Syracuse University

Scientific Presentation 8:

Non-Opioid Substance Use That Complicates Pain

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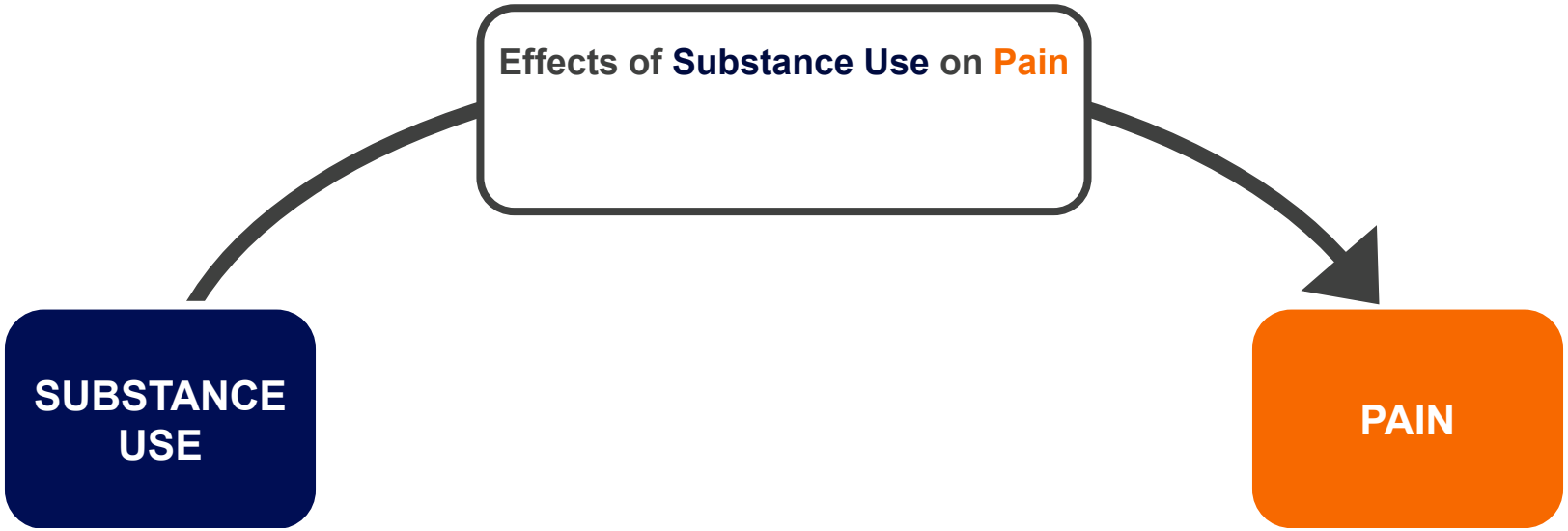
Non-Opioid Substance Use That Complicates Pain

- Outline
  - Reciprocal Model – Bidirectional Effects
  - Guiding Theoretical Perspectives
  - Nicotine/Tobacco
  - Alcohol
  - Research Gaps and Future Research Directions

Reciprocal Model of Pain and Substance Use



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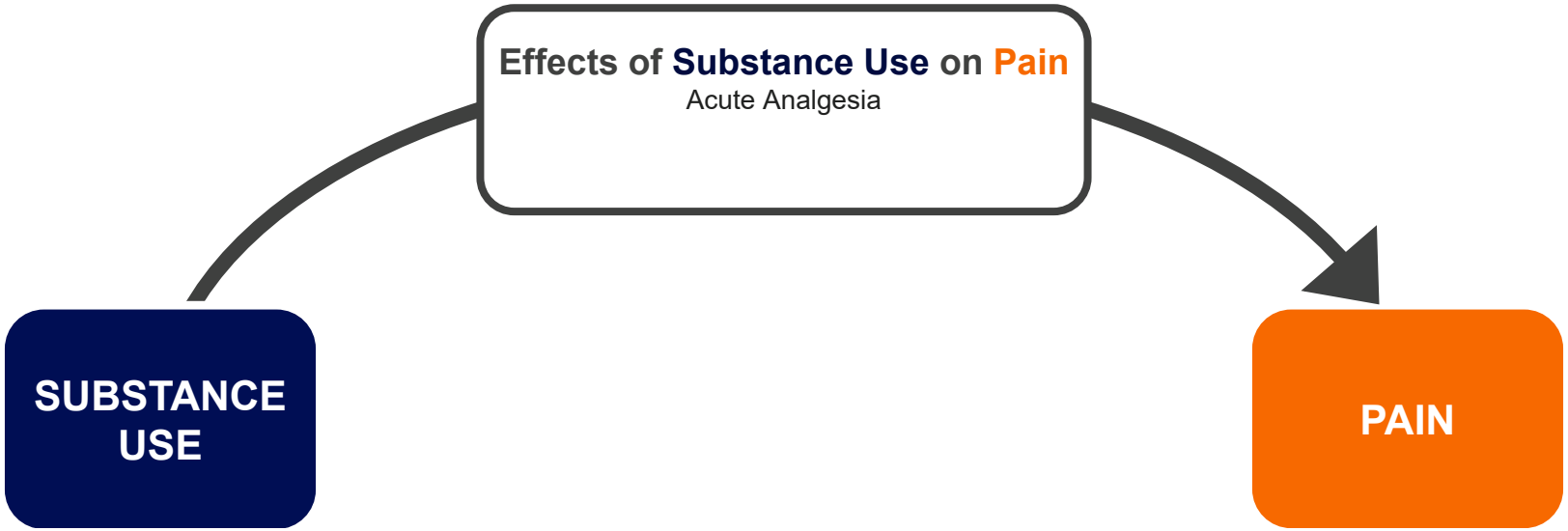

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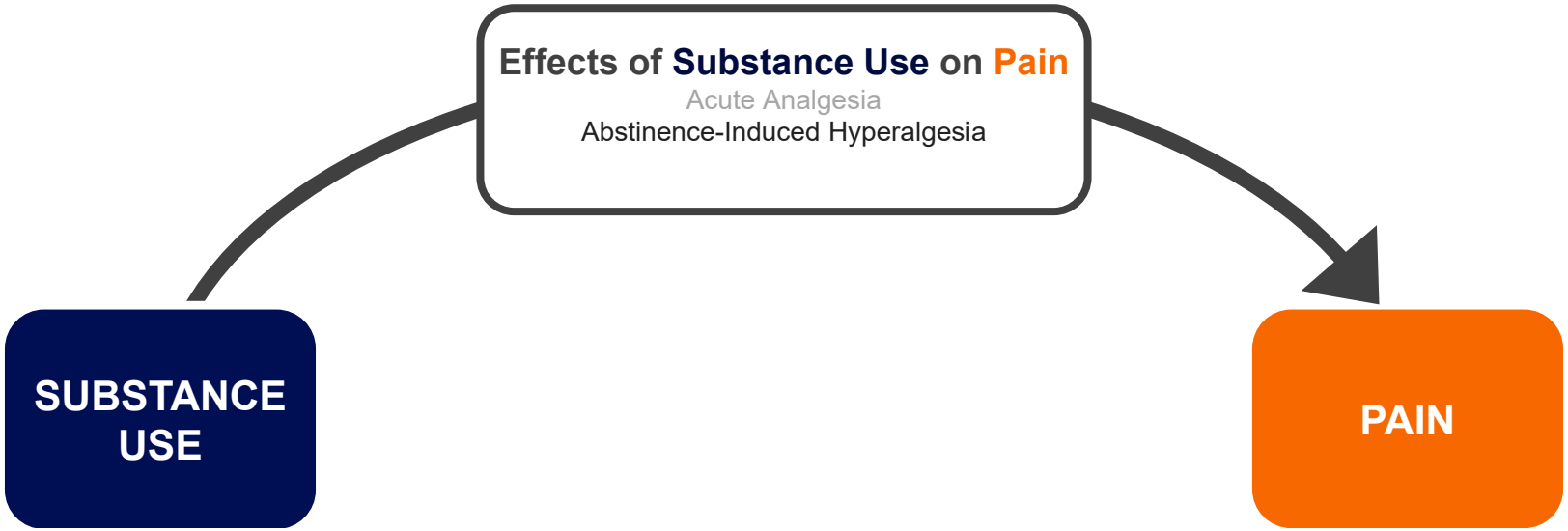

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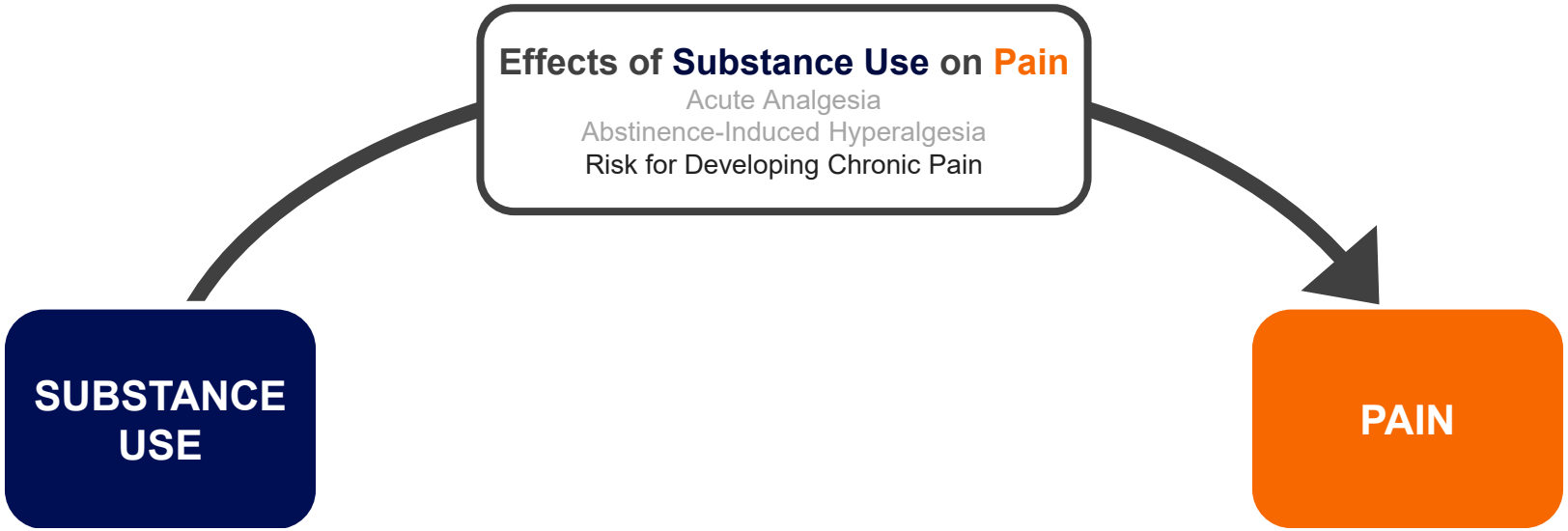

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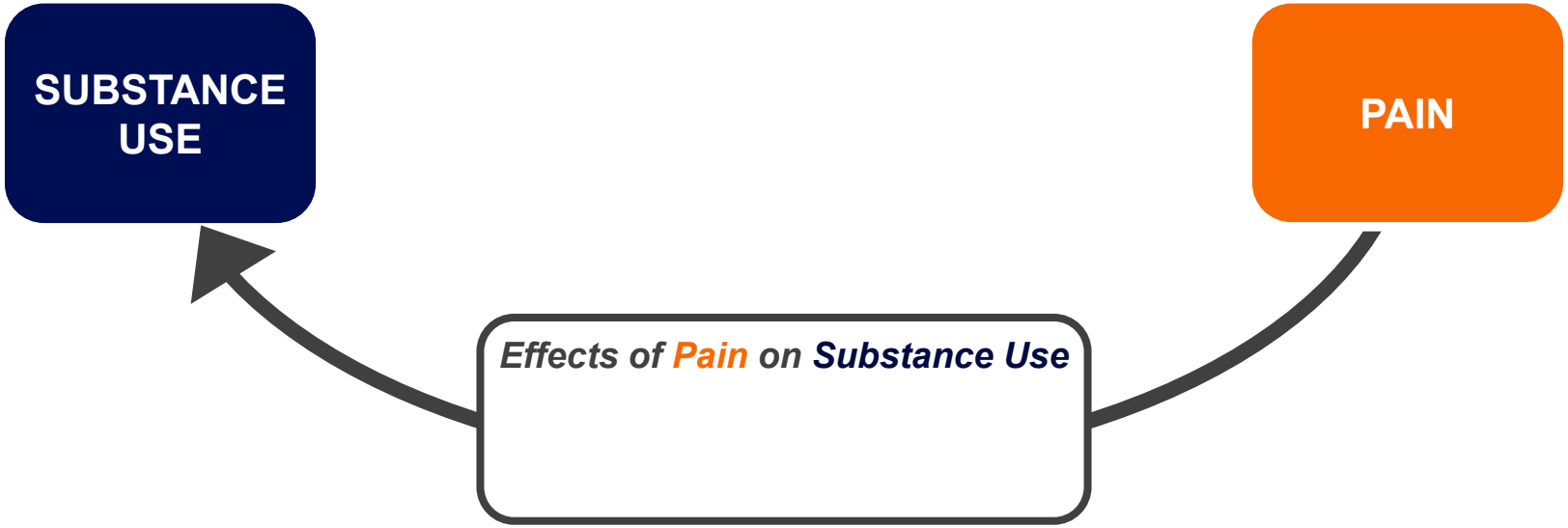

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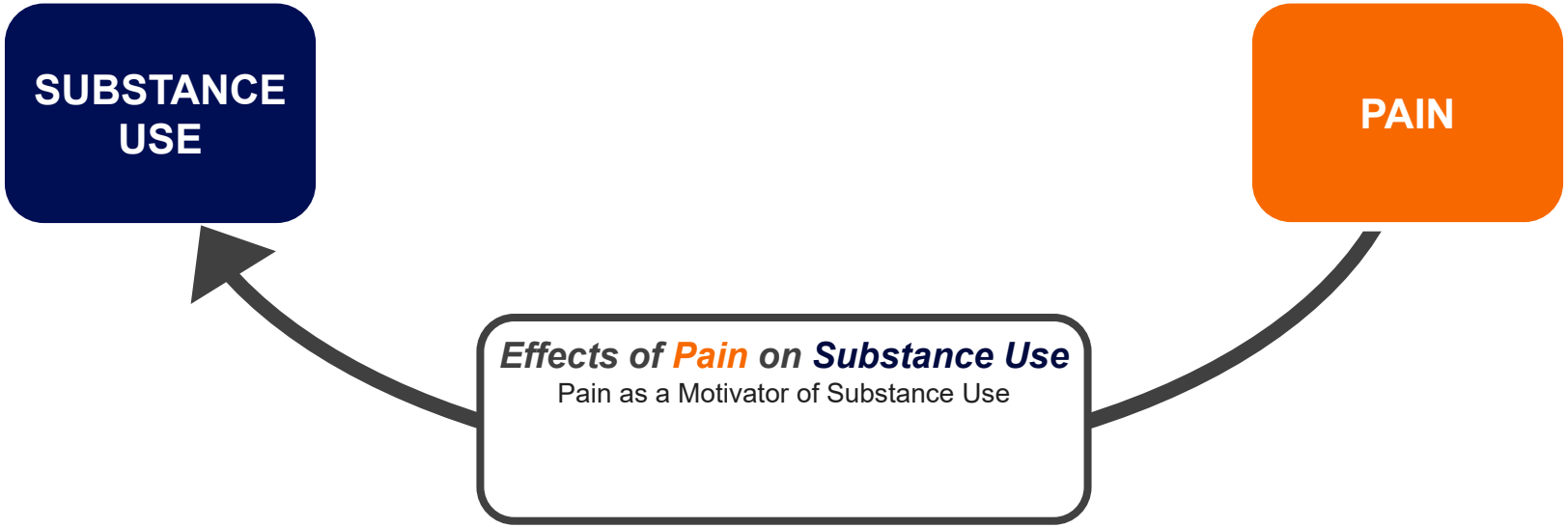

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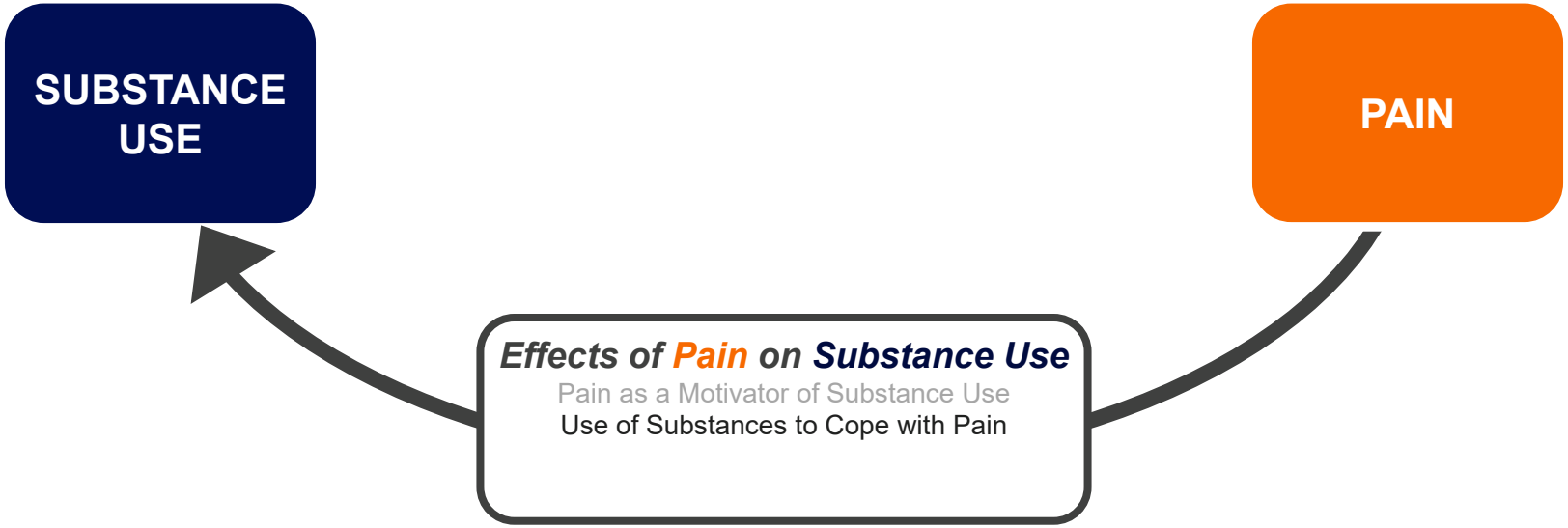

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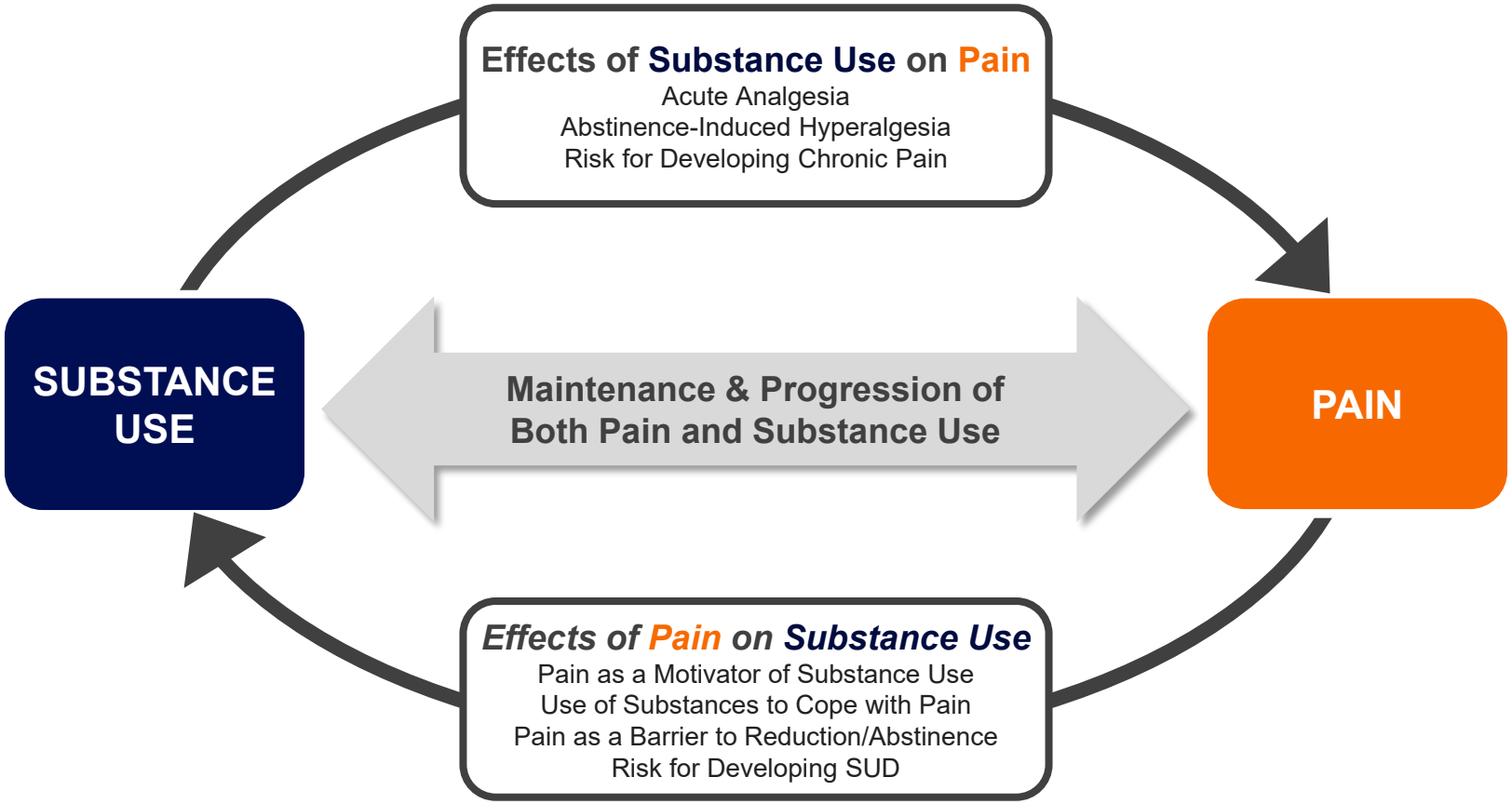


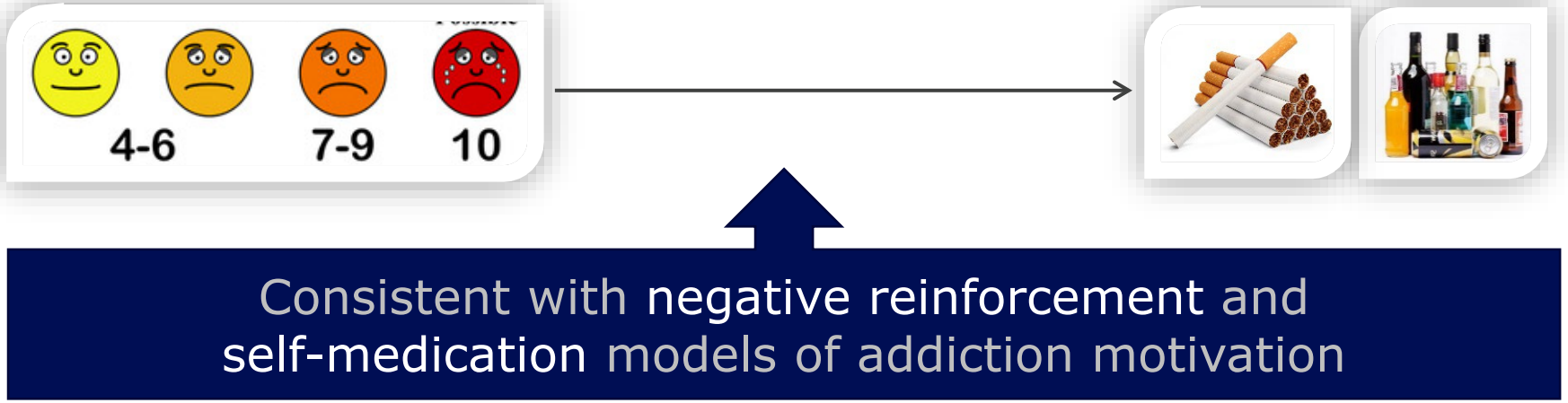
Effects of Substance Use on Pain

- Allostatic Load Model of Pain and Addiction
  - Chronic substance use (via repeated opponent process cycles of acute analgesia and withdrawal induced hyperalgesia) can dysregulate overlapping neural substrates and homeostatic pain mechanisms to engender a persistent imbalance that favors pain facilitation
    - central sensitization
    - altered neurotransmitter systems
    - neuroinflammation

Koob & Le Moal, 1997, 2001; Egli, Koob, & Edwards, 2012

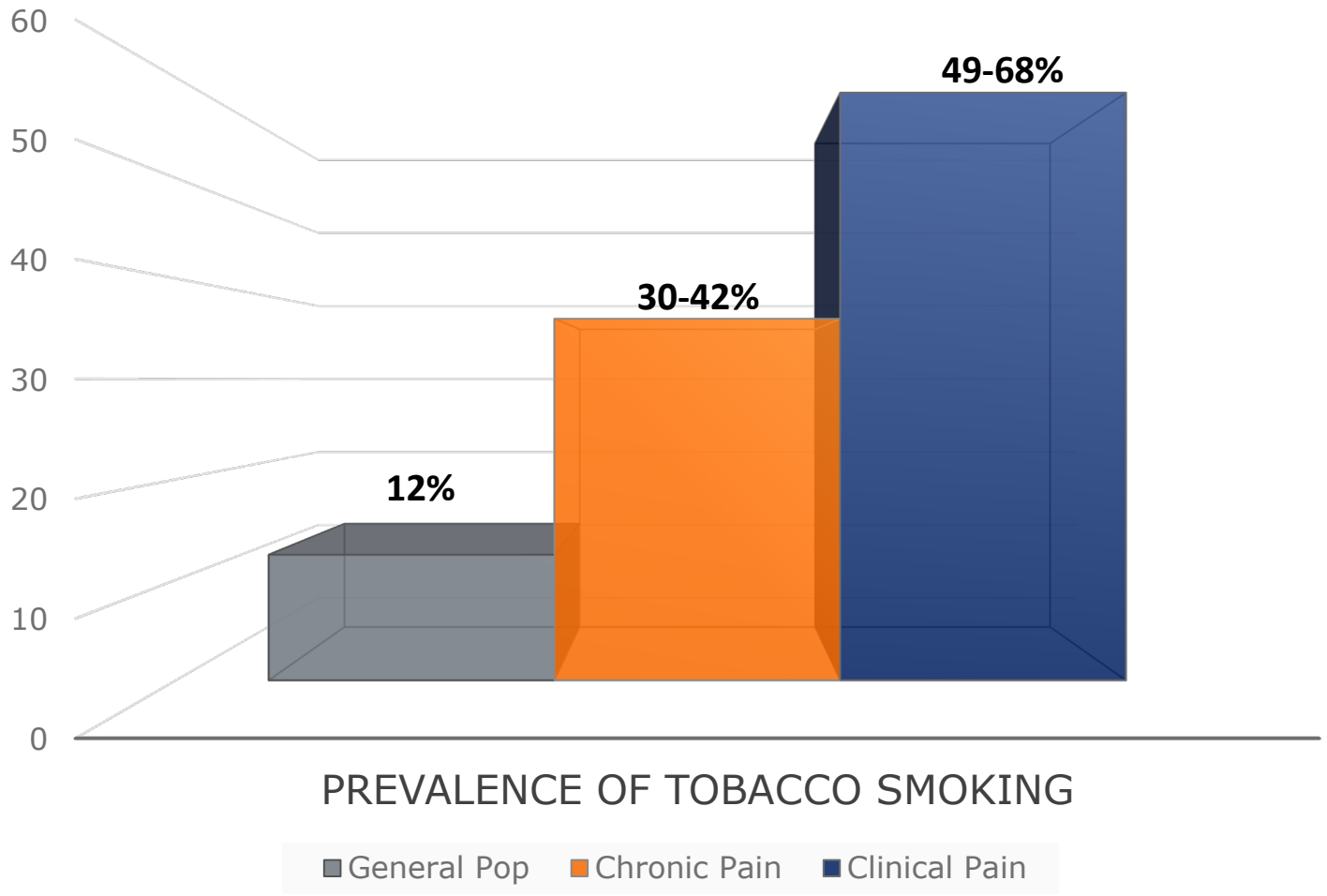
Effects of Pain on Substance Use

- Repeated Pain-Substance Use Effects
  - Conditioning of pain as a cue for substance use
  - Incentive sensitization
    - Pain comes to trigger excessive incentive motivation leading to alcohol/drug seeking & relapse



Robinson & Berridge, 1993; Baker et al., 2004

Pain and Nicotine/Tobacco

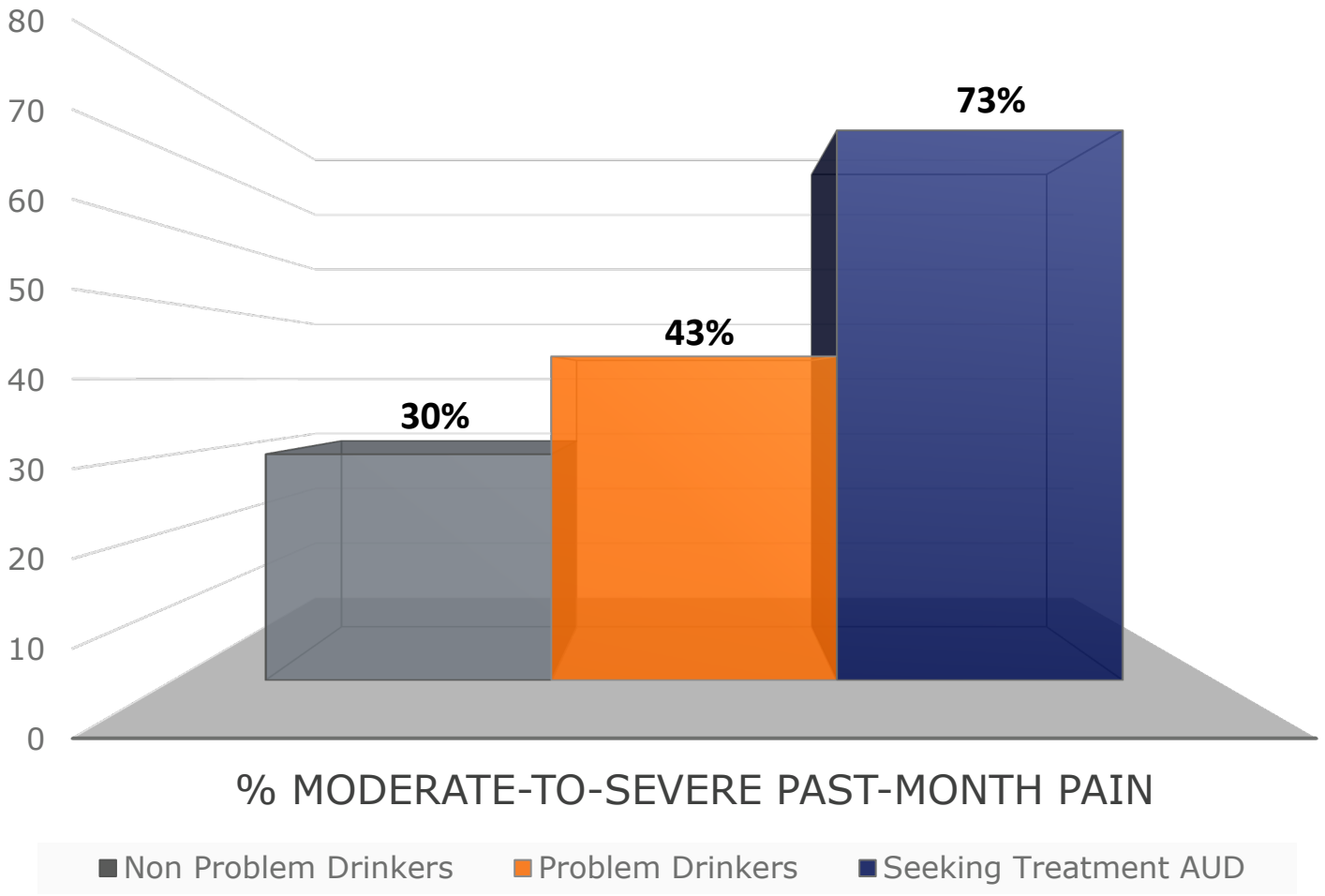


Pain and Nicotine/Tobacco

- Tobacco Smokers vs. Nonsmokers
  - Report more severe pain/impairment
    - Also observed among cancer survivors
  - Use more opioid medication

- Nicotine/Tobacco Users w/ Pain
  - Smoke more & more likely to also use e-cigarettes
  - Less motivated/confident in ability to quit
  - Less likely to initiate quit attempt
  - Withdrawal-induced hyperalgesia
  - More likely to lapse/relapse

Pain and Alcohol



Pain and Alcohol

- Alcohol Use among Individuals w/ Chronic Pain
  - 28% report using alcohol to cope with pain
  - 2x more likely to meet criteria for AUD (vs. no pain)
  - Withdrawal-induced hyperalgesia

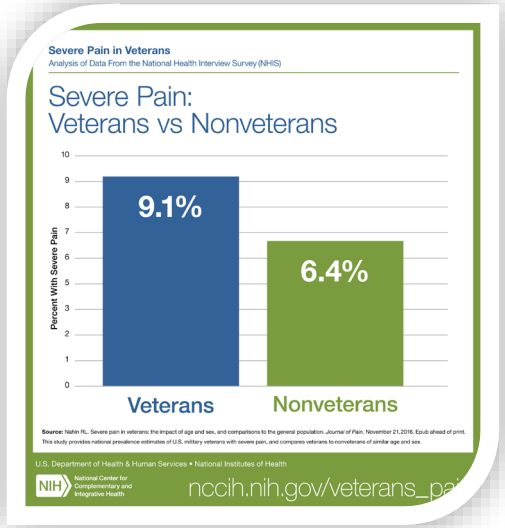
- Co-Use w/ Opioid Medications
  - Alcohol increases analgesic/reinforcing/sedative effects
  - 20% endorse concurrent alcohol-opioid use
  - Interferes with pain treatment
  - Dangerous/potentially fatal health effects

Research Gaps and Future Directions

- Increased focus on:
  - Co-use of nicotine/tobacco (ENDS), alcohol, opioids, and other substances (e.g., cannabis)
  - Other substances commonly used in context of pain (e.g., benzodiazepines, stimulants)
  - Beyond pain intensity → disability/functional interference

Research Gaps and Future Directions

- Increased focus on:
  - Psychological/behavioral health comorbidities
    - (e.g., anxiety, depression, trauma, PTSD, insomnia)
  - Psychosocial determinants
    - (e.g., stigma, discrimination)
  - Health disparities populations
    - (e.g., veterans, SGM groups, people w/ disabilities*)



Research Gaps and Future Directions

- Treatment Development & RCTs
  - Integrated (content/setting), personalized, and culturally tailored (motivation → cessation)

- Social-Cognitive & Transdiagnostic Factors
  - Pain←→substance use: expectancies & perceptions
  - Pain/abstinence coping & self-efficacy
  - Pain-anxiety, acceptance, catastrophizing, distress tolerance

Research Gaps and Future Directions

- Rigorous Methods
  - Experimental, Longitudinal, EMA
    - (e.g., effects of cessation/abstinence on pain)
      - acute (hyperalgesia) vs. distal trajectories
      - pain as a withdrawal symptom?

Thank You