Multiple Behaviors: Addiction as a Dysregulation of Appetitive Motivation

UNIVERSITY OF SOUTHERN CALIFORNIA

Keck School of Medicine

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

$$1/2$$

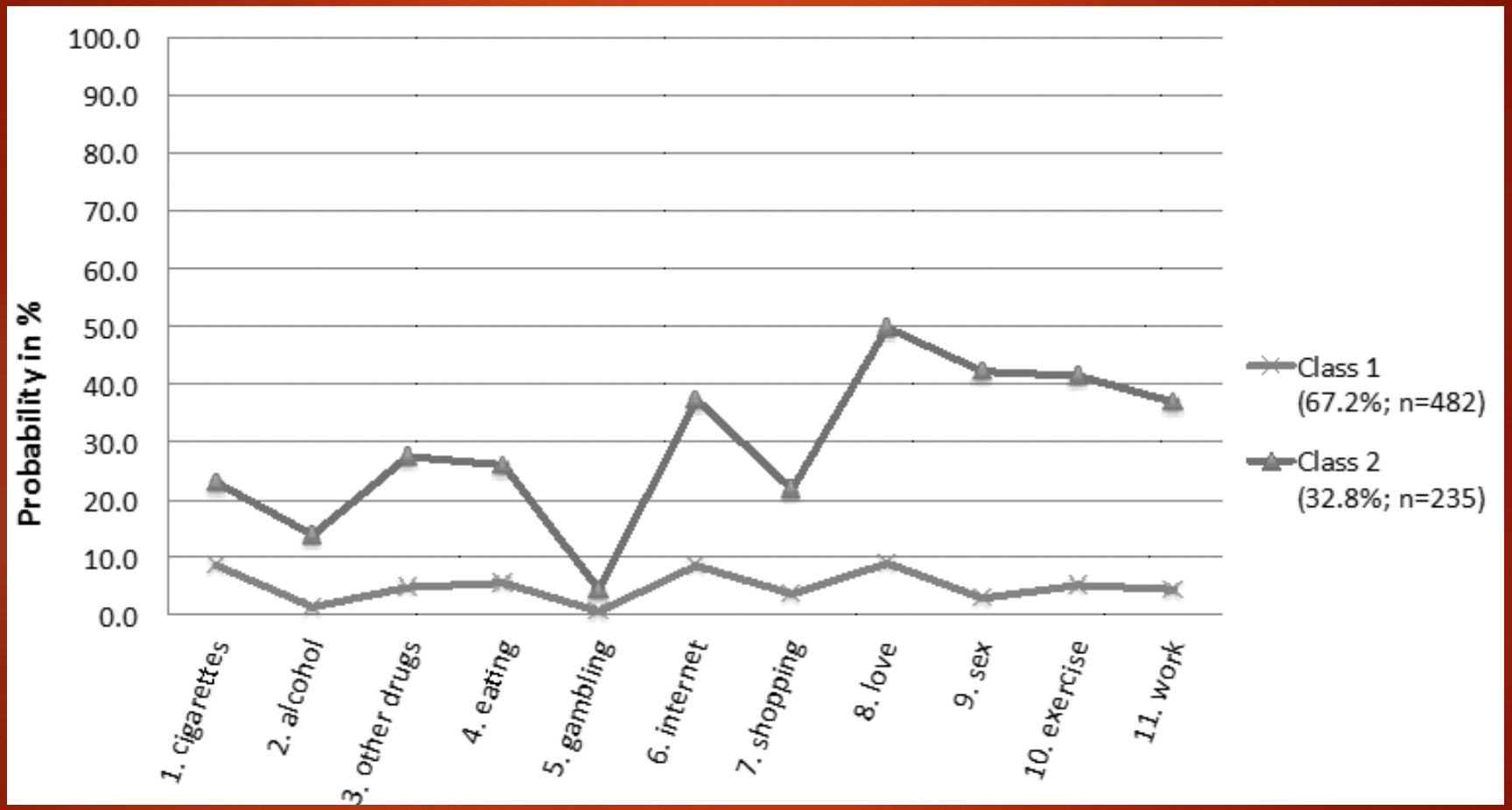
- Percentage that reports two or more addictions at the same time (co-occurrence) = 23%

$$\frac{1}{4}$$

Current Two-Part Empirical Study

- 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



Shifting within the addiction class

- 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.

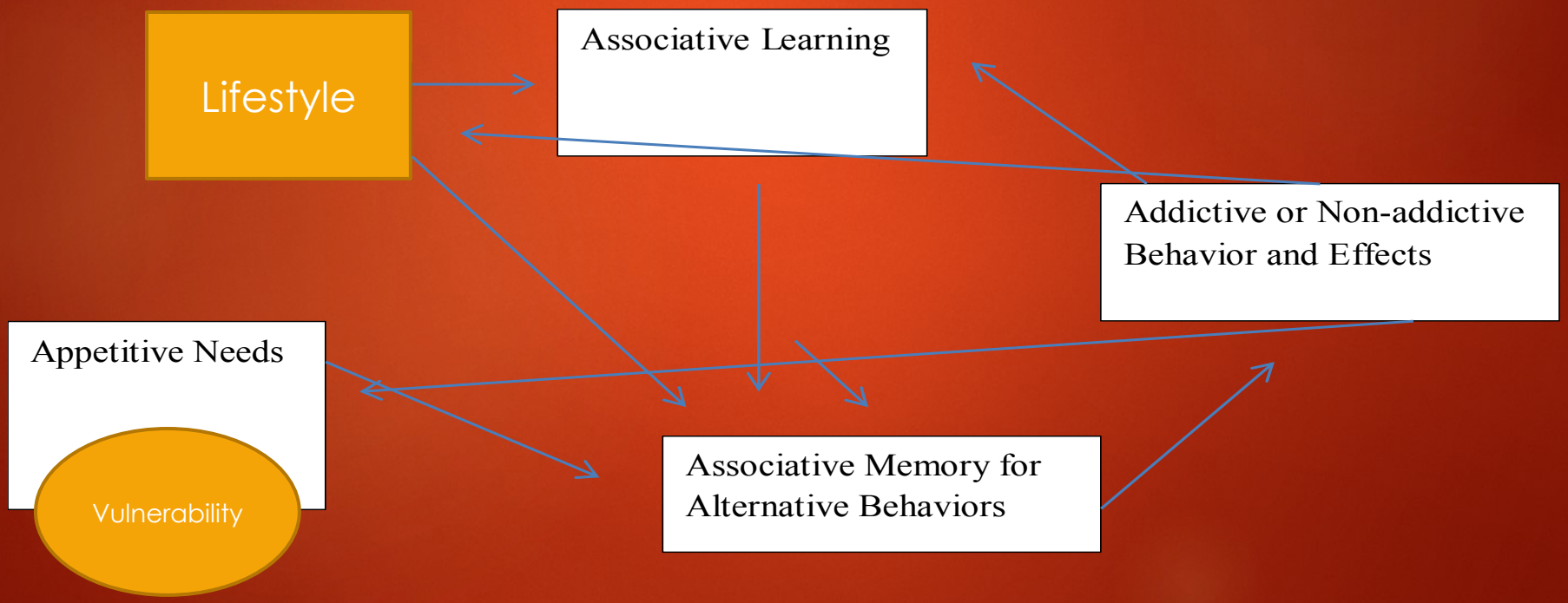
Lifestyle Factors

- 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



Sussman, S. (2017). Substance and Behavioral Addictions: Concepts, Causes, and Cures. Cambridge, GB: Cambridge University Press.

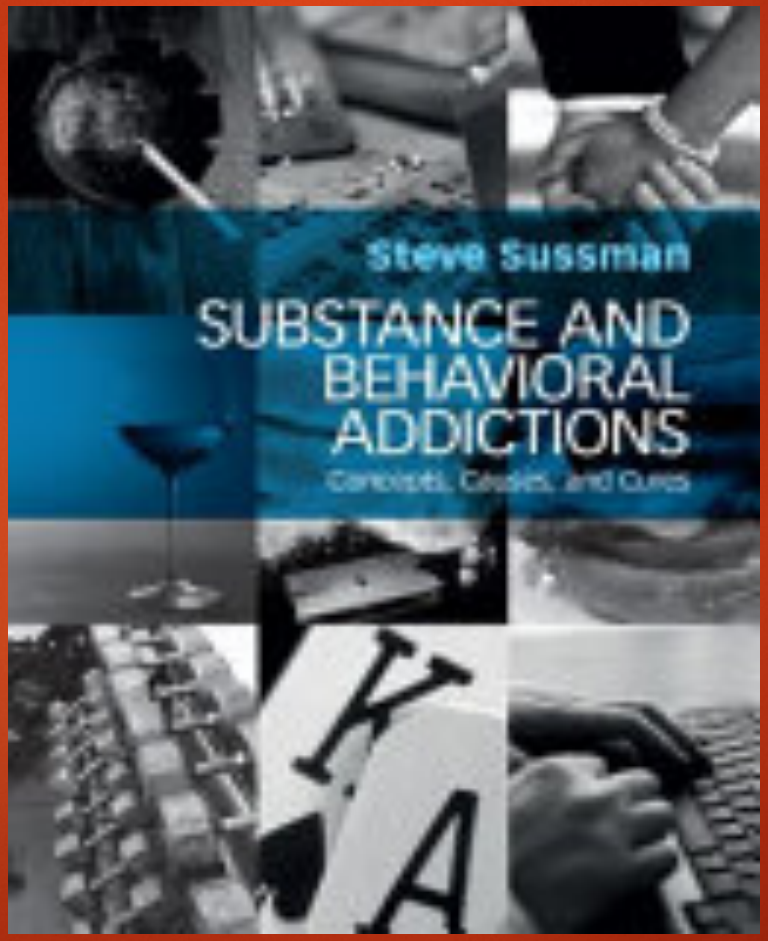


Diagram of The PACE Model

(A broader model on how differential addictions develop develop)