh, Wirtz, Zweben, & Stout, 1998). The prominence of online social network sites (SNSs; Ellison & Boyd, 2013) in contemporary social behavior has brought *digital* social networks into the mainstream. Two thirds of all adults (and three fourths of Internet-using adults) participate on at least one SNS, such as Facebook, Twitter, and/or Instagram. While emerging adults (18–29) have the highest rate of engagement (90%), most adults age 30 and older also engage with SNSs, including 77% of 30- to 49-year-olds, 51% of 50- to 64-year-olds, and 35% of individuals age 65 and older (Perrin, 2015).

Capitalizing on the advancement of these social technologies, research has shown that SNS platforms can help enhance health behavior change in areas such as smoking and weight loss (Maher et al., 2014; Yonker, Zan, Scirica, Jethwani, & Kinane, 2015). Far less is known about their ability to help address alcohol and other drug problems. Limited studies in the area have targeted online forums and communities for problem drinking. They show that participants have a range of drinking severities, a range of goals including but not limited to changing their drinking (e.g., fitness), and modest levels of active engagement measured by number of posts and online social ties (Carah, Meurk, & Hall, 2015; Urbanoski, van Mierlo, & Cunningham, 2016). In addition, there are existing online resources that have the functionality of conven-

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tional SNS platforms (e.g., Facebook) but cater to individuals in, or seeking, SUD recovery. Theory suggests that one might benefit from participating in these recovery-specific SNSs (hereafter referred to as *recovery SNSs*) through exposure to relatable recovery role models, enhancing recovery motivation and strengthening recovery identity, and easily accessible recovery tools and social support, enhancing recovery self-efficacy (Best et al., 2016; Larimer, Palmer, & Marlatt, 1999).

In order to augment the knowledge base on recovery SNS participation, the current study had three aims: (1) to describe participants of InTheRooms.com (ITR), a large, existing recovery SNS, in terms of their demographic, clinical, and recovery-related characteristics; (2) to examine their ITR participation; and (3) to examine perceived benefits of participation. For each aim, we also explored whether abstinence time moderated outcome. To our knowledge, this is the first scientific investigation of ITR and existing recovery SNSs more generally. Given the novelty of this area, we did not make any a priori hypotheses.

Method

Description of Recovery Support Service

ITR is a recovery SNS primarily for individuals in, or seeking, SUD recovery with 430,000 registered users (as of November 2016). ITR's resources are available for free, 24 hr/day, via website and mobile smartphone applications (apps) for iOS (e.g., iPhone) and Android (i.e., Samsung Galaxy) platforms. Objective analytics show, counting only website log-ins, that more than 396,000 unique users logged into ITR during the past year and that more than 35,000 unique users logged into ITR during the past month (data for mobile app log-ins alone were not available; ITR staff, personal communication, November 2016). In addition to SNS hallmarks (e.g., status updates), the site also provides a host of recovery resources. First, ITR offers 118 live online video meetings, 67% of which are grounded in 12-step mutual help organization (MHO) philosophy and target substance use (e.g., Alcoholics Anonymous [AA] and Narcotics Anonymous [NA]). Of the remaining 33%, some are also grounded in 12-step MHO philosophy but target problems other than substance use (e.g., Healthy Love), while some target substance use but espouse a more general emphasis on SUD recovery (e.g., Women in Recovery). Second, ITR has a database of popular recordings of individuals in long-term SUD recovery sharing positive recovery experiences and messages (speaker tapes). Third, the site houses dozens of recovery-based discussion boards where members can interact with each other via specific threads. Fourth, an individual can choose to receive daily meditation prompts that encourage reflection on an aspect of SUD recovery or personal or spiritual growth through brief stories or examples (e.g., Cohen, 2010). The source of the prompts can be tailored based on individual preference, and they can be accessed on one's profile page, via e-mail, or through a separate mobile ITR app called Afternoon Affirmations. Fifth, ITR members have access to a staff-maintained, searchable database of face-to-face 12-step MHO meetings.

Recruitment, Data Collection, and Study Flow

This online survey targeted adult (18+ years) users of ITR participating for a current or past substance use problem (those with other primary problems were excluded). Data were collected using Research Electronic Data Capture (REDCap) in February 2016. The initial target sample of 125 was reached within approximately 8 hr (from 12 p.m. to 8 p.m. Eastern Standard Time on a weekday). Of the 181 individuals who accessed the eligibility screen, 169 were eligible, and 125 completed the survey, although only 123 were included in analyses (two were excluded despite passing the eligibility screen because they did not identify alcohol or another drug as their primary or secondary substance in the survey). Participants received a $10 electronic gift card, and completion took 19.3 min on average (SD = 16.4). The study was approved by the Partners HealthCare Institutional Review Board.

Measures

ITR participation and other engagement with technology. A novel measure used ordinal scales to assess past-90-day ITR log-in frequency (0 = *never*, 5 = *several times a day*) and intensity (i.e., time spent on the site per day of engagement; 1 = *just a few minutes*, 5 = *3+ hr*). Participants reported on lifetime and past-90-day ITR activities from a list (e.g., live online video meetings; see Figure 1). Participants also reported their level of agreement with four statements on perceived benefit from ITR participation via: (a) enhanced recovery motivation, (b) enhanced recovery self-efficacy, (c) reduced craving, and (d) strengthened recovery identity (responses to level of agreement items throughout the entire questionnaire were on 6-point Likert scales from *strongly disagree* to *strongly agree*). They also reported past-90-day engagement with conventional SNSs and smartphone ownership.

Substance use, psychiatric, and other clinically-relevant characteristics. Participants indicated their primary substance of choice from a list; other specified responses (e.g., specific opioid painkiller) were categorized by the first author. Participants also reported if they were continuously abstinent at present and, if so, for how long (in months if less than 1 year and in years if 1 or more years). The survey assessed several other clinical and service utilization variables (see Table 1). Participants reported whether or not they had ever been diagnosed with up to 15 co-occurring psychiatric disorders and completed the Kessler 6 (K6), a measure of psychological distress (α = .89; Kessler et al., 2002, 2003).

Recovery-related characteristics. The questionnaire included the Commitment to Sobriety Scale (CSS; Kelly & Greene, 2014), a five-item measure of abstinence motivation (α = .92), as well as a single item assessing abstinence self-efficacy from 0 to 10 for the upcoming 90 days (Hoeppner, Kelly, Urbanoski, & Slaymaker, 2011). The questionnaire also included the Recovery Identity Scale, which assesses level of agreement with four statements about one's recovery identity (α = .92; Buckingham, Frings, & Albery, 2013; Dingle, Stark, Cruwys, & Best, 2015). Recovery social support was measured with the eight-item Extent of Support and Understanding in Recovery subscale of the Social Support for Recovery Scale (Laudet, Magura, Vogel, & Knight, 2000), but with 6-point Likert-scale response options (α = .87). We assessed recovery capital with the 10-item Brief Assessment of Recovery Capital (BARC; Groshkova, Best, & White, 2013; Vilsaint, Kelly, Groshkova, Best, & White, 2016; α = .88).

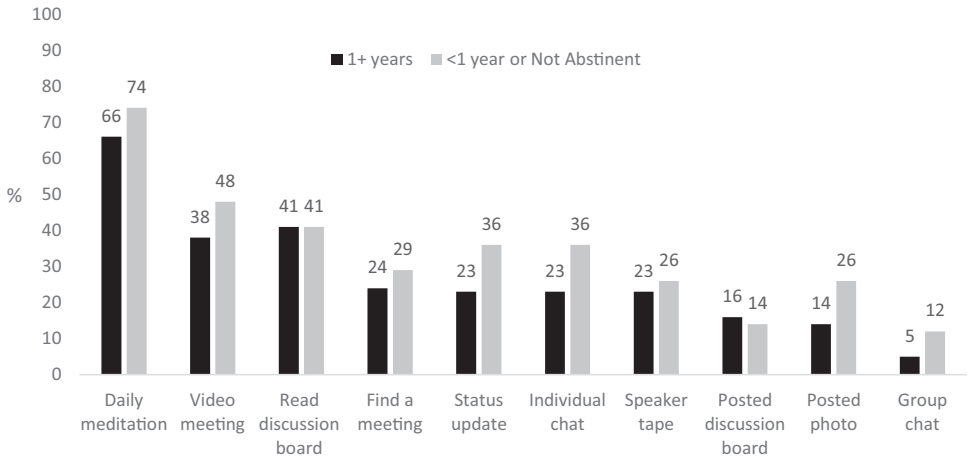

Figure 1. Proportion of individuals engaging in each InTheRooms.com (ITR) activity during the past 90 days for those abstinent for 1 or more years (black; 1+; $n = 80$) and abstinent for less than 1 year or not abstinent (gray; <1; $n = 42$). *Find a meeting* refers to utilization of ITR's dynamic database of face-to-face 12-step mutual help organization meetings. There were no significant differences between 1+ and <1 participants on past-90-day ITR activity engagement.

Multiple Imputation

For multi-item scales with missing items and at least 50% of items completed, we imputed missing values using pooled estimates from the multiple imputation automatic procedure in Version 23.0 of SPSS. Overall, 39 items were imputed for 26 individuals (mode = 1).

Analysis Plan

For Aims 1–3, we used descriptive statistics. For subaims of exploring potential differences by abstinence time, we created a dichotomous variable (1 or more years abstinent, $n = 80$, vs. less than 1 year abstinent or not abstinent, $n = 42$; one participant did not report abstinence time). We chose these categories to map onto the definition of sustained remission in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM–5*; American Psychiatric Association, 2013). We then used chi-squared analyses to examine group differences on categorical outcomes and independent samples *t* tests to examine group differences on continuous outcomes.

Results

Characterizing the ITR Sample

Demographically, respondents were 50.8 years old on average ($SD = 11.6$); 12% were 18–35 years old, 34% were 36–50 years old, and 54% were 50+ years old. Descriptively, this age representation is older than the population of all ITR members who disclose personal information, of which 27% are 18–35 years old, 41% are 36–50 years old, and 32% are 50 years of age and older (ITR staff, personal communication, February 2016). The sample had a higher proportion of females than males (56.9% vs. 43.1%), which is similar to the female:male ratio among all ITR users. A substantial majority (93.5%) identified as White ($n = 115$), 7.3% as Black ($n = 9$), 4.1% as American Indian or Native Alaskan ($n = 5$), and 1.6% as Latino ($n = 2$); race and ethnicity data for all ITR users are not available.

Regarding other technology engagement, most participants (89%) owned a smartphone. Three fourths logged into conventional SNSs such as Facebook at least daily.

Regarding participants' clinical- or recovery-related characteristics, the average duration of continuous abstinence was 7.3 years ($SD = 9.3$), although 34% of the sample had less than 1 year or were not currently abstinent (see Table 1). The majority (65%) identified alcohol as their primary substance. History of professional SUD treatment, face-to-face MHO participation, mental health treatment, and medication for a mental health difficulty were also common (see Table 1). Descriptive statistics for abstinence motivation, abstinence self-efficacy, recovery identity, recovery social support, recovery capital, and psychological distress are shown in Table 2.

Differences between ITR users abstinent for 1 or more years (1+; $n = 80$) and those 1 abstinent for less than 1 year or not abstinent (<1; $n = 42$). As shown in Tables 1 and 2, compared to <1 participants, 1+ participants had a significantly greater proportion with other (i.e., non-AA and non-NA) 12-step MHO attendance (25% vs. 10%). As might be expected, 1+ participants also had significantly greater levels of all measured recovery-related characteristics with large-magnitude differences (e.g., abstinence motivation; $p < .001$; $d = .97$). Also as might be expected, <1 participants were more likely to report current use of medications for SUD (e.g., agonist medication for opioid use disorder; 1% vs. 12%) and greater levels of psychological distress ($p < .001$; $d = .87$).

ITR Participation ($n = 118$)

Regarding past-90-day frequency of ITR participation, 27% logged in *once or twice per month*, 23% logged in *several times per week*, 21% logged in *once per week*, 18% logged in *daily*, 8%

Table 1
Clinical Characteristics by Abstinence Time: Chi-Squared Analyses Comparing Individuals Abstinent for 1 or More Years (1+ Years; n = 80) to Individuals Abstinent for Less Than 1 Year or Not Abstinent (<1 Year; n = 42)

Characteristic	*n* (% yes) Overall	% yes 1+ years	% yes <1 year	*p*	*r*
Abstinence time[a]					
Not abstinent or <1 month	16 (13)	—	—	—	—
1–11 months	26 (21)	—	—	—	—
1–4 years	22 (18)	—	—	—	—
5–9 years	26 (21)	—	—	—	—
10+ years	32 (26)	—	—	—	—
Substance of choice					
Alcohol (vs. other drug)	79 (65)	59	76	.06	.17
Cannabis or cannabinoids	5 (4)	—	—	—	—
Opioids	22 (18)	—	—	—	—
Stimulants	14 (12)	—	—	—	—
More	1 (1)	—	—	—	—
SUD treatment (lifetime)					
Inpatient[b]	70 (58)	58	56	.82	.02
Outpatient	80 (65)	65	64	.94	.01
Mutual help attendance (any in the past 6 months)	101 (82)	85	79	.39	.08
Alcoholics Anonymous	79 (65)	63	69	.53	.06
Narcotics Anonymous	44 (36)	41	27	.14	.14
Other 12-step*	24 (20)	25	10	.05	.18
Non-12-step	11 (9)	8	12	.43	.07
Alcohol use disorder medication (lifetime)	26 (21)	16	29	.11	.15
Current*	4 (3)	0	10	.01	.25
Opioid agonist medication (lifetime)	19 (15)	14	19	.44	.07
Current*	6 (5)	1	12	.01	.23
Opioid antagonist medication (lifetime)*	8 (7)	1	17	<.01	.30
Current*	4 (3)	0	10	<.01	.25
Co-occurring psychiatric disorder (lifetime)*[c]	67 (63)	54	78	.01	.24
Outpatient mental health treatment (lifetime)	81 (66)	61	76	.09	.16
Medication for mental health difficulty (lifetime)*	86 (70)	64	81	.05	.18
Current	49 (40)	37	48	.20	.12

Note. SUD = substance use disorder. Sample sizes for proportions of the sample are based on the entire sample, $N = 123$, unless specified otherwise (see superscripts). It is noteworthy that $n = 122$ responded to the abstinence time item; thus, chi-squared analyses range from a minimum of $n = 107$ to a maximum of $n = 122$.
[a] $n = 122$. [b] $n = 121$. [c] $n = 107$.
* $p \leq .05$.

logged in *several times per day*, and 3% had *never* logged in. For each day of participation, 47% reported that they were on for *just a few minutes*, 20% for *about 30 min*, 17% for *about 1 hr*, 9% for *1–3 hr*, and 8% for *more than 3 hr*. The average user participated *several times per week* and for *about 30 min each day* during which they engaged. Descriptively, this is greater than the average time of 11 min spent on ITR for each log-in session among all users in the past year based on objective analytics (ITR staff,

Table 2
Self-Report Measures of Recovery-Related Characteristics and Psychological Distress by Abstinence Time: t-Tests Comparing Individuals With 1 or More Years of Abstinence (1+ Years; n = 80) to Those With Less Than 1 Year of Abstinence or Not Currently Abstinent (<1 Year; n = 42)

Scale	Scale range	Minimum	Maximum	*M* (*SD*) Overall	*M* (*SD*) 1+ years	*M* (*SD*) <1 year	*p*	*d*
CSS	0–30	13	30	27.6 (3.9)	29.0 (1.9)	24.8 (5.2)	<.001	.97
SE	0–10	1	10	8.8 (2.2)	9.6 (1.0)	7.3 (3.0)	<.001	.96
RIS	4–24	8	24	21.3 (3.5)	22.4 (2.3)	19.2 (4.3)	<.001	.85
RSS	4–48	13	48	38.6 (6.9)	40.6 (5.1)	34.9 (8.0)	<.001	.81
BARC	10–60	30	60	50.6 (7.0)	53.3 (5.3)	45.7 (7.3)	<.001	1.10
K6	0–24	0	21	5.0 (4.7)	3.7 (3.9)	7.6 (5.0)	<.001	−.87

Note. CSS = Commitment to Sobriety Scale (abstinence motivation); SE = single-item measure of self-efficacy; RIS = Recovery Identity Scale; RSS = Recovery Social Support Scale; BARC = Brief Addiction Recovery Capital Scale; K6 = Kessler 6 (psychological distress). SPSS corrected for unequal group variances using the Welch–Satterthwaite method (Satterthwaite, 1946) to reduce degrees of freedom for all *t* tests. These adjusted *t* values were used to calculate Cohen's *d* (small = .2; medium = .5; large = .8) rather than raw means and standard deviations.

personal communication, November 2016). It is worth noting, however, that the self-reported *time-per-day* metric is expected to yield greater values than the objectively derived *time-per-session* metric. Regarding past-90-day mobile app use as a proportion of total ITR use, 18% used the app all the time, 16% used the app less than all but at least half the time, 30% used the app less than half but at least some of the time, and 36% had never used the app. The most common lifetime and past-90-day activities were reading a daily meditation, attending live online video meetings, and reading a discussion board thread (Figure 1; only past-90-day activities shown).

Differences between 1+ and <1 participants. Participants were similar, on average, with respect to log-in frequency (1+: $M = 2.43$, <1: $M = 2.59$; $p = .55$; $d = .12$) and time spent on the site for each day of engagement (1+: $M = 2.00$, <1: $M = 2.27$; $p = .28$; $d = .21$). A greater proportion of <1 participants had read a daily meditation in their lifetime (88% vs. 68%; $p = .01$, $r = .23$). There were no other significant differences between 1+ and <1 participants on lifetime or past-90-day activities (see Figure 1 for specific past-90-day rates of activity engagement).

Perceived Benefit From ITR Participation (*ns* = 117–121)

Substantial majorities agreed (i.e., either tended to agree, agreed, or strongly agreed) that ITR helped increase their motivation for recovery and/or abstinence (83%; $M = 4.33/6$; $SD = 1.17$) as well as their abstinence self-efficacy (80%; $M = 4.31/6$; $SD = 1.23$). Smaller majorities (68% and 69%, respectively) agreed that ITR helped decrease their craving to use drugs and/or alcohol ($M = 3.89/6$; $SD = 1.49$) and strengthened their recovery identity ($M = 3.96/6$; $SD = 1.3$).

Differences between 1+ and <1 participants. There were no significant differences between 1+ and <1 participants on perceived ITR benefit (*p*s = .23–.63; *d*s = .09–.23).

Discussion

The current study was, to the best of our knowledge, the first investigation of recovery SNS participation. The average participant logged into ITR—the target recovery SNS in the study—for 30 min several times per week. The most common lifetime and past-90-day activities were reading a daily meditation prompt and attending a live online video meeting. Participants were likely to perceive benefit from ITR engagement. Individuals abstinent for 1 or more years (1+) reported similar ITR participation and perceived benefit compared to those abstinent for less than 1 year or not abstinent (<1).

Sample Characteristics

Given the study's focus on a novel digital recovery support service and online sample recruitment, we conducted post hoc one-sample *t* tests comparing sample characteristics to those of known SUD recovery samples recruited through more traditional face-to-face methodologies to check whether the current study's methodology yielded a valid SUD recovery sample. For example, compared to individuals who completed the most recent AA and NA membership surveys (Alcoholics Anonymous World Services, 2014; Narcotics Anonymous World Services, 2016), the sample had significantly less abstinence time compared to that of AA members (estimated at 10 years), but their average abstinence time was not significantly different from that of NA members (8.3 years). The ITR sample had a significantly greater level of abstinence motivation, on average, than a sample of emerging adults in residential treatment (Kelly, Urbanoski, Hoeppner, & Slaymaker, 2012). In addition, using transformed scores to match response scales, the ITR sample's mean recovery identity was similar to samples of 12-step MHO members in the United Kingdom (Buckingham et al., 2013) and therapeutic community residents in Australia (Dingle et al., 2015). Their mean level of recovery social support was greater than a community-based sample of recovering individuals in the U.S. (Laudet, Morgen, & White, 2006). Overall, these post hoc analyses suggest that the current methodology yielded a valid sample of individuals in SUD recovery.

ITR Participation and Benefit

The ITR resources with which participants most commonly engaged were daily meditation prompts, live online video meetings, and discussion boards. Daily meditations were especially popular, with nearly 70% of surveyed ITR members having used this feature in the past 90 days. This finding suggests that members may be interested in brief and simple daily activities that help support recovery on an ongoing basis. In addition, more than 40% attended live online video meetings. Thus given the body of research on the recovery benefit associated with *face-to-face* MHO engagement (Kelly & Yeterian, 2013), the recovery benefit of these *online* video MHO meetings may deserve special empirical attention.

Despite differences between 1+ and <1 participants on clinical and recovery characteristics (e.g., greater proportions of <1 participants taking SUD medication), ITR participation and perceived benefit were similar. This pattern of findings suggests that the diversity of resources provided by ITR might help engage individuals at various recovery stages (e.g., less than 1 year and greater than 1 year). For example, interactions with recovery role models on discussion boards and in live online video meetings may enhance motivation and self-efficacy for individuals in earlier stages, listening to speaker tapes (where featured individuals are typically in long-term recovery) may enhance recovery motivation and self-efficacy for individuals in middle to later stages, and daily meditation prompts may have appeal across recovery stages. In-depth, longitudinal research is certainly needed to test this hypothesis.

Limitations

These results should be interpreted in light of some notable study details. The sample was small and may not generalize to all ITR members, although we examined the generalizability wherever possible, suggesting that our sample may have been a slightly older and more engaged group of ITR users (see the Results section). Also, several measures were adapted or created for this study; thus, interpretations of these novel instruments and their implications should be approached somewhat conservatively. Given that this is the first empirical study of members of a recovery SNS, these initial data should be treated in the spirit of primarily hypothesis generation rather than hypothesis testing.

Clinical Implications

One potential implication of this study applies to individuals abstinent for less than 1 year, a group with especially high relapse risk. Dennis, Foss, and Scott (2007), for example, found that only 36% of these individuals in a naturalistic treatment study sustained abstinence through the following year. Given perceived ITR benefit observed among <1 participants, a timely next step may be longitudinal investigation of the clinical utility of ITR and other recovery SNSs for nonabstinent individuals and/or those in their first year of recovery. Also, similar to the literature on mechanisms of behavior change in 12-step MHOs (e.g., Kelly, Hoeppner, et al., 2012), analyses of what processes explain any observed benefit might also be conducted as part of this longitudinal investigation. Regarding these potential mediation analyses, our data suggest that enhanced self-efficacy and motivation may constitute two early candidates.

Conclusion

This online survey of ITR users suggests that ITR activities (e.g., daily meditation prompts and live online video meetings) may appeal to individuals at different stages of SUD recovery or even to those who are not currently abstinent. Overall, members perceived benefit from their participation in a variety of ways, such as increasing recovery motivation and self-efficacy as well as reducing cravings to drink and use other drugs. Taken together, our findings indicate that recovery SNSs like ITR warrant further investigation as modern digital recovery management resources with the potential to enhance SUD and other recovery-related outcomes in innovative ways.

References

Alcoholics Anonymous World Services. (2014). *2014 Membership Survey*. Retrieved from http://www.aa.org/assets/en_US/p-48_membershipsurvey.pdf

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Best, D., Beckwith, M., Haslam, C., Haslam, S. A., Jetten, J., Mawson, E., & Lubman, D. I. (2016). Overcoming alcohol and other drug addiction as a process of social identity transition: The social identity model of recovery (SIMOR). *Addiction Research & Theory, 24,* 111–123. http://dx.doi.org/10.3109/16066359.2015.1075980

Buckingham, S. A., Frings, D., & Albery, I. P. (2013). Group membership and social identity in addiction recovery. *Psychology of Addictive Behaviors, 27,* 1132–1140. http://dx.doi.org/10.1037/a0032480

Carah, N., Meurk, C., & Hall, W. (2015). Profiling Hello Sunday Morning: Who are the participants? *International Journal of Drug Policy, 26,* 214–216. http://dx.doi.org/10.1016/j.drugpo.2014.07.019

Cohen, A. (2010). *A deep breath of life*. New York, NY: Hay House.

Dennis, M. L., Foss, M. A., & Scott, C. K. (2007). An eight-year perspective on the relationship between the duration of abstinence and other aspects of recovery. *Evaluation Review, 31,* 585–612. http://dx.doi.org/10.1177/0193841X07307771

Dingle, G. A., Stark, C., Cruwys, T., & Best, D. (2015). Breaking good: Breaking ties with social groups may be good for recovery from substance misuse. *British Journal of Social Psychology, 54,* 236–254. http://dx.doi.org/10.1111/bjso.12081

Ellison, N. B., & Boyd, D. M. (2013). Sociality through social network sites. In W. H. Dutton (Ed.), *The Oxford handbook of Internet studies* (pp. 151–172). Oxford, NY: Oxford University Press.

Galea, S., Nandi, A., & Vlahov, D. (2004). The social epidemiology of substance use. *Epidemiologic Reviews, 26,* 36–52. http://dx.doi.org/10.1093/epirev/mxh007

Groshkova, T., Best, D., & White, W. (2013). The Assessment of Recovery Capital: Properties and psychometrics of a measure of addiction recovery strengths. *Drug and Alcohol Review, 32,* 187–194. http://dx.doi.org/10.1111/j.1465-3362.2012.00489.x

Hoeppner, B. B., Kelly, J. F., Urbanoski, K. A., & Slaymaker, V. (2011). Comparative utility of a single-item versus multiple-item measure of self-efficacy in predicting relapse among young adults. *Journal of Substance Abuse Treatment, 41,* 305–312. http://dx.doi.org/10.1016/j.jsat.2011.04.005

Kelly, J. F., & Greene, M. C. (2014). Beyond motivation: Initial validation of the commitment to sobriety scale. *Journal of Substance Abuse Treatment, 46,* 257–263. http://dx.doi.org/10.1016/j.jsat.2013.06.010

Kelly, J. F., Hoeppner, B., Stout, R. L., & Pagano, M. (2012). Determining the relative importance of the mechanisms of behavior change within Alcoholics Anonymous: A multiple mediator analysis. *Addiction, 107,* 289–299. http://dx.doi.org/10.1111/j.1360-0443.2011.03593.x

Kelly, J. F., Stout, R. L., Greene, M. C., & Slaymaker, V. (2014). Young adults, social networks, and addiction recovery: Post treatment changes in social ties and their role as a mediator of 12-step participation. *PLoS One, 9*(6), e100121. http://dx.doi.org/10.1371/journal.pone.0100121

Kelly, J. F., Urbanoski, K. A., Hoeppner, B. B., & Slaymaker, V. (2012). Ready, willing, and (not) able to change: Young adults' response to residential treatment. *Drug and Alcohol Dependence, 121,* 224–230. http://dx.doi.org/10.1016/j.drugalcdep.2011.09.003

Kelly, J. F., & Yeterian, J. D. (2013). Mutual-help groups for alcohol and other substance use disorders. In B. S. McCrady & E. E. Epstein (Eds.), *Addictions: A comprehensive guidebook* (2nd ed., pp. 500–525). New York, NY: Oxford University Press.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., . . . Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine, 32,* 959–976. http://dx.doi.org/10.1017/S0033291702006074

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., . . . Zaslavsky, A. M. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry, 60,* 184–189. http://dx.doi.org/10.1001/archpsyc.60.2.184

Larimer, M. E., Palmer, R. S., & Marlatt, G. A. (1999). Relapse prevention: An overview of Marlatt's cognitive-behavioral model. *Alcohol Research & Health, 23,* 151–160.

Laudet, A. B., Magura, S., Vogel, H. S., & Knight, E. (2000). Support, mutual aid and recovery from dual diagnosis. *Community Mental Health Journal, 36,* 457–476. http://dx.doi.org/10.1023/A:1001982829359

Laudet, A. B., Morgen, K., & White, W. L. (2006). The role of social supports, spirituality, religiousness, life meaning and affiliation with 12-step fellowships in quality of life satisfaction among individuals in recovery from alcohol and drug problems. *Alcoholism Treatment Quarterly, 24*(1–2), 33–73. http://dx.doi.org/10.1300/J020v24n01_04

Litt, M. D., Kadden, R. M., Kabela-Cormier, E., & Petry, N. M. (2009). Changing network support for drinking: Network Support Project 2-year follow-up. *Journal of Consulting and Clinical Psychology, 77,* 229–242. http://dx.doi.org/10.1037/a0015252

Litt, M. D., Kadden, R. M., Tennen, H., & Kabela-Cormier, E. (2016). Network Support II: Randomized controlled trial of Network Support treatment and cognitive behavioral therapy for alcohol use disorder. *Drug and Alcohol Dependence, 165,* 203–212. http://dx.doi.org/10.1016/j.drugalcdep.2016.06.010

Longabaugh, R., Wirtz, P. W., Zweben, A., & Stout, R. L. (1998). Network support for drinking, Alcoholics Anonymous and long-term matching effects. *Addiction, 93,* 1313–1333. http://dx.doi.org/10.1046/j.1360-0443.1998.93913133.x

Maher, C. A., Lewis, L. K., Ferrar, K., Marshall, S., De Bourdeaudhuij, I., & Vandelanotte, C. (2014). Are health behavior change interventions that use online social networks effective? A systematic review. *Journal of Medical Internet Research, 16*(2), e40. http://dx.doi.org/10.2196/jmir.2952

Narcotics Anonymous World Services. (2016). *Narcotics Anonymous 2015 Membership Survey*. Retrieved from http://www.na.org/admin/include/spaw2/uploads/pdf/pr/MembershipSurvey_2016.pdf

Perrin, A. (2015). *Social networking usage: 2005–2015*. Retrieved from http://www.pewinternet.org/2015/10/08/2015/Social-Networking-Usage-2005-2015

Satterthwaite, F. E. (1946). An approximate distribution of estimates of variance components. *Biometrics, 2,* 110–114.

Stout, R. L., Kelly, J. F., Magill, M., & Pagano, M. E. (2012). Association between social influences and drinking outcomes across three years. *Journal of Studies on Alcohol and Drugs, 73,* 489–497. http://dx.doi.org/10.15288/jsad.2012.73.489

Urbanoski, K., van Mierlo, T., & Cunningham, J. (2016). Investigating patterns of participation in an online support group for problem drinking: A social network analysis. *International Journal of Behavioral Medicine*. Advance online publication. http://dx.doi.org/10.1007/s12529-016-9591-6

Vilsaint, C. L., Kelly, J. F., Groshkova, T., Best, D., & White, W. (2016). Abstracts/Posters (Development of a 10-item assessment of alcohol and drug use disorder recovery capital [ARC-10] using item response theory). *Alcoholism: Clinical and Experimental Research, 40* (Suppl. 6), 16A–247A. http://dx.doi.org/10.1111/acer.13083

Yonker, L. M., Zan, S., Scirica, C. V., Jethwani, K., & Kinane, T. B. (2015). Friending teens: Systematic review of social media in adolescent and young adult health care. *Journal of Medical Internet Research, 17*(1), e4. http://dx.doi.org/10.2196/jmir.3692

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