“The Protective Wall of Human Community”:
A Review of the Science and Role of AA and other mutual-help organizations in addiction

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Merrill Scott Symposium, Sundown M. Ranch, Aug 23rd 2013
Overview

• Substance Use Disorders: massive medical, social, and economic burden
• Mutual-help organizations (MHOs) can help offset burden
• MHOs work for many different types of individuals and produce additional benefit over and above formal treatment
• MHOs work through mechanisms similar to those operating in formal treatment
• MHOs can reduce costs by reducing patients’ reliance on professional services without any detriment to outcomes, and may even enhance outcomes
• Empirically-supported clinical interventions
Drug and Alcohol Concerns

Public health
- #1 public health problem (Institute for Health Policy, 2011); notably youth (CASA, 2011)

Economic
- $425 billion in US each year (lost productivity, criminal justice, medical costs)

Mortality
- SUD leading cause of mortality – alcohol leading risk factor among males 15–59 yrs worldwide

Prevention
- Onset of long-term problems occur during adolescence/young adulthood
- 90% adults with dependence start using before age 18
- 50% of adults start using before age 15
Economic burden of substance use

Source: Bouchery, Harwood, Sacks, Simon, & Brewer (2011); US Department of Justice (2011)
% Using prior to age 15

% meeting DSM–III–R lifetime alcohol

Birth Cohort

Substance Use Disorders (SUD) in the Past Year Among Persons Age 12 or
Prevalence of DSM-IV Alcohol Dependence across the Lifespan (NESARC)

Source: Grant, Dawson et al, 2004
Substance Use and Problem Onset and Offset

National Survey on Drug Use and Health (NSDUH) Age Groups

Severity Category
- No Alcohol or Drug Use
- Light Alcohol Use Only
- Any Infrequent Drug Use
- Regular AOD Use
- Abuse
- Dependence

NSDUH and Dennis & Scott

Friday, August 23, 13
Typical Clinical Course for Substance Dependence and Recovery

- **Addiction Onset**
  - 4–5 years
  - Self-initiated cessation attempt

- **Help Seeking**
  - 8 years
  - 4–5 treatment episodes/mutual-help

- **Full Sustained Remission**
  - 5 years
  - Continuing care/mutual-help

- **Relapse Risk drops below 15%**
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• Empirically–supported clinical interventions
Societal Response to SUD and related problems

- Past 40 years increase in quality and quantity of SUD treatment in US and developed countries

- However, professional resources alone cannot cope; stigma and cost present further barriers to access

- Addiction often has chronic course (8 yrs from 1 st tx to achieve FSR; Dennis et al, 2005); 4–5 yrs before risk of relapse <15%

- In tacit recognition, most societies seen increases in MHGs during
Potential Advantages of Community Mutual-help

• Cost-effective – free; attend as intensively, as long as desired
• Focused on addiction recovery over the long haul
• Widely available, easily accessible, flexible
• Access to fellowship/broad support network
• Entry threshold (no paperwork, insurance); anonymous (stigma)
• Adaptive community based system that is responsive to undulating relapse risk
MHGs & Treatment Integration

- **1950’s “Minnesota Model”**

- >90% of private SUD treatment in US base tx on the 12–step principles (Roman & Blum, 1998)

- About 80% of VA SUD patients are referred to 12–step groups (Humphreys et al., 1997)

- 84% of youth are referred to AA/NA post–discharge (Knudsen et al, 2008; Kelly et al, 2008)
# Substance Focused Mutual-help Groups

<table>
<thead>
<tr>
<th>Name</th>
<th>Year of Origin</th>
<th>Number of groups in U.S.</th>
<th>Location of groups in U.S.</th>
<th>Evidence base* (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoholics Anonymous (AA)</td>
<td>1935</td>
<td>52,651</td>
<td>all 50 States</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Narcotics Anonymous (NA)</td>
<td>1940s</td>
<td>Approx. 15,000</td>
<td>all 50 States</td>
<td>1, 2</td>
</tr>
<tr>
<td>Cocaine Anonymous (CA)</td>
<td>1982</td>
<td>Approx. 2000 groups</td>
<td>most States; 6 online meetings at <a href="http://www.ca-online.org">www.ca-online.org</a></td>
<td>0</td>
</tr>
<tr>
<td>Methadone Anonymous (MA)</td>
<td>1990s</td>
<td>Approx. 100 groups</td>
<td>25 States; online meetings at <a href="http://methadone-anonymous.org/chat.html">http://methadone-anonymous.org/chat.html</a></td>
<td>1, 2</td>
</tr>
<tr>
<td>Marijuana Anonymous (MA)</td>
<td>1989</td>
<td>Approx. 200 groups</td>
<td>24 States; online meetings at <a href="http://www.ma-online.org">www.ma-online.org</a></td>
<td>0</td>
</tr>
<tr>
<td>Rational Recovery (RR)</td>
<td>1988</td>
<td>No group meetings or mutual helping; emphasis is on <em>individual</em> control and responsibility</td>
<td></td>
<td>1, 2</td>
</tr>
<tr>
<td>Secular Organization for Sobriety, a.k.a. Save Ourselves (SOS)</td>
<td>1986</td>
<td>Approx. 480 groups</td>
<td>all 50 States; Online chat at <a href="http://www.sossobriety.org/sos/chat.htm">www.sossobriety.org/sos/chat.htm</a></td>
<td>1</td>
</tr>
<tr>
<td>Women for Sobriety (WFS)</td>
<td>1976</td>
<td>150-300 groups</td>
<td>Online meetings at <a href="http://groups.msn.com/WomenforSobriety">http://groups.msn.com/WomenforSobriety</a></td>
<td>1</td>
</tr>
<tr>
<td>Moderation Management (MM)</td>
<td>1994</td>
<td>Approx.16 face-to-face meetings</td>
<td>12 States; Most meetings are online at <a href="http://www.angelfire.com/trek/mmchat/">www.angelfire.com/trek/mmchat/</a></td>
<td>1</td>
</tr>
</tbody>
</table>

*0= None 1= Descriptive studies only 2 = Observational (correlational, longitudinal) 3= Experimental (random assignment, controlled).

Source: Kelly & Yeterian, 2008
Overview

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• Mutual-help groups (MHGs) can offset that burden
• **MHOs work for many different types of individuals over and above formal treatment**
• MHGs work through mechanisms similar to those operating in formal treatment
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12-step Research– Recent History

- AA most commonly sought source of help for alcohol problems in the US (SAMHSA, 2010; Weisner et al, 2005).

- Given public health significance, Institute of Medicine (IOM, 1990) called for AA research.

- State of science summarized and further research opportunities outlined (McCrady and Miller, 1993)

- Past 20 yrs significant
Findings from meta-analyses

- Emrick et al. 1993 – 107 studies. AA attendance and involvement modest beneficial effect on drinking behavior

- Tonigan et al., 1996 – 74 studies. Examined moderators of effectiveness (i.e. outpatient vs. inpatient; study quality)

⇒ Studies generally, were “methodological poor” and underpowered

- Kownacki & Shadish, 1999 – 21 studies. Examined controlled trials only
  - Randomization confounded with coerced status (justice system required)
    - Coerced individuals fared worse than individuals in other treatment or no treatment
    - Coerced individuals may have better outcomes if
Ferri, Amato, Davoli (2006) (Cochrane Review)

- Attempted to examine RCTs of AA or TSF
- 8 trials involving 3417 people were included.
- Findings:
  - AA may help patients to accept treatment and keep patients in treatment more than alternative treatments
  - AA had similar retention rates
  - 3 studies compared AA combined with other interventions against other treatments and found few differences in the amount of drinks and percentage of drinking days
  - Peer-led AA participation found to be as effective as other comparison professionally-delivered interventions to which it was compared (e.g., CBT)
For whom are mutual-help groups particularly helpful / not

- Clinical concerns member-group fit with 12-step mutual-help organizations.
  - 1. Dual-diagnosed (DD)
    - Medications
    - Clinical syndromes vs. “not working the program”
  - 2. Non-religious people
    - Barriers to 12-step
  - 3. Women
    - “Powerlessness”
  - 4. Young People
    - Developmental barriers
Dual-diagnosis vs SUD-only Attendance and involvement

12-Step Attendance

Active 12-Step Involvement

Follow-Up

Dual Diagnosis
SUD-Only
DD patients had poorer outcomes overall but moderated by 12-step
### Youth–Specific AA/NA outcomes Knowledge:

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>N</th>
<th>Follow-up (Months)</th>
<th>% Female</th>
<th>M Age</th>
<th>Setting (No. of sites)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alford, Koehler, Leonard</td>
<td>1991</td>
<td>157</td>
<td>6, 12, 24</td>
<td>38%</td>
<td>16</td>
<td>Inpatient (1)</td>
</tr>
<tr>
<td>Brown</td>
<td>1993</td>
<td>140</td>
<td>12</td>
<td>42%</td>
<td>16</td>
<td>Inpatient (2)</td>
</tr>
<tr>
<td>Kennedy &amp; Minami</td>
<td>1993</td>
<td>91</td>
<td>12</td>
<td>23%</td>
<td>16.5</td>
<td>Inpatient (1)</td>
</tr>
<tr>
<td>Hsieh, Hoffman, Hollister</td>
<td>1998</td>
<td>2,317</td>
<td>6, 12</td>
<td>35%</td>
<td>17–19</td>
<td>Inpatient (24)</td>
</tr>
<tr>
<td>Kelly, Myers, Brown</td>
<td>2000</td>
<td>99</td>
<td>6</td>
<td>60%</td>
<td>16</td>
<td>Inpatient (2)</td>
</tr>
<tr>
<td>Kelly, Myers, Brown</td>
<td>2002</td>
<td>74</td>
<td>6</td>
<td>62%</td>
<td>16</td>
<td>Inpatient (2)</td>
</tr>
<tr>
<td>Mason and Luckey</td>
<td>2003</td>
<td>95</td>
<td>3, 12</td>
<td>32%</td>
<td>22</td>
<td>Inpatient (2)</td>
</tr>
<tr>
<td>Grella, Joshi, Hser</td>
<td>2004</td>
<td>810</td>
<td>12</td>
<td>30%</td>
<td>16</td>
<td>Residential (8), STI (6), Outpatient (9), Inpatient (2)</td>
</tr>
<tr>
<td>Kelly, Myers, Brown</td>
<td>2005</td>
<td>74</td>
<td>6</td>
<td>62%</td>
<td>16</td>
<td>Inpatient (2)</td>
</tr>
<tr>
<td>Kelly, Brown et al</td>
<td>2008</td>
<td>160</td>
<td>6, 12, 24, 48, 72, 96</td>
<td>34%</td>
<td>13–18</td>
<td>Inpatient (2)</td>
</tr>
<tr>
<td>Chi, Kaskutas, Sterling et al</td>
<td>2009</td>
<td>419</td>
<td>6, 12, 36</td>
<td>34%</td>
<td>13–18</td>
<td>Intensive outpatient (4)</td>
</tr>
<tr>
<td>Kelly, Dow, Yeterian</td>
<td>2010</td>
<td>127</td>
<td>3, 6</td>
<td>24%</td>
<td>16.7</td>
<td>Outpatient (1)</td>
</tr>
<tr>
<td>Chi, Sterling, Campbell, Weisner</td>
<td>2012</td>
<td>419</td>
<td>12, 36, 60, 72, 84</td>
<td>34%</td>
<td>13–18</td>
<td>Intensive outpatient (4)</td>
</tr>
<tr>
<td>Kelly and Urbanoski</td>
<td>2012</td>
<td>127</td>
<td>3, 6, 12</td>
<td>24%</td>
<td>16.7</td>
<td>Outpatient (1)</td>
</tr>
<tr>
<td>Kelly, Stout, Slaymaker</td>
<td>2012</td>
<td>303</td>
<td>1, 3, 6, 12</td>
<td>27%</td>
<td>20</td>
<td>Residential (1)</td>
</tr>
</tbody>
</table>

Friday, August 23, 13
Social Recovery Model: An 8-Year Investigation of Adolescent 12-Step Group Involvement Following Inpatient Treatment

John F. Kelly, Sandra A. Brown, Ana Abrantes, Christopher W. Kahler, and Mark Myers

Background: Despite widespread use of 12-step treatment approaches and referrals to Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) by youth providers, little is known about the significance of these organizations in youth addiction recovery. Furthermore, existing evidence is based mostly on short-term follow-up and is limited methodologically.

Methods: Adolescent inpatients ($n = 160$; mean age = 16, 40% female) were followed at 6-months, and at 1, 2, 4, 6, and 8 years posttreatment. Time-lagged, generalized estimating equations modeled treatment outcome in relation to AA/NA attendance controlling for static and time-varying covariates. Robust regression (locally weighted scatterplot smoothing) explored dose–response thresholds of AA/NA attendance on outcome.

Results: The AA/NA attendance was common and intensive early posttreatment, but declined sharply and steadily over the 8-year period. Patients with greater addiction severity and those who believed that they could not use substances in moderation were more likely to attend. Despite declining attendance, the effects related to AA/NA remained significant and consistent. Greater early participation was associated with better long-term outcomes.

Conclusions: Even though many youth discontinue AA/NA over time, attendees appear to benefit, and more severely substance-involved youth attend most. Successful early posttreatment engagement of youth in abstinence-supportive social contexts, such as AA/NA, may have long-term implications for alcohol and drug involvement into young adulthood.

Results: Rates of Attendance

Any, Monthly, and Weekly AA/NA Attendance across 8 Years Following Inpatient Treatment

Youth Recovery Contexts: The Incremental Effects of 12-Step Attendance and Involvement on Adolescent Outpatient Outcomes

John F. Kelly and Karen Urbanoski

Background: A major barrier to youth recovery is finding suitable sobriety-supportive social contexts. National studies reveal most adolescent addiction treatment programs link youths to community 12-step fellowships to help meet this challenge, but little is known empirically regarding the extent to which adolescents attend and benefit from 12-step meetings or whether they derive additional gains from active involvement in prescribed 12-step activities (e.g., contact with a sponsor and other fellowship members). Greater knowledge in this area would enhance the efficiency of clinical continuing care recommendations.

Methods: Adolescent outpatients (N = 127; M age 16.7; 75% male; 87% white) enrolled in a naturalistic study of treatment effectiveness were assessed at intake and 3, 6, and 12 months later using standardized assessments. Mixed-effects models, controlling for static and time-varying confounds, examined the concurrent and lagged effects of 12-step attendance and active involvement on abstinence over time.

Results: The proportion attending 12-step meetings was relatively low across follow-up (24 to 29%), but more frequent attendance was independently associated with greater abstinence in concurrent and, to a lesser extent, lagged models. An 8-item composite measure of 12-step involvement did not enhance outcomes over and above attendance, but separate components did; specifically, greater contact with a 12-step sponsor outside of meetings and more verbal participation during meetings.

Conclusions: The benefits of 12-step participation observed among adult samples extend to adolescent outpatients. Community 12-step fellowships appear to provide a useful sobriety-supportive social context for youths seeking recovery, but evidence-based youth-specific 12-step facilitation strategies are needed to enhance outpatient attendance rates.

Key Words: Recovery, Adolescents, Alcoholics Anonymous, Narcotics Anonymous, Groups, Self-Help, Mutual Help, Treatment, Substance Use Disorder.
Within-person change in PDA for discrete sub-groups of AA/NA
Incremental benefits of select aspects of 12-step involvement

Table 5. Mixed effects models testing the incremental influence of individual indices of active involvement (over and above 12-step attendance) on PDA over time

<table>
<thead>
<tr>
<th>Model</th>
<th>Concurrent (n=118)</th>
<th>Lagged (n=113)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact with sponsor</td>
<td>0.61</td>
<td>-0.45</td>
</tr>
<tr>
<td>Contact with other members</td>
<td>0.14</td>
<td>0.41</td>
</tr>
<tr>
<td>Read 12-step literature</td>
<td>-0.07</td>
<td>0.03</td>
</tr>
<tr>
<td>Talked or shared in meetings</td>
<td>0.11</td>
<td>-0.12</td>
</tr>
<tr>
<td>Helped set up or run meetings</td>
<td>0.11</td>
<td>0.37</td>
</tr>
<tr>
<td>Steps completed</td>
<td>-2.75</td>
<td>-2.20</td>
</tr>
</tbody>
</table>

Abbreviations: PDA = percent days abstinent

1 Models were run separately for each index of 12-step involvement. Estimates adjusted for age, race, baseline self-efficacy and abstinence goal, and time-varying inpatient/outpatient SUD treatment and 12-step meeting attendance (coefficients not shown due to space). In the concurrent models, 12-step attendance and involvement indices, and time-varying covariates are concurrent with PDA. In the lagged models, 12-step attendance and involvement indices, and time-varying covariates are lagged one time period behind PDA. 12-step meeting attendance was significantly associated with PDA in all concurrent models (ps<.001), but not in the lagged models.
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## Lagged GEE Model of Youth Treatment Outcome in relation to AA/NA attendance over 8 Years

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>95% Confidence Limits</th>
<th>Z</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>37.3071</td>
<td>6.9601</td>
<td>23.6656</td>
<td>50.9486</td>
<td>5.36</td>
</tr>
<tr>
<td>Time</td>
<td>1.4424</td>
<td>0.8693</td>
<td>-0.2614</td>
<td>3.1462</td>
<td>1.66</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>-9.3380</td>
<td>2.6605</td>
<td>-14.5526</td>
<td>-4.1234</td>
<td>-3.51</td>
</tr>
<tr>
<td>Pre-treatment PDA</td>
<td>-0.0811</td>
<td>0.0490</td>
<td>-0.1772</td>
<td>0.0150</td>
<td>-1.65</td>
</tr>
<tr>
<td>Moderate use</td>
<td>-1.8816</td>
<td>0.9646</td>
<td>-3.7722</td>
<td>0.0090</td>
<td>-1.95</td>
</tr>
<tr>
<td>Aftercare(^1) 6m</td>
<td>0.4349</td>
<td>0.5158</td>
<td>-0.5761</td>
<td>1.4460</td>
<td>0.84</td>
</tr>
<tr>
<td>Formal Treatment(^2)</td>
<td>5.5669</td>
<td>3.2856</td>
<td>-0.8727</td>
<td>12.0065</td>
<td>1.69</td>
</tr>
<tr>
<td><strong>AA/NA(^2)</strong></td>
<td>1.9517</td>
<td>0.4512</td>
<td>1.0674</td>
<td>2.8360</td>
<td>4.33</td>
</tr>
<tr>
<td><strong>PDA(^2)</strong></td>
<td>0.5030</td>
<td>0.0371</td>
<td>0.4304</td>
<td>0.5757</td>
<td>13.56</td>
</tr>
</tbody>
</table>

1= Sq root transformed; 2= Time varying covariate

Beneficial Effects May be enhanced by the attending meetings where at least some other youth are present (2) N=303 (18–24yrs)

- 3-way interaction: Time x age composition x attendance: early post d/c age composition associated with sig. better outcome among low attendees, with similar age composition showing diminishing returns over time.
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• **MHGs work through mechanisms similar to those operating in formal treatment**
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• Empirically-supported clinical interventions
Theories of Remission and Recovery

• Studies of treatment are often theory-based (e.g., Longabaugh and Morgenstern, 2002; Moos, 2007)

• However, studies of SUD remission and recovery are very seldom theory-based

• But, there are empirically supported theories that help explain the onset of substance use and SUD
### Parallels in the onset and offset of SUD

People want to use substances for 4 main reasons (NIDA, 2005):

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>To feel good</td>
</tr>
<tr>
<td>To feel better</td>
</tr>
<tr>
<td>To do better</td>
</tr>
<tr>
<td>Because others are doing it</td>
</tr>
</tbody>
</table>
People want to use substances for 4 main reasons (NIDA, 2005):

- To feel good
- To feel better
- To do better
- Because others are doing it

People want to stop using substances and recover for the same 4 main reasons:

- To feel good
- To feel better
- To do better
- Because others are doing it
<table>
<thead>
<tr>
<th>Theory</th>
<th>Substance use</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Control</td>
<td>Lack of strong bonds with family, friends, work, religion, other aspects traditional society</td>
<td>Goal-direction, structure and monitoring, shaping behavior to adaptive social bonds</td>
</tr>
<tr>
<td>Social Learning</td>
<td>Modeling and observation and imitation of substance use, social reinforcement for and expectations of positive consequences from use; positive norms for use</td>
<td>Social network composed of individuals who espouse abstinence, reinforce negative expectations about effects of substances, provide models of effective sober living</td>
</tr>
<tr>
<td>Stress and coping</td>
<td>life stressors (e.g., social/work/financial problems, phys/sex abuse) lead to substance use especially those lacking coping and avoid problems; substance use form of avoidance coping, self-medication</td>
<td>Effective coping enhances self-confidence and self-esteem</td>
</tr>
<tr>
<td>Behavioral economics</td>
<td>Lack of alternative rewards provided by activities other than substance use</td>
<td>Effective access to alternative, competing, rewards through involvement in educational, work, religious, social/recreational pursuits</td>
</tr>
</tbody>
</table>
# Addiction Recovery Mutual aid organizations

<table>
<thead>
<tr>
<th>Theory</th>
<th>Key process mechanisms for…</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td><strong>Behavioral economics</strong></td>
<td>Lack of alternative rewards provided by activities other than substance use</td>
</tr>
</tbody>
</table>

Source: Moos, RH (2011) Processes the promote recovery from addictive disorders.