Sub-groups of tobacco and alcohol co-use trajectories from ages 21 to 32: The Amsterdam Growth and Health Longitudinal Study

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Aims

- Tobacco and alcohol are often used in tandem over time, but specific predictors and potential sub-groups of co-users and patterns of co-use over time need explication.

- Our previous work found, among other important predictors, that sex was a key predictor of co-use over time among young adults.

- The aim of this follow-up work was to examine whether or not there are statistically significant sub-groups of co-use over time.

- We examined differences in alcohol and tobacco co-use among a young adulthood population (ages 21 to 32) across an 11-year period.

Results

- The final and best fitting solution was a 3-class sub-group model (see Table 1) with excellent entropy for the classes (0.98):

- Class 1 (82%) demonstrated an average of 90.14 grams of tobacco consumption at age 21 and 177.98 grams of alcohol with a decreasing slope of -10.70 and -9.75, respectively, through age 32;

- Class 2 (5%) demonstrated an average of 289.80 grams of tobacco consumption at age 21 and 275.11 grams of alcohol with a decreasing slope of -13.10 and -12.21, respectively, through age 32;

- Class 3 (13%) demonstrated an average of 280.92 grams of tobacco consumption at age 21 and 231.52 grams of alcohol with a decreasing slope of -23.96 and -10.63, respectively, through age 32.

- Females demonstrated less alcohol consumption at age 21 with (β=-65.47, p<0.05) a slightly more rapid decline over time (β=4.66, p<0.05).

- At age 21, smoking was significantly associated with alcohol use (covariance = 684.78, p<0.05), and change in alcohol use from ages 21 to 32 was associated use of alcohol at age 21 (covariance = 684.78, p<0.05) and change in smoking over time (covariance = 684.78, p<0.05).

Methods

- Data came from participants (n=196 for ages 21-32; 52% female and 54% female, respectively) enrolled in the Amsterdam Growth and Health Longitudinal Study, an epidemiologic investigation examining disease across the lifespan.

- We utilized parallel latent growth modeling to assess the impact of sex, personality traits, cholesterol, blood pressure, and body mass index (BMI), on initial status and linear change over time in co-use of tobacco and alcohol.

- We estimated finite growth mixture models (1-6 class models) in order to examine whether there were statistically significant sub-groups based on their pattern of alcohol and tobacco co-use over time.

Conclusions

- This analysis added to existing evidence about the strong relationship between alcohol consumption and cigarette smoking during young adulthood.

- The three classes identified in this analysis may be representative of distinct sub-class that represent unique behavior patterns.

- For example, Class 1 may represent a normative decline in alcohol use and smoking from ages 21 to 32, while the two other classes, both of which started out using significantly more alcohol and tobacco demonstrated decline in the subsequent years, but at differing *rates* of decline.

- This work may help to improve alcohol and tobacco use disorder prevention efforts aimed at young adults.

Table 1. Class fit index comparisons.

	1 Class	2 Class	3 Class	4 Class	5 Class	6 Class
Parameters	38	43	48	53	58	63
Entropy	1.00	0.94	0.98	0.98	0.94	0.00
LL	- 7,344	- 7,255	- 7,203	- 7,140	- 7,086	- 7,039
BIC	14,889	14,737	14,659	14,560	14,479	14,205
Δ LL		89	52	63	54	47
Δ BIC		152	78	99	81	274

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