Smoking & Psychiatric Disorders: Processes, Treatment Outcomes, & Future Direction

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Where We are Headed Today

1. Examine which groups of smokers with psychiatric disorders have the highest public health importance.
2. Discuss the randomized trials to test specific behavioral and pharmacological interventions for smoking cessation among psychiatric groups of highest public health importance.
3. Review the need for and a promising example of a conceptual model for processes underlying associations between smoking and psychiatric disorders.
4. Look at a promising approach to improving the smoking cessation rates of interventions among individuals with psychiatric disorders.

What are Psychiatric Disorders

Defined: An individual’s pattern of behavior that causes him/her distress and/or interferes with social, occupational, or personal functioning.

How classified: They are classified in the USA using the American Psychiatric Association’s Diagnostic & Statistical Manual (DSM)

Utility: Assess, guide treatment selection, facilitate communication, and facilitate research
People w/Current Psychiatric Disorders...

1. **Smoke** at twice the rate (41%) as those without psychiatric disorders (23%).

2. **Quit** at one third to one half (17-33%) the rate as those without psychiatric disorders (43%).

3. Represent 44% of ALL current smokers!

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### Table: Smoking Rates Among Those Who Have a Mental Illness

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<thead>
<tr>
<th>Current Illness</th>
<th>US Pop %</th>
<th>Smoker %</th>
<th>Estimated Population Size</th>
</tr>
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<tbody>
<tr>
<td>No Illness</td>
<td>50.7</td>
<td>27.5</td>
<td>14,331,848</td>
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<tr>
<td>Social Phobia</td>
<td>4.0</td>
<td>31.5</td>
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<td>Agoraphobia</td>
<td>3.3</td>
<td>68.1</td>
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<td>Panic Disorder</td>
<td>1.4</td>
<td>42.6</td>
<td>1,815,978</td>
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<tr>
<td>Depression</td>
<td>4.9</td>
<td>44.7</td>
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<tr>
<td>Dysthymia</td>
<td>1.7</td>
<td>38.2</td>
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<td>Panic Attacks</td>
<td>2.0</td>
<td>66.4</td>
<td>2,784,495</td>
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<tr>
<td>Simple Phobia</td>
<td>6.3</td>
<td>56.8</td>
<td>7,021,781</td>
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<tr>
<td>Psychosis</td>
<td>0.2</td>
<td>45.3</td>
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<td>Alcohol</td>
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<td>Bipolar</td>
<td>0.9</td>
<td>60.6</td>
<td>1,850,724</td>
</tr>
</tbody>
</table>

Derived from Lasser et al. (2000, JAMA)

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### Who represent the largest numbers of smokers with mental illness?

(a) Antisocial personality/behavior & conduct disorder

(b) Simple phobia (e.g., fear of flying)

(c) Major Depression

*From a public health point of view, these are the most important groups to focus on because they are the largest groups in need!*

Lasser et al. (2000, JAMA)
To what extent has research addressed smoking cessation in these three important populations?

**Antisocial Personality & Conduct Disorder**

**Antisocial:** Adult personality disorder. Clinical features: rebels against social norms, deceitful, impulsive, aggressive, lacking remorse.

**Conduct Disorder:** A primarily childhood/adolescent disorder that can develop into Antisocial Personality in adulthood. Clinical features: rebels against social rules, deceitful, aggressive, destruction of property.

Sarason & Sarason (1999)

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**Influence of Age 15 Rebelliousness on age 15-18 smoking**

<table>
<thead>
<tr>
<th>Smoking Transition</th>
<th>Probability of influence (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never to trying</td>
<td>0.22 (0.16, 0.28)</td>
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<tr>
<td>Trying to monthly</td>
<td>0.12 (0.05, 0.19)</td>
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<tr>
<td>Monthly to daily</td>
<td>0.14 (0.04, 0.23)</td>
</tr>
</tbody>
</table>

Bricker et al. (in press, *Health Psychology*)

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**Influence of Age 18 Rebelliousness on age 18-28 smoking**

<table>
<thead>
<tr>
<th>Smoking Transition</th>
<th>Odds Ratio (95% CI)</th>
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<tr>
<td>Less-than-daily to daily</td>
<td>2.57 (1.79, 3.69)</td>
</tr>
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</table>

Bricker et al. (2009, SRNT Dublin)
Randomized trials for smoking cessation among those with current Antisocial or Conduct Disorder

ZERO TRIALS

Simple Phobia

Now called “Specific Phobia”

Clinical features: Persistent and excessive irrational fears of specific objects or situations. Examples: snakes, airplanes, bridges, blood injection, storms.

Sarason & Sarason (1999)

Randomized trials for smoking cessation among those with current Simple Phobia

ZERO TRIALS

Randomized trials for smoking cessation among those with a current anxiety disorder

ONLY TWO TRIALS...

Both for PTSD

1/17/2008
Post traumatic stress disorder (PTSD)

Clinical features:
- Exposure to a traumatic event involving actual/threatened death/injury to self or others.
- Response involved fear, helplessness, or horror.
- Re-experiencing the event (e.g., nightmares).
- Avoidance of trauma-related stimuli.
- Increased arousal (e.g., easily startled).

Sarason & Sarason (1999)

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<td>Antisocial</td>
<td>14.6</td>
<td>45.1</td>
<td>19,915,225 (#1)</td>
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<tr>
<td>PTSD</td>
<td>2.3</td>
<td>44.6</td>
<td>3,117,429 (#6)</td>
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<td>CAD</td>
<td>1.7</td>
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<td>2,841,785</td>
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<td>1.0</td>
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Derived from Lasser et al. (2000, JAMA)

Hertzberg et al. (2001)
- 15 veterans with PTSD who want to quit smoking
- 12-week double-blind design
- Randomly assigned in a 2:1 (10:5) ratio to receive Bupropion (an antidepressant now also used to help people quit smoking) or placebo.
- Bupropion dosing: 150mg QAM for 3-4 days, then increased to 150mg BID.
- Six month follow-up maintenance of cessation: 40% in Bupropion group vs. 20% in placebo group.
- And why might Bupropion help depressed smokers quit? Nobody knows.

McFall et al. (2005)
- 66 veterans with PTSD who want to quit smoking
- 6-month RCT
- Randomly assigned to receive either integrated care with PTSD clinic prescriber & case manager or usual care.
- Integrated care followed USPHS clinical practice guidelines, providing 6 sessions of counseling and recommended pharmacotherapy.
- Usual care was provided by VA smoking cessation clinic nurses, providing as needed sessions of counseling and recommended pharmacotherapy.
- Integrated care received more nicotine patch (93.9% vs. 66.7%; p<.02), gum (87.9% vs. 42.4%; p<.001), and counseling (5.15 vs. 2.6 sessions; p<.0001) than the usual care.
However...  
- Repeated 7 day point prevalence abstinence was 12% for integrated care and 3% for usual care (p=.20).  
- The all-important longest follow-up point (9 months) is not reported.  
- Overall quit rate is low in both groups, reflecting both the limitations of the treatment and the challenges of helping veterans with PTSD quit smoking.

### Major Depression

**One or more depressive episodes**

**Clinical features:** During at least a 2 week period, depressed mood or loss of interest for most of the day, weight loss or gain, increased/decreased sleep, behavioral agitation or retardation, fatigue, worthlessness or guilt, inability to concentrate, thoughts of death or suicidal.

*Sarason & Sarason (1999)*

### Randomized trials for smoking cessation among those with current Major Depression

**ONLY THREE TRIALS**
Why 3? Smokers with current depression are usually excluded from trials!

- Researchers and IRBs are concerned they may commit suicide. (They will if they keep smoking!)
- Belief that depression needs to be treated before the smoking cessation.
- Belief that study patients' depression will worsen if they quit smoking because they will lose the behavior that helped them cope.
- Reflect the mechanistic worldview that disorders are separate from each other and therefore need to be treated separately.

So, who are the three brave souls?

Munoz et al. (1997)

- 136 Spanish-speaking Latino smokers with current major depression.
- Randomly assigned to be mailed a self-administered cessation intervention guide (Guia) or the Guia plus mood management intervention (Tomando Control de su Vida) presented in writing and in audiocassette.
- At three month follow-up, 7 day point prevalence cessation rates were: 23% in Experimental vs. 11% in control (p = .04).
- Low cost, wide reach, and effective for an ethnic population in need. A true public health intervention!

Thorsteinsson et al. (2001)

- 38 smokers with current major depression.
- Randomized double blind assignment to either nicotine patch (n = 18) or placebo patch (n = 20) over a 29 day period.
- Major analysis flaw: the 13 who smoked after the quit date were dropped from the analysis!
- Overall, results not interpretable.

Hall et al. (2006)

- 322 smokers in outpatient treatment with current major depression.
  - Interest in quitting not necessary!
- Randomized to either control or stepped care with computerized motivational feedback at baseline, 3, 6, & 12 months along with 6-sessions counseling and pharmacotherapy or control. Counseling included mood monitoring and relaxation.
- No theoretical model is presented showing how these treatments components fit together to target smoking and depression.
- Control were offered self-help guide and referral to local treatment providers.
Abstinence rates for ALL participants. OR over time = 4.55 (95% CI = 1.04, 19.93; P=.04). Does not report ITT analysis. Does not report on 18 month cessation effects. No treatment effects on depression.

So where has the research focused?

Randomized trials for smoking cessation among those with current Schizophrenia

MUltiple Trials

Psychotic Disorders

Schizophrenia: Most common psychotic disorder. Disturbance of six months, with at least one month of hallucinations, delusions, bizarre behavior, flat affect, loss of feelings or energy.

Sarason & Sarason (1999)
Addressing Smoking in Schizophrenics is Clinically Important

- Tobacco use is a major contributor to the shorter life spans of schizophrenics (Goff et al., 2005).
- Schizophrenics have triple the risk of respiratory disease (Joukamaa et al., 2001) and lung cancer (Lichtermann et al., 2001).
- Smoking interferes with metabolism of antipsychotic medications (Desai et al., 2001).
- However, these serious effects of smoking likely apply to most psychiatric populations—not just schizophrenics.
- And from a public health point of view...

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Summary of Schizophrenia Studies

- Schizophrenics are interested in quitting smoking and it is possible to engage them in treatment (Workgroup on Substance Use Disorders, 2006).
- Just as for most smokers, NRT plus group or individual counseling is most effective (Addington et al., 1998).
- Motivational interviewing increased motivation to seek treatment within 1 month in 32% of smokers with schizophrenia compared to 11% in an educational comparison (Steinberg et al., 2004).
- Bupropion, patch, and spray all work to some extent (Ziedonis et al., 2004).
- Nasal spray increases quit rates and provides short term relief of schizophrenia symptoms (Smith et al., 2006).

Summary of Our Journey So Far

- From a public health point of view, individuals with (1) antisocial/conduct disorder, (2) simple phobia, and (3) depression are the three most important groups of smokers with psychiatric disorders.
- However, the research trials to date are not adequately addressing these groups of smokers.
- Instead, we have a mere 5 RCTS (2 on PTSD; 3 on Major Depression) that have largely found very modest cessation rates. Several of these studies have serious methodological challenges, including small sample sizes and inadequate reporting.
- These interventions have lacked coherent treatment models.
- Most of the research has focused on schizophrenics, a clinically important group but not one of high public health importance.
What is needed

- Well-powered randomized controlled trials to test specific, conceptually coherent, interventions for smoking cessation among individuals with (1) antisocial/conduct disorder, (2) simple phobia/other anxiety disorders, and (3) depression.
- The intervention modalities need to have public health applicability. For example, Munoz et al. (1997).
- Most importantly, the interventions need to be MORE EFFECTIVE!

Addressing the needs for more effective interventions

Why interventions have modest quit rates?

- Cessation treatments to date are a hodgepodge of counseling techniques and pharmacotherapies.
- Cessation counseling is viewed by many in the field as common sense. And counseling is just a way to get people to take medications. The only reason why counseling works is because you are meeting regularly with someone who holds you accountable (Hajek, 2009, SRNT Dublin).
- There have been no innovations in counseling techniques since the 1970s (Niaura & Abrams, 2002).
- With the exception of Varenicline, there has never been a nonnicotine drug specifically developed to target the processes of nicotine dependence.

What is missing: A coherent model

- A clear and coherent empirically-supported conceptual account of the psychological, social, and biological processes underlying the linkages between smoking and psychiatric disorders.
- Such a model would need to account for the very likely phenomenon that seemingly distinct disorders share common functions. When disorders are viewed functionally, rather than as a list of symptoms, common processes emerge that provide useful intervention targets.
- The utility of such a model would be to provide an overall treatment approach that is flexible and useful for targeting processes that maintain both smoking and psychiatric disorders.
- The ultimate value of this coherent model would be to improve cessation rates in smokers with psychiatric disorders.
Promising Model: Distress Tolerance

- How one reacts to the thoughts & sensations that make up anxiety, depression, anger, and trigger one to smoke may be an important key.
- Lab-based studies (e.g., breath holding studies) suggest that a low threshold for tolerating discomfort may lead to increased smoking to temporarily relieve that discomfort (Zovlesky et al., 2001).
- Smoking cessation may be impeded by an inability to tolerate the negative thoughts, emotions, and sensations associated with nicotine withdrawal (Brown et al., 2001).
- A treatment model that focuses on helping smokers tolerate the distress of their mental disorder AND the process of smoking cessation may hold promise.

A Distress Tolerance Intervention: Acceptance & Commitment Therapy

Acceptance of our "baggage"  Committed Action in valued direction

Essential Components of ACT

(Derived from Hayes et al., 1999)
Acceptance
Essential Components of ACT

Tug of War between you and your pain/urges/anxiety?

Three Core Steps in the ACT Process

1. Accept thoughts and feelings
2. Choose Actions
3. Take Action
ACT for Smoking Cessation

Five promising studies to date.

Research on ACT for individuals with Antisocial/Conduct, Anxiety, or Depressive disorders is needed to build on this promise.

ACT for Smoking Cessation

- **ACT vs. NRT**: N = 76; 21% vs. 9% biochemically verified 24-hour abstinence at 12-month follow-up (n.s. in ITT; Gifford et al., 2004)
- **ACT + FAP vs. Zyban**: N = 302; 35% vs. 20% 30-day abstinence at 12-month follow-up (p < .05 in ITT; Gifford, Kohlenberg et al., in review)
- **ACT vs. CBT**: N = 81; 30% vs. 13% 30-day abstinence at 12-month follow-up (p < .05 in ITT; Hernandez-Lopez, Luciano, Bricker et al., in review)
- **ACT vs. CBT for smokers who have not quit for at least 3 days in past 10 years**: N = 49; 19% vs. 9% 24-hour verified abstinence rates at 26-week follow-up (p > .05 in ITT; Brown et al, 2009, SRNT Dublin). Difficult population.

Study 5: ACT for Brief Telephone-Based Smoking Cessation

- Three face-to-face RCTs of ACT for smoking cessation show promise.
- Four RCTs in face-to-face settings with brief ACT show efficacy (60-180 minutes total).
- Telephone smoking cessation is ubiquitous.

(Bricker et al., in preparation)
Spring 2008 Pilot Study: Aims

1. Pilot test and revise a 5 session (90 minute total) ACT telephone intervention with 15 adult daily smokers.
2. Pilot test and revise the pre- and post-intervention real-time surveys of hypothesized mediators.
3. Document intervention feasibility, participant receptivity, change in mediators, and change in smoking behavior.

Sample

- Female: 40%
- Minority: 53%
- Median age: 49
- Low income: 64%
- Depressed (MDE screen): 40%
- Anxiety (Overall screen): 60%

First evidence that ACT Can Be Briefly Delivered Via Telephone

- Mean length of contact time: 82 minutes
- Mean number of counseling calls: 3.5 (33% had all five calls)

Participants Were Highly Receptive

- Felt respect by counselor: 100%
- Intervention was a good fit: 86%
- Intervention helped them quit: 86%
Intervention Changed Theory-Based Mediators

- **Acceptance** of physical cravings ($p = .001$), emotions ($p = .048$), and thoughts ($p = .085$) that cue smoking increased from baseline to end of treatment.
- **Commitment** to quitting increased from baseline to end of treatment ($p = .01$).

Cessation/Progress Results at 20 Days Post Treatment

- 24-hour point prevalence: **43%**
- 7-day point prevalence: **29%**
- 24-hour quit attempt: **71%**
- Reduction from daily to less than daily smoking: **62%**

The Promise of These Cessation/Progress Results

- Similar to Gifford et al. (2004) intensive face-to-face ACT which had an end of treatment 24-hour quit rate of 35%.

- Were attained in a sample with high fraction of depression which typically has lower cessation rates.

- Were attained without the offer of NRT. Thus results may be even larger with the offer of NRT.
Where We Have Been

1. Found that antisocial/conduct disordered, simple phobia, and major depression represent the groups of smokers with psychiatric disorders having highest public health importance.

2. Discussed the five randomized trials to test specific behavioral and pharmacological interventions for smoking cessation among these three important psychiatric groups.

3. Reviewed the need for and presented distress tolerance as a promising example of a conceptual model for processes underlying associations between smoking and psychiatric disorders.

4. Looked at ACT as a promising distress tolerance approach to improving the smoking cessation rates of interventions among individuals with psychiatric disorders.

Thank you!

Contact for comments/questions:

jbricker@u.washington.edu