

Objective

Youth suicide continues to rise, yet prevention relies largely on adult-derived evidence. We aimed to identify data-driven phenotypes of youth suicide decedents to guide age-appropriate, targeted prevention and to highlight subgroups that current strategies may miss.

Method

We conducted a cross-sectional latent class analysis of 10,442 youth 10 to 17 years of age who died by suicide recorded in the US National Violent Death Reporting System (2013-2022). A total of 35 demographic, circumstantial, toxicologic, and method variables were modeled in 2- to 10-class solutions; the optimal model was chosen using the Bayesian information criterion (BIC), Akaike information criterion (AIC), entropy, and interpretability. Class distributions by age, calendar year, and race/ethnicity were compared with χ^2 and trend tests.

Results

A 5-class solution best fit the data. “Crisis” decedents (25%) experienced acute interpersonal or school crises without prior care. “Disclosing” (12.6%) had documented attempts, treatment, and recent intent disclosure. “Hidden” (21.2%) lacked recorded risk factors and had negative toxicology results. “Identified” (12.2%) was majority female and included more poisoning/asphyxia deaths. “Surveillance” (29%) showed pervasive missing data. Older adolescents clustered in the “Disclosing” class. The “Surveillance” class grew from 22% to 36% between 2013 and 2022 ($p < .001$).

Conclusion

Nearly half of youth suicides occurred in groups with no clinical contact or with investigative data gaps, constraining treatment-centered prevention. Universal screening, safe firearm storage, crisis-oriented outreach, and strengthened death scene surveillance are needed to reach and understand these youth.