

A Complex Systems Perspective on Tobacco Withdrawal

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A recently developed network perspective on tobacco withdrawal posits that withdrawal symptoms causally influence one another across time, rather than simply being indicators of a latent syndrome. Evidence supporting a network perspective would shift the focus of tobacco withdrawal research and intervention toward studying and treating individual withdrawal symptoms and inter-symptom associations.

Methods: We construct and examine temporal tobacco withdrawal networks that describe the interplay among withdrawal symptoms across time using experience-sampling data from 1,210 participants (58.35% female, 86.24% White) undergoing smoking cessation treatment. We also construct person-specific withdrawal networks and capture individual differences in the extent to which withdrawal symptom networks promote the spread of symptom activity through the network across time using impulse response analysis.

Results: Results indicate substantial moment-to-moment associations among withdrawal symptoms, substantial between-person differences in withdrawal network structure, and reductions in the interplay among withdrawal symptoms during combination smoking cessation treatment.

Discussion: Overall, findings suggest the utility of a network perspective and highlight challenges associated with the network approach stemming from vast between-person differences in symptom networks.

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