Evaluation of Prescription Stimulant Use in the United States: Understanding Unique Behavioral Profiles

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INTRODUCTION

- Central nervous system stimulants are critical treatments for a variety of illnesses including amphetamine and methylphenidate for attention-deficit/hyperactivity disorder (ADD/ADHD) and modafinil for narcolepsy, shift work sleep disorder, and obstructive sleep apnea
- In 2019, US prescription stimulant dispensing was 6.1 prescriptions per 100-persons
- In 2020, 734,000 people misused a prescription stimulant for the first time; ~50% higher than initiation of cocaine, and ~400% higher than initiation of methamphetamine
- Crucial components of prescription stimulant use during adulthood remain poorly understood.

Objective: To evaluate prescription stimulant use behaviors to understand subpopulations of risk by quantitatively delineate behavioral profiles using latent class methodology.

METHODS

A cross-sectional, nationally representative online survey of adults in the US was utilized (2018-2019) from the Survey of Non-Medical Use of Prescription Drugs (NMURx) Program. Adults reporting past-year non-medical use (NMU) of prescription stimulants were included. Latent class analyses categorized individuals into mutually exclusive subpopulations. Model inputs included: prescription stimulant NMU, illicit stimulant use, use reason, administration route, and drug source. Classes were interpreted using item-response probabilities and prevalence. Class assignment association with demographics and DAST-10 score was explored. The DAST-10 score of 3 or more is indicative of potential substance use disorders. Calibration weighting generated representative results.

CONCLUSIONS

Adults who non-medically use prescription stimulants are heterogenous in behaviors and motivations. Stimulant use intervention research should consider motivations driving individual behavior.

RESULTS

Figure 1: Item-Response Probabilities - Latent Class Model

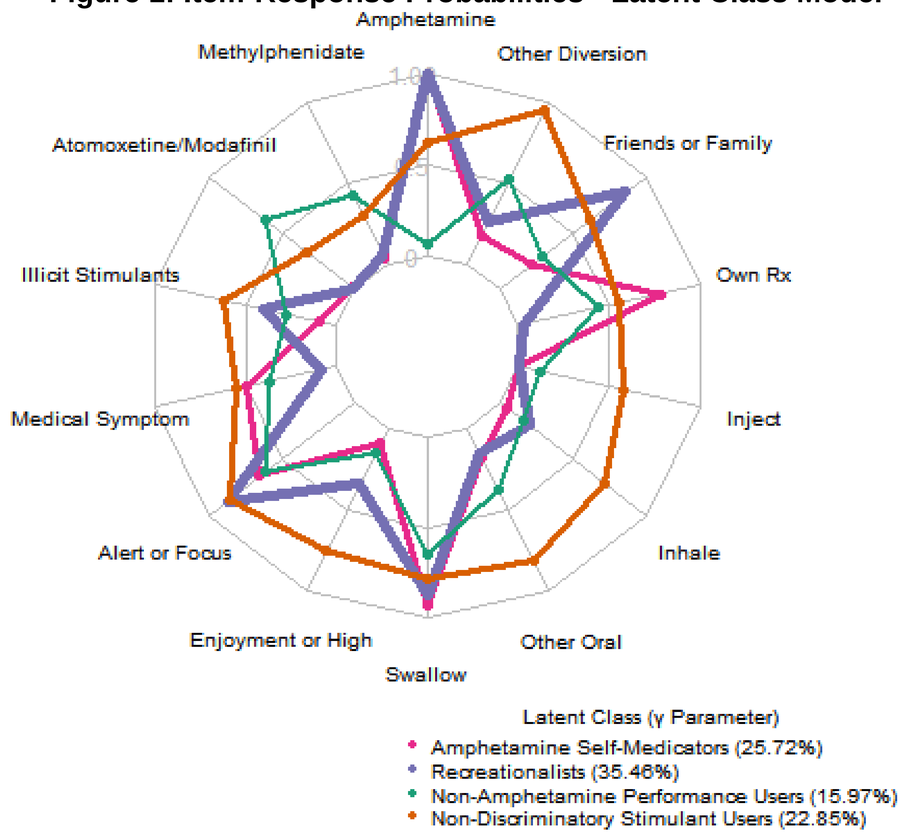

Table 1: Prevalence of Prescription Stimulant NMU

	Prevalence (95% CI)
Any Prescription Stimulant	1.96 (1.86, 2.06)
Amphetamine	1.54 (1.45, 1.64)
Methylphenidate	0.33 (0.29, 0.37)
Modafinil	0.21 (0.18, 0.24)
Atomoxetine	0.20 (0.17, 0.23)

- Demographics did not differentiate the 4 subpopulations
- Proportion with history of ADHD/ADD was highest among Amphetamine Self-Medication, but low amongst others
- High DAST-10 scores were associated with all three classes compared to Amphetamine Self-Medication
- The Recreationalist and Non-Discriminatory User subgroups (totaling over half of adults who NMU) are concerning since they tend to obtain the drug from sources other than a healthcare professional

Table 2: Interpretations of Identified Subpopulations

Latent Class Subpopulation	Description by Probability Level	History of ADHD/ADD (%)	DAST-10 Score ≥3 (%)
Amphetamine Self-Medication	*High:* using own prescription amphetamine, treating symptoms, swallowing	42.91 (37.46, 48.36)	22.34 (17.93, 26.75)
Non-Amphetamine Performance Use	*High:* using methylphenidate and atomoxetine/modafinil, treating symptoms, swallowing *Moderate:* sourcing through own prescription, friends/family, diversion.	22.85 (17.42, 28.27)	35.17 (29.32, 41.02)
Recreational Use	*High*: using amphetamine and illicits, using for alertness, swallowing, snorting, sourcing from friends/family *Moderate:* using for enjoyment/high, sourcing through diversion.	18.86 (15.45, 22.28)	42.49 (38.14, 46.84)
Non-Discriminatory Stimulant Use	*High*: multi-drug use, multiple NMU reasons, using multiple routes, sourcing through diversion.	29.30 (25.01, 33.58)	66.39 (61.85, 70.93)

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