Multiple Behaviors: Addiction as a Dysregulation of Appetitive Motivation

Steve Sussman, with thanks to: Pallav Pokhrel, Thalida Arpawong, Jimi Huh, Jennifer Tsai, Ping Sun, Donna Spruijt-Metz, and Louise A. Rohrbach
Departments of Preventive Medicine & Psychology, and School of Social Work
(PP: U. Hawaii Cancer Center)
Correspondence: ssussma@usc.edu
Underlying Constituents of Addiction
(which can apply to many behaviors)

1. Appetitive need
   - For pain reduction, affect enhancement, arousal increase or sedation, cognition expansion or contraction (fantasy, “oblivion”)

2. Temporary satiation
   - Period of subjectively sensing oneself as self-sufficient, okay, incentivized, neurobiologically fit

3. Preoccupation
   - Re: addictive object/behavior, with desire, withdrawal, time

4. Loss of control
   - Difficulty stopping when one wants to, implicit cognition, impulsiveness

5. Undesired, negative consequences
   - Social, role, physical, emotional
     - Sussman & Sussman (2011)
Cigarettes

Sex

Love

Workaholism

Alcohol

Gambling

Exercise

Illicit drugs

Food

Shopping

Internet
Summary of Sussman, Lisha, & Griffiths review, 2011

- 47% of U.S. adult population is estimated to suffer from one or more of 11 addictive behaviors

- Percentage that reports two or more addictions at the same time (co-occurrence) = 23%
Multi-response matrix item to assess these 11 addictions

Telephone interviews

At baseline 717 former alternative (at-risk) high school youth from southern California from 24 schools 3 years prior

- Mean = 19.8 years;
- 53% were male; 66% were Hispanic, 11% were non-Hispanic White, 23% were Other; 65% of their parents had completed high school.

Longitudinal Results 1-year later

- Mean 19.8 years to 20.8 years
- N = 538 (75% follow-up)
  - 17% of 359 men at baseline dropped out, 9.2% of 348 women
  - Latent Class Analysis (LCA) and Latent Transition Analysis (LTA)
    - Sussman et al., 2014, 2015, JBA
Prevalence of Addictions by Class at Wave 1

![Graph showing prevalence of addictions by class at Wave 1.

Class 1 (67.2%; n=482)
Class 2 (32.8%; n=235)
LCA indicated a very stable addicted class and non addictive class (90% stayed in their class one year later) but there was some switching within the addicted class. The “stability” for specific addictions was:

- **fairly high** for cigarettes (73%) and hard drugs (56%);
- **more moderate** for sex (47%), work (47%), exercise (46%), Internet (43%), love (42%), eating (41%), and shopping (35%); and
- **relatively low** for alcohol (28%) and gambling (18%).

An examination of such switching is complex. More work is needed to understand addiction switching over time (e.g., see Carnes, Murray & Charpentier, 2005).
THE AMASR THEORY (Sussman, 2017):

One’s neurobiology is equipped with adaptation motivation/need mechanisms (e.g., for survival/exploration, contentment, to be part of a herd).

Appetitive effects, which subjectively satiate need, can become tied to addictive behavior rather than to more adaptive behavior.

This occurs due to relatively automatic scripts created in associational memory after repeated exposure to an addictive behavior that elicits subjective appetitive effects.

Adaptation mechanisms become misdirected, overcharged, or otherwise dysregulated (unreliable). This may occur more easily among those relatively vulnerable.

Also: Addiction is a problem of lifestyle which interfaces with our neurobiological systems associated with obtaining appetitive effects.
Lifestyle Factors

- There may be two forces at work in modern societies that facilitate development of addictions to several different types of behaviors.

  1. a “pull” to engage in easily addicting behaviors that are present in modern society, that “simulate” the attainment of appetitive effects within a sedentary lifestyle.

  2. a “push” to seek out behaviors to satisfy one’s drives in a fast-paced, technological, stressed-out world.
Figure 2.1. A Possible Appetitive Effects Model of Addictive Effects: Associational Memory-Appetitive System Relations [AMASR] Model
Diagram of The PACE Model

(A broader model on how differential addictions develop)