Nicotine Dependence:  
Complexity in Models & Practices of Addiction

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Smoking in Australia

- Prevalence: about 15% daily smoking in adults
- Second most expensive cigarettes in the world

- Smoking banned in public places:
  outdoor eating and drinking areas, sports grounds, public playgrounds, beaches and transport stops, in a car with children (NSW)

- Successful denormalisation of smoking?
Smoking in Australia

From 2013: Plain packaging (no brand logos)

From 2011: No tobacco products to be visible in stores
Smoking is an Addiction

Surgeon General’s Report 1988:

• Cigarettes are addictive
• Nicotine is the drug in tobacco that causes addiction
• The processes that cause tobacco addiction are similar to those which cause heroin and cocaine addiction
Smoking as an addiction is stabilised through everyday experiences:

- Despite knowledge of health risks, smokers’ struggle to quit ... and repeatedly relapse
- Regulation of smoking reveals the compulsion to smoke
- Meaning of smoking changes: disregard for health, pollution, irrationality
Nicotine Dependence: Explanatory Power

What is it that makes smoking so refractory, despite the high personal costs that are eventually exacted by smoking?
(Piper et al. 2004)

The dependence construct has a heavy explanatory burden – it has become a core concept in tobacco research.
But....‘Nicotine Don’t Get No Respect’

Nicotine dependence is the most prevalent, most deadly and most treatable drug dependence and yet it is omitted from general discussions and surveys of substance dependence in scientific literature (Hughes 2013)

Scientists think of nicotine dependence as different from other forms of drug dependence
What kind of addiction?

- Cigarettes are legal and (relatively) easily accessible
- Smoking doesn’t cause ‘bad’ behaviour and psychosocial harms
- Traditionally, smoking, like drinking coffee, has been harnessed to the productive work day
- UK public health tradition: smoking a problem of dependence rather than addiction – epidemiology and respiratory medicine rather than psychiatry
Nicotine Replacement Therapy

Enacts smoking as nicotine addiction – with emphasis on physical dependence as the core feature

Current smoking cessation guidelines encourage NRT use – assume smokers are dependent on nicotine

But NRT enacts a normalised form of addiction – addicts as rational consumers who are able to regulate their own substitution therapy
NRT:
Substitution therapy as consumer health product

Addiction humour
Does addiction matter in the case of smoking?

• Public health consensus is that the problem is use itself.
• The goal is quitting, not abstinence or control.
• Assumption is that all regular users are dependent.
• Tobacco control has been successful while ignoring questions about the exact nature of nicotine dependence.
A proliferation of measures

- DSM: Nicotine Dependence/ Tobacco Use Disorder
- The Nicotine Dependence Syndrome Scale

- Fagerström Test for Nicotine Dependence
- The Heaviness of Smoking Index

- The Cigarette Dependence Scale
- Wisconsin Inventory of Smoking Dependence Motives

- Hooked on Nicotine checklist
Two Traditions of Nicotine Dependence

1. Medico-psychiatric: based on generic substance dependence construct (DSM)

2. Smoking-specific: focused on physical dependence (Fagerström Test)
DSM: Nicotine Dependence

• Based on alcohol dependence syndrome

• Located within nosology of mental disorders

• Essential feature is cluster of cognitive, behavioural and physiologic symptoms that indicate impaired control and continued use despite harm

• Criticised by tobacco researchers
DSM-5: Tobacco Use Disorder

1. Using larger amounts or for longer than intended
2. Persistent desire & unsuccessful efforts to cut down
3. Great deal of time spent using
4. Craving
5. Failure to fulfil role obligations due to use
6. Use despite social or interpersonal problems
7. Other important activities given up because of use
8. Use when physically hazardous
9. Use despite physical or psychological problems
10. Tolerance
11. Withdrawal
Two Traditions of Nicotine Dependence

1. Medico-psychiatric based on generic substance dependence construct (DSM)

2. Smoking-specific focused on physical dependence
   (Fagerström Test for Nicotine Dependence)
Fagerström Test for Nicotine Dependence

1. How soon after you wake up do you smoke your first cigarette?
2. Do you find it difficult to refrain from smoking in places where it is forbidden?
3. Which cigarette would you hate most to give up?
4. How many cigarettes/day do you smoke?
5. Do you smoke more frequently during the first hours after waking?
6. Do you smoke if you are so ill that you are in bed most of the day?
Fagerström Test for Nicotine Dependence

• Assumes that symptoms arise from a process of **physical dependence/tolerance**
• Assesses levels of dependence (a score from 0-10)
• Closely related to ‘biochemical indices of smoking’
• Focused on behaviour and consumption, rather feelings of loss of control – here dependence is not a mental disorder nor a disordered subjectivity.
Complexities of Dependence

• FTND doesn’t diagnose the same smokers as DSM
  Are they measuring different aspects of dependence?
  Constructing different versions of dependence?

• In some studies, substantial proportion of daily smokers not nicotine dependent based on DSM and FTND

• Explanatory circularity in FTND: heavy smoking as a criteria of dependence, but is also seen as proof of dependence
Two questions from FTND contain most of its predictive power

- How soon after you wake up do you smoke your first cigarette?
- How many cigarettes/day do you smoke?

These two questions make up the **Heaviness of Smoking Index** (1990s)
One question from FTND contains most of its predictive power

- How soon after you wake up do you smoke your first cigarette?

Time to first cigarette taps a pattern of heavy, uninterrupted and automatic smoking, as well as vulnerability to relapse – thus it is a good measure of nicotine dependence (Baker et al. 2007)
Variations of Addiction

• A multi-dimensional syndrome featuring feelings of loss of control and a disrupted and disordered life.

• A uni-dimensional condition based on physical dependence. Patterns and levels of a specific behaviour (smoking) are key.
Variations of Addiction

To identify addiction one can:

- Isolate the one core item that captures the presence of the phenomenon
- Expand the items to capture the heterogeneity and variability of the phenomenon

Questionnaires range from 1 to 68 questions
Reconceptualising ND in the 21st Century

• Studies of nicotine dependence in youth - DANDY (Di Franza 2005)
• Both FTND and DSM-ND developed for adult smokers at a time when heavy smoking was the norm and cigarettes were cheap
• Many young smokers only smoke a few cigarettes per week
• Need new more sensitive measure attuned to development of ND in young smokers in the context of ‘constrained smoking’
Hooked on Nicotine Checklist
(scored from 0-10)

Have you ever tried to quit smoking, but couldn’t?
Do you smoke now because it is really hard to quit?
Have you ever felt like you were addicted to tobacco?
Do you ever have strong cravings to smoke?
Have you ever felt like you really needed a cigarette?
Is it hard to stop smoking in places where you are not supposed to, like school?

When you tried to stop smoking:
Did you find it hard to concentrate?
Did you feel more irritable
Did you feel a strong need to smoke?
Did you feel nervous, restless or anxious?
Hooked on Nicotine: Loss of Autonomy

• Nicotine dependence looks different in a landscape of constrained smoking
• Cigarette consumption should no longer be used as a proxy for dependence
• Loss of autonomy over tobacco is the key feature of dependence. A process that begins with the first cigarette (and develops particularly rapidly in girls)
• The absence of ‘full autonomy’ equals the onset of dependence
Dependence without Smoking?

- ‘Nicotine dependence can be diagnosed when a patient experiences a recurrent and periodic wanting, craving or needing for tobacco’ (Di Franza 2010)

- When addictive wanting first appears its latency can be very long: smoking a single cigarette can fulfill the want for weeks

- One dose of nicotine changes the brain

- ‘smoking one cigarette in total can prompt a loss of autonomy’ (Scragg et al. 2007, study of NZ high school students)
Hooked from the first cigarette

One cigarette may be all it takes to get hooked. A 10-point questionnaire can help you drive that point home to adolescents who occasionally light up

Practice recommendations

• Teach adolescents that one cigarette is often all it takes to get hooked (C).

• The “Hooked On Nicotine Checklist” is a self-assessment tool that may help motivate some adolescent smokers to quit (C).

• Even adolescents who smoke only a few cigarettes a week. She denies using any other form of tobacco (eg, smokeless tobacco) and tells you that she has not experimented with drugs. When you ask her whether she’s tried to stop smoking, she tells you that she has, but that she’s already failed at several attempts to quit. You question her further and uncover some signs and symptoms of nicotine addiction, including cravings and a feeling of