EMERGING SUBSTANCE MISUSE ISSUES IN YOUTH AND YOUNG ADULTS:

Findings from the NC Youth and Youth Adult Prevention Survey

NATIONAL PREVENTION NETWORK CONFERENCE

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Learning objectives

Emerging Substances

- Identify emerging substance misuse problems.
- Identify the populations most impacted.
- Identify the strongest risk and protective factors for each emerging substance.

Polysubstance misuse

- Describe the most common polysubstance use patterns.
- Identify the populations most impacted.
- Identify the strongest risk and protective factors for polysubstance misuse.

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Session goal

- We want you to leave thinking nothing surprised you, but that you have new ways to think about data and how it can inform your decision making.

- Including how to use data to reduce disparities in emerging substance and poly substance misuse.

- AND that you don't have to give your communities a crash course in advanced statistics to understand it.

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Outline

- NC Youth and Young Adult Prevention Survey Background

- Traditional vs Recent Substances of Misuse
  - Prevalence
  - Age of onset
  - Relationship to demographic characteristics
  - Relationship to social determinants of health
  - Relationship to risk and protective factors

- Poly Substance misuse
  - Patterns of poly substance use
  - Relationship to social determinants of health
  - Relationship to risk and protective factors
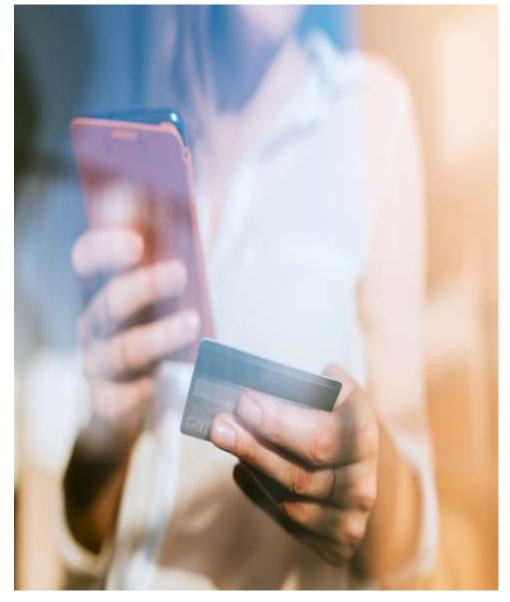
- Discussion and next steps

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NC Youth & Young Adult Prevention Survey Goal

PROVIDE INFORMATION FOR DATA DRIVEN COMMUNITY ASSESSMENT

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Data Collection

- 15,000 respondents 12-25 years old

- Qualtrics panel survey

- Recruited on-line by region

- Surveyed by telephone

- Average interview lasted 29 minutes

- $25 equivalent incentive

- December 2022 to February 2023

- Monitored for representation of all counties within in a region, and to balance responses on age, sex, race/ethnicity

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Regions

Identified with assistance from the Carolina Population Center to reflect:

- Geography
- Population density
- Percent minority population
- County distress rankings
  - Growth rate
  - Median household income
  - Unemployment rates
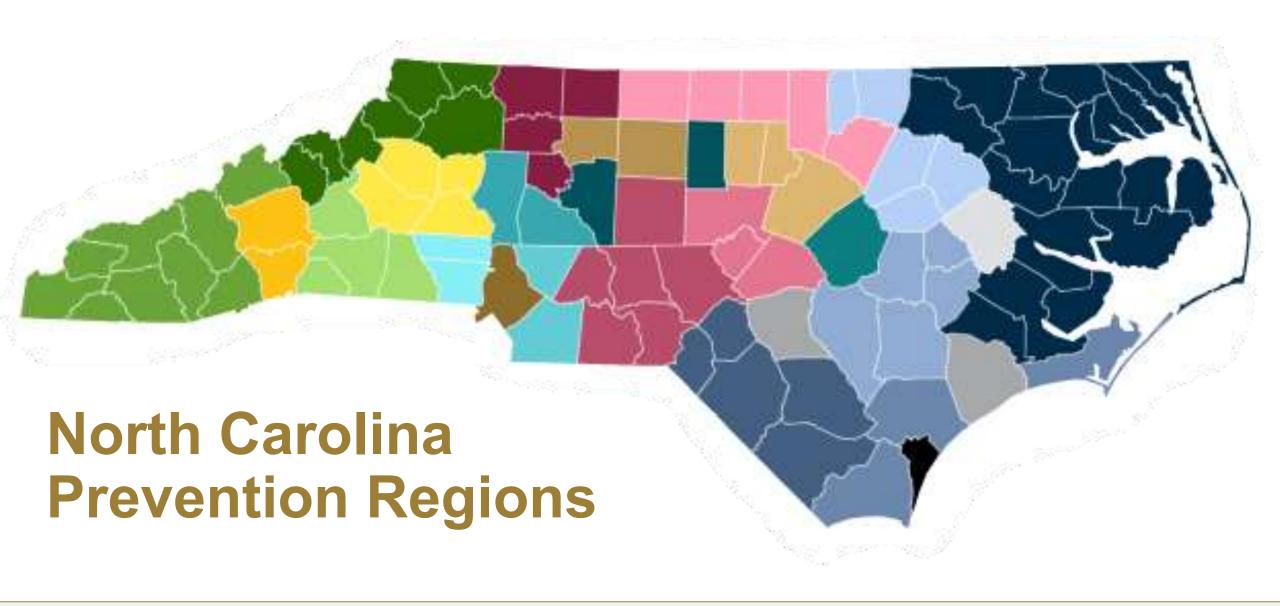 - Property tax base per capita
- Shared institutional influences

25 Regions

- 12 Rural
- 9 Suburban
- 4 Urban

600 Respondents per region

- 300 youth (12-18)
- 300 young adults (19-25)

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North Carolina Prevention Regions

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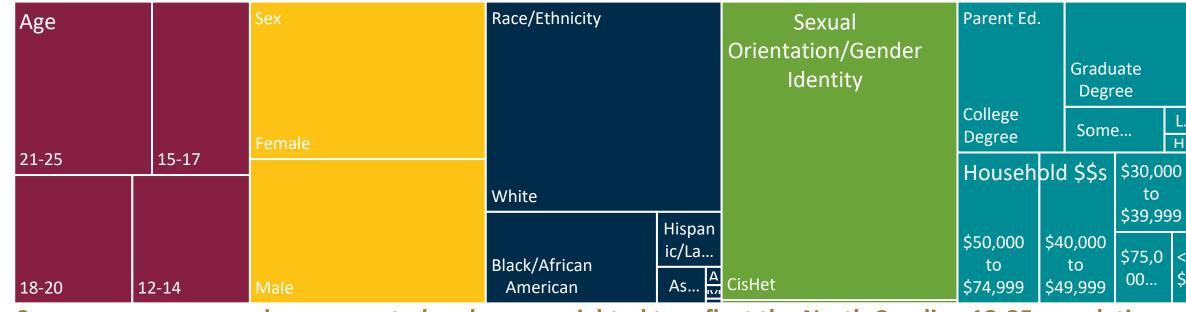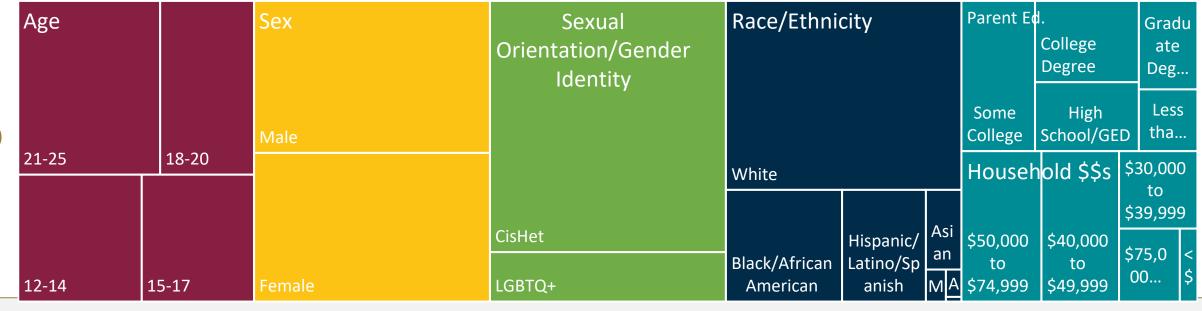
Data Weighting

Data weighted to reflected the North Carolina youth and young adult population (12-25)

❑ Age/Sex/Race/Ethnicity

▪ US Census 2021 NC Public Use Microdata Areas (PUMAs)

❑ Socioeconomic status

▪ Parental education (youth) –2021 NC PUMAs restricted to parents with children 17 years old or younger

▪ Household income (young adults) - 2021 NC PUMAs

❑ Sexual orientation and gender identity

▪ Young adults (18+) – US Census Household Pulse Survey

▪ Youth – (<18) – 2021 YRBS

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Some groups were underrepresented and were weighted to reflect the North Carolina 12-25 population.

Survey Respondents

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Survey Measures

Substance Use
- Have you ever...

Demographics
- Age
- Biological Sex
- Race/Ethnicity
- Gender and Sexuality
- Socioeconomic Status

SDoH
- Transportation
- Food Insecurity
- Parental Separation
- Homelessness
- Housing Quality Concern
- Residential Stability
- Immigration Concerns
- Every Day Discrimination
- Community ACEs

Risk & Protective Factors
- Individual
  - Prosocial Activities
  - Perceived Harms
  - Close Relationships
  - Connectedness
- Peer
  - Peer Use
  - Peer Disapproval
- Family
  - Parental Disapproval
  - Parental Use
- School and Community
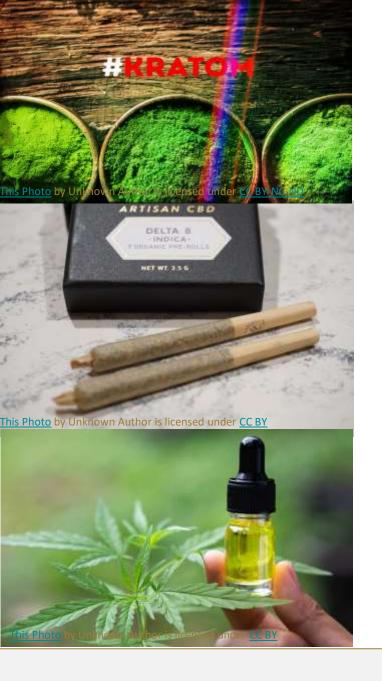 - Difficulty of Access

Data Analysis

- Descriptive statistics (weighted data)
  - Prevalence
- Strength of association between measures

(unweighted data, controlling for weighting variables)
  - Area Under the Receiver Operating Characteristic Curve (AUC).
    - The closer the AUC is to 1, the greater the predictive ability of the measure in predicting use of the substance.
    - AUC very close to 0.5 indicate a lack of predictive ability.
  - Cramer's *V* and Fisher's exact tests
    - The closer the *V* is to ±1, the greater the strength of association of the measure with the way the youth/young adult get the substance.
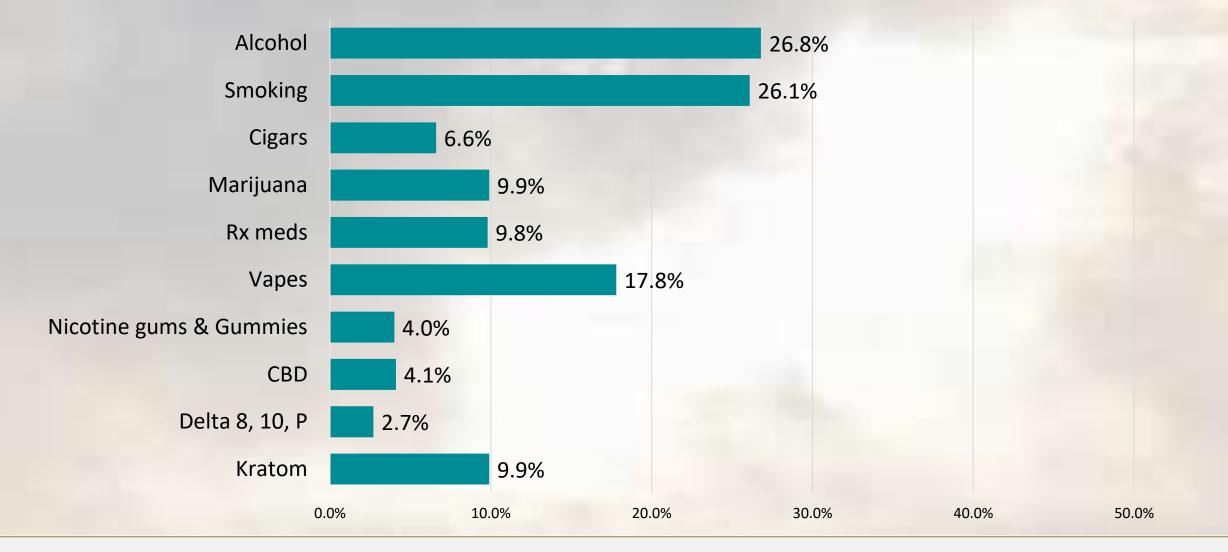   - *V* very close to 0 indicate a lack of an association.

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Emerging Substances

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Background: Emerging Substances

- Either new substances, or already existing substances used in new ways.

- Like a roll of the dice – don't know…
  - Immediate risks
  - What might happen in the long run, or
  - Which will become an epidemic.

- Monitored by sources such as…
  - Drug Abuse Warning Network (DAWN)
    (ED visits)
  - National Survey on Drug Use and Health (NSDUH)
    (population estimates)

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Emerging substances were much less likely to be consumed than long misused substances, aside from Kratom

Substance	Prevalence
Alcohol	26.8%
Smoking	26.1%
Cigars	6.6%
Marijuana	9.9%
Rx meds	9.8%
Vapes	17.8%
Nicotine gums & Gummies	4.0%
CBD	4.1%
Delta 8, 10, P	2.7%
Kratom	9.9%

NC 12-25 year old weighted prevalence

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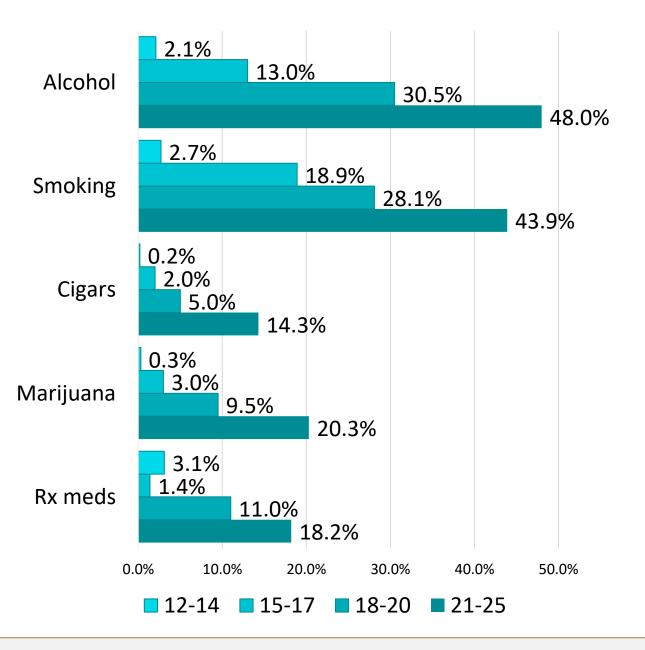**School of Medicine**

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Of Note…

- Substance use rates were lower than we expected.

- We continue to explore this, but we think this is…

- Partly a true effect, with multiple large state and nationwide surveys showing a decline in substance misuse

- Partly due to methodology, with…

  - Some groups potentially more sensitive to accidental disclosure concerns, e.g.

    - Youth and underage persons concerned that their parents may overhear their responses
    - Historically marginalized populations fearing consequences if their responses are known.

  - People who are using substances being hidden populations

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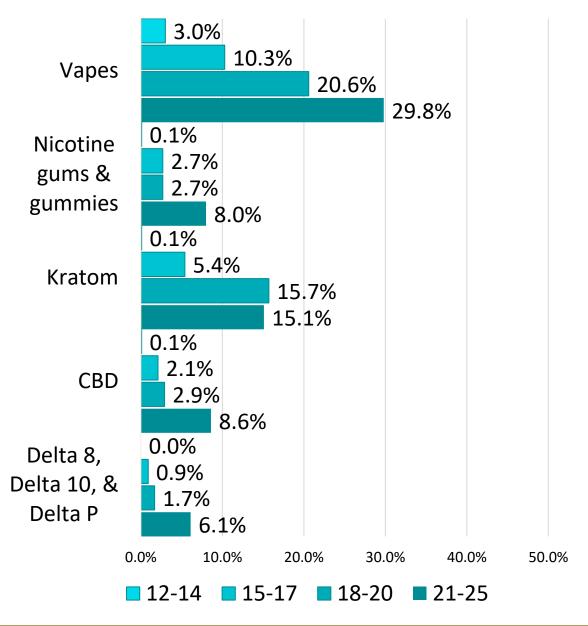# Traditionally substance use begins about middle school age and continues to escalate in young adulthood.

Alcohol
- 12-14: 2.1%
- 15-17: 13.0%
- 18-20: 30.5%
- 21-25: 48.0%

Smoking
- 12-14: 2.7%
- 15-17: 18.9%
- 18-20: 28.1%
- 21-25: 43.9%

Cigars
- 12-14: 0.2%
- 15-17: 2.0%
- 18-20: 5.0%
- 21-25: 14.3%

Marijuana
- 12-14: 0.3%
- 15-17: 3.0%
- 18-20: 9.5%
- 21-25: 20.3%

Rx meds
- 12-14: 3.1%
- 15-17: 1.4%
- 18-20: 11.0%
- 21-25: 18.2%

Axis: 0.0% 10.0% 20.0% 30.0% 40.0% 50.0%

Legend: ■ 12-14 ■ 15-17 ■ 18-20 ■ 21-25

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Use of recent and emerging substances starts a little later, but also continues to escalate in young adulthood.

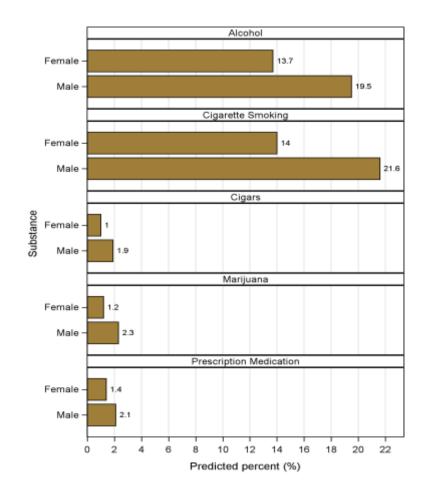Chart: Use of recent and emerging substances by age group

Vapes
- 3.0%
- 10.3%
- 20.6%
- 29.8%

Nicotine gums & gummies
- 0.1%
- 2.7%
- 2.7%
- 8.0%

Kratom
- 0.1%
- 5.4%
- 15.7%
- 15.1%

CBD
- 0.1%
- 2.1%
- 2.9%
- 8.6%

Delta 8, Delta 10, & Delta P
- 0.0%
- 0.9%
- 1.7%
- 6.1%

Axis: 0.0% 10.0% 20.0% 30.0% 40.0% 50.0%

Legend: ■ 12-14 ■ 15-17 ■ 18-20 ■ 21-25

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There is a strong relationship between each demographic and substance use, but the relationships are strongest for non-tobacco emerging substances.
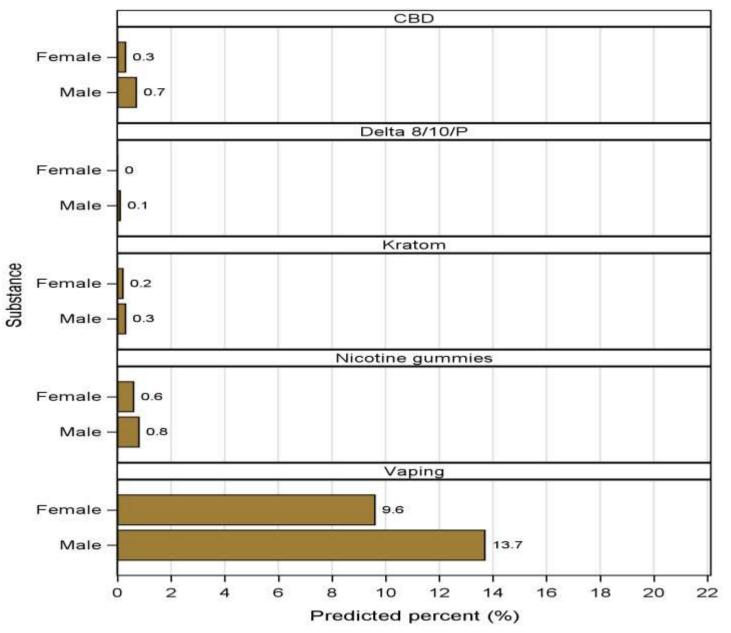
	Alcohol	Cigarettes	Cigars	Marijuana	Rx Meds	Vapes	Nicotine gums & gummies	CBD	Delta-8/10/P	Kratom
Sex	0.774	0.775	0.794	0.792	0.778	0.733	0.771	0.799	0.794	0.787
Race/Ethnicity	0.774	0.751	0.791	0.783	0.788	0.732	0.776	0.790	0.792	0.818
Socioeconomic Status	0.774	0.747	0.786	0.783	0.783	0.733	0.768	0.796	0.794	0.794
Sexual Orientation/ Gender Identity	0.768	0.744	0.780	0.783	0.774	0.727	0.772	0.785	0.793	0.783
All Demographics	0.788	0.767	0.811	0.804	0.805	0.747	0.789	0.822	0.814	0.830

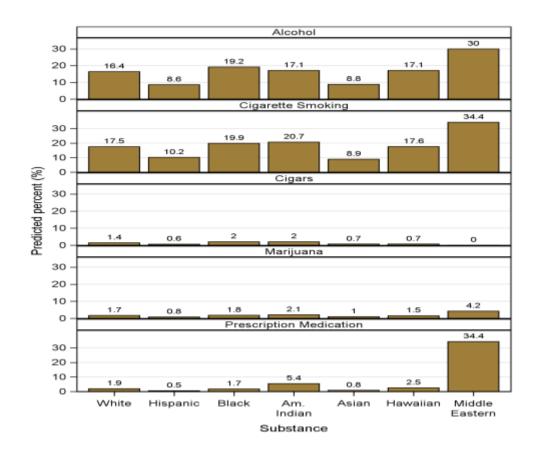AUC illustrates the strength of relationship, NOT the direction of the relationship.

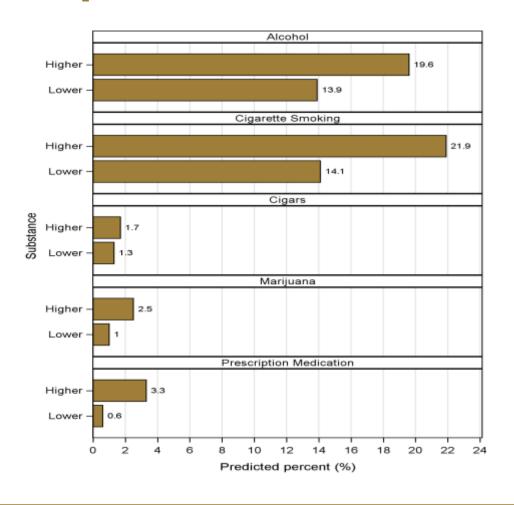20 AUC = Area Under the Receiver Operating Characteristic Curve. As AUC increases, predictive ability increases due to strength of relationship.

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Males have higher use of traditional and emerging substances

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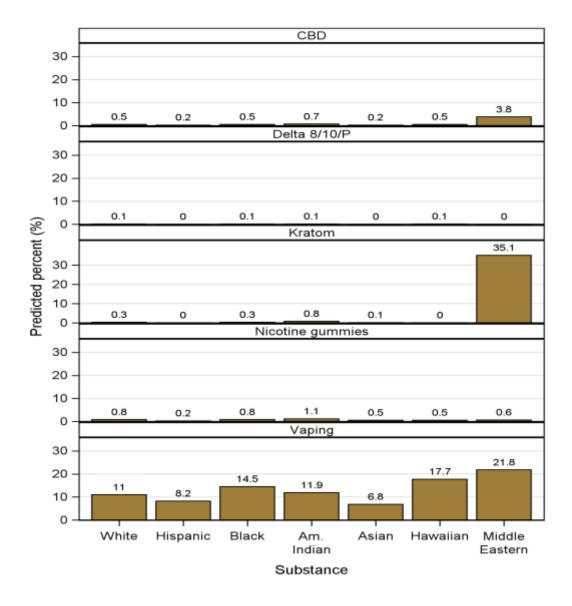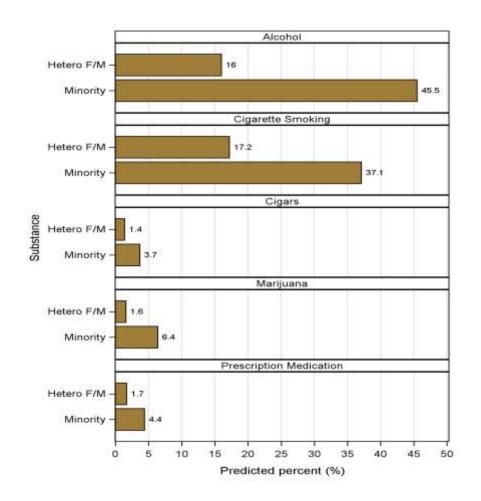
Race and substance misuse is complicated

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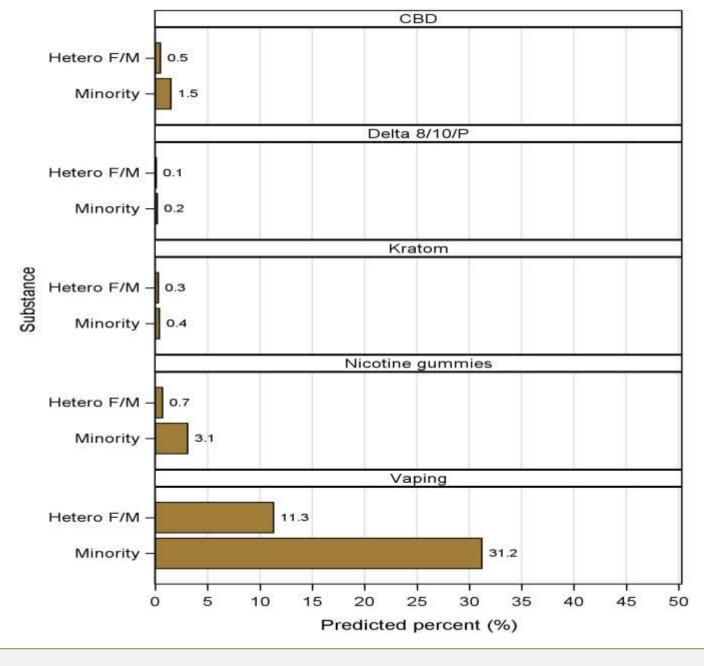
Sexual and gender minorities have increased risk

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There is a strong relationship between each SDOH and substance use, but the relationships are strongest for Rx Meds and the non-tobacco emerging substances.
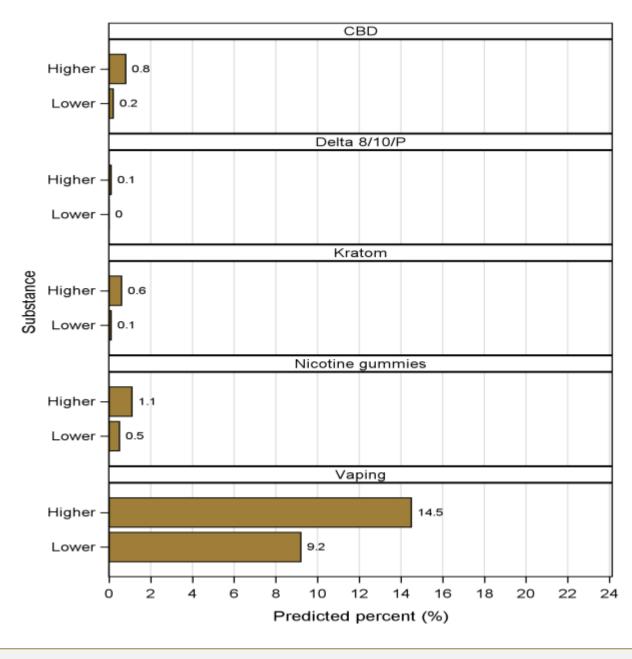
	Alcohol	Cigarettes	Cigars	Marijuana	Rx Meds	Vapes	Nicotine gums & gummies	CBD	Delta-8/10/P	Kratom
Just Demographics	0.788	0.766	0.810	0.804	0.804	0.747	0.789	0.820	0.813	0.826
Everyday Discrimination	0.794	0.776	0.814	0.833	0.854	0.760	0.810	0.861	0.847	0.875
Community ACEs	0.791	0.772	0.811	0.821	0.854	0.755	0.806	0.860	0.836	0.860
Parental Separation	0.792	0.770	0.814	0.816	0.824	0.752	0.799	0.842	0.833	0.842
Residence Stability (youth only*)	0.778	0.768	0.814	0.791	0.805	0.766	0.822	0.826	0.868	0.852
Housing Quality Concerns	0.788	0.767	0.815	0.806	0.806	0.748	0.791	0.821	0.818	0.826
Lack of Reliable Transportation	0.790	0.768	0.812	0.809	0.811	0.749	0.797	0.832	0.821	0.830
Homelessness	0.789	0.768	0.813	0.809	0.804	0.748	0.793	0.823	0.813	0.830
Food Insecurity	0.788	0.767	0.812	0.805	0.805	0.747	0.791	0.823	0.814	0.827
Immigration Concerns	0.788	0.767	0.811	0.804	0.804	0.747	0.791	0.820	0.815	0.826

Reminder: AUC illustrates the <u>strength</u> of relationship, <u>NOT</u> the direction of the relationship.

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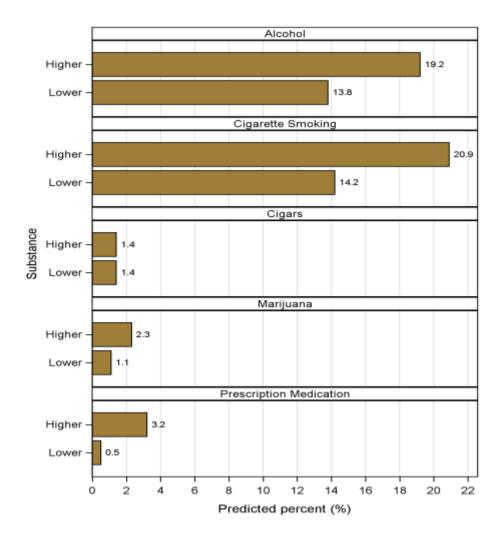**School of Medicine**

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Everyday discrimination impacts substance use
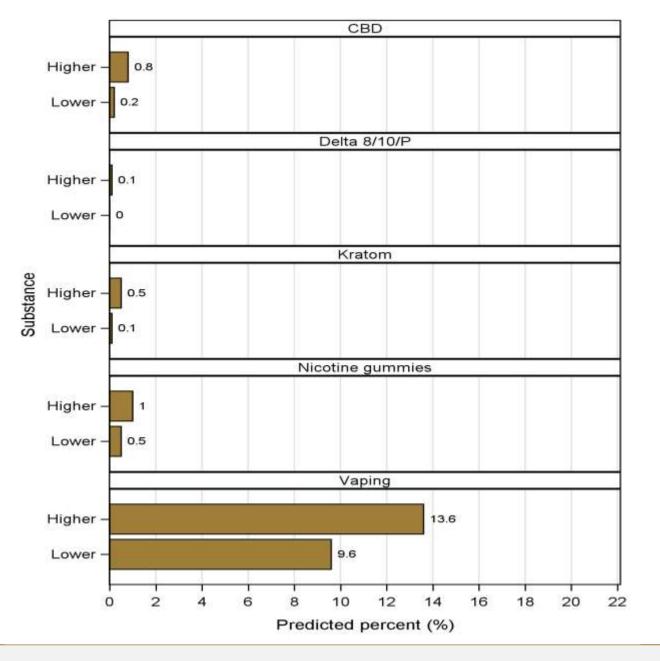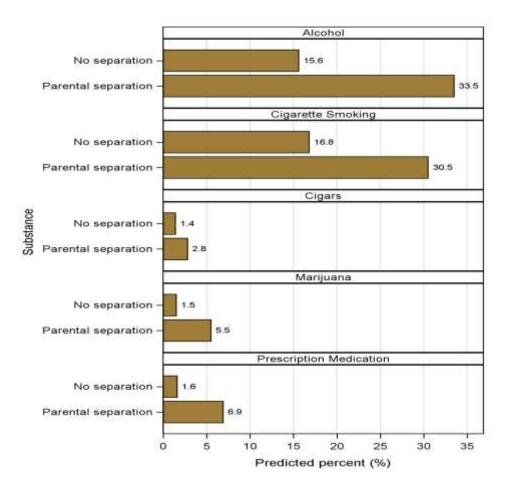
Community ACES are critical

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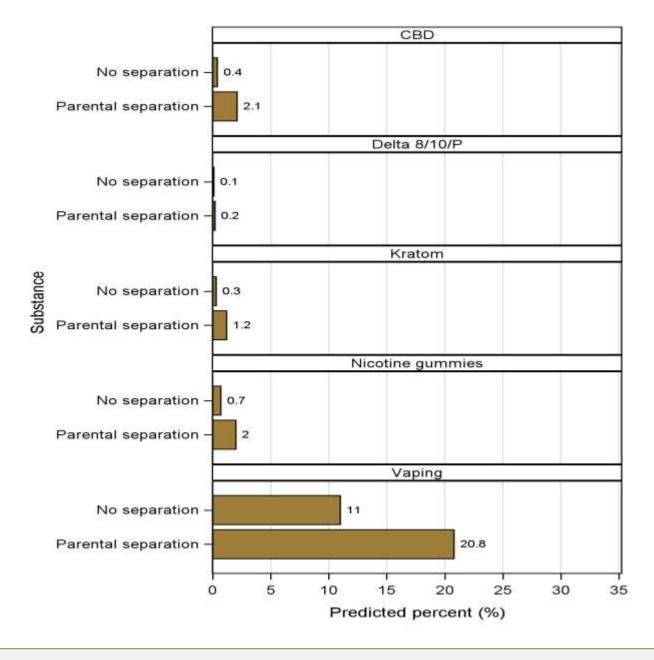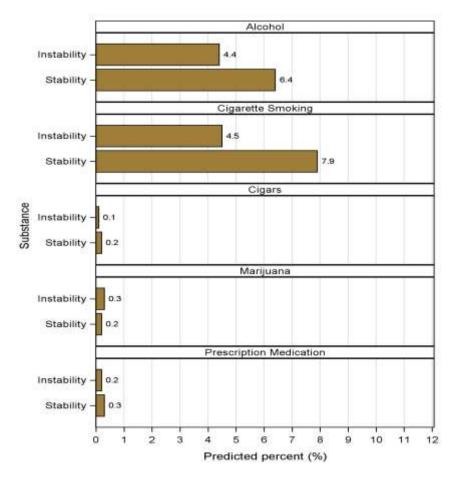
Parental Separation has an impact

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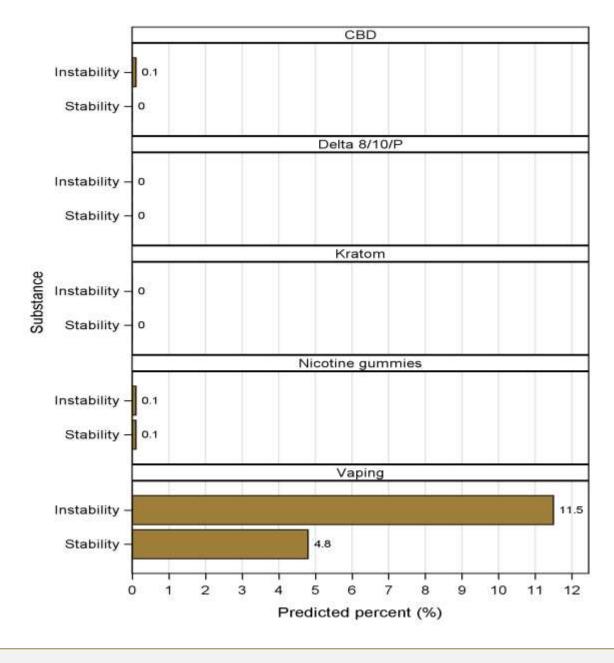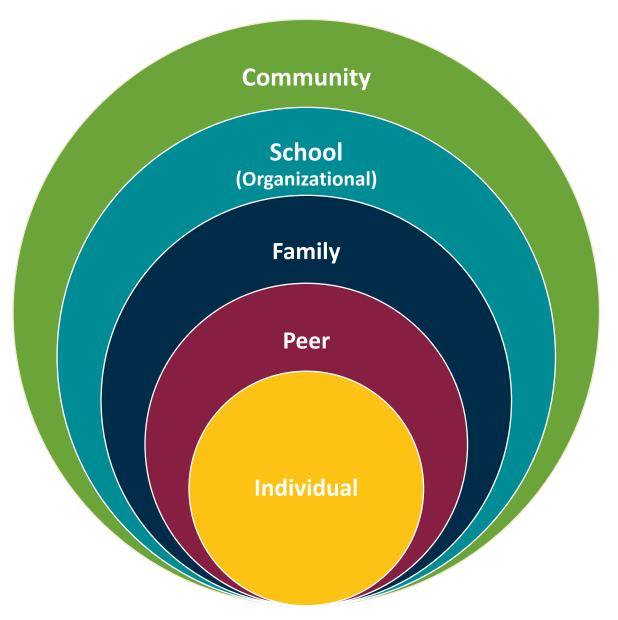
Residential Instability has an effect

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Risk and Protective Factors

Concentric circles diagram from outer to inner: Community, School (Organizational), Family, Peer, Individual

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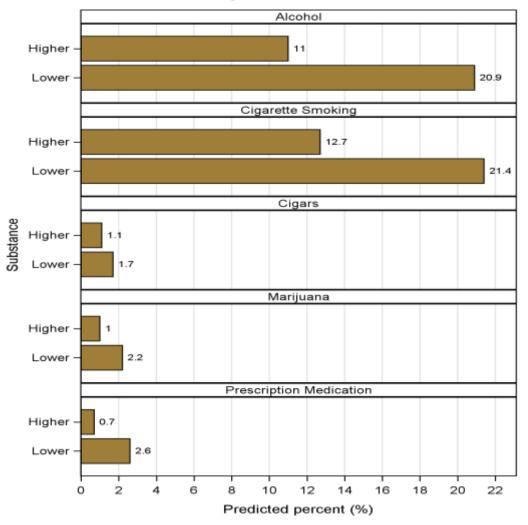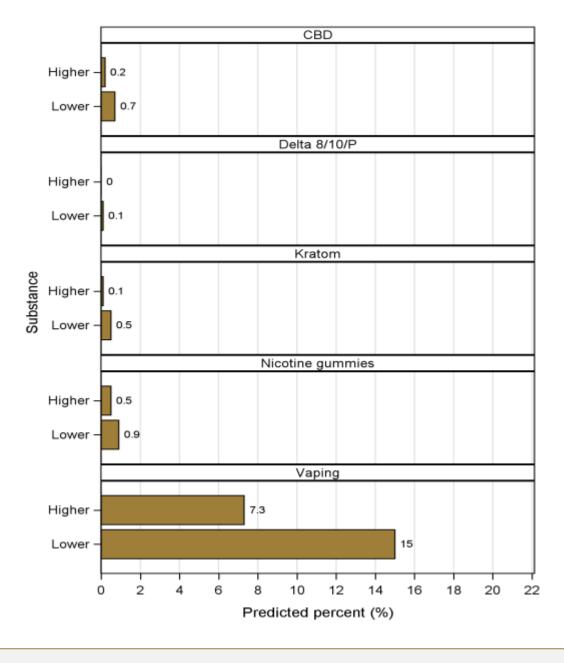of Atrium Health

There is a strong relationship between every risk and protective factor and substance use, but the relationship is strongest risk and protective factors and Rx Meds and non-tobacco emerging **substances.**

	Alcohol	Cigarettes	Cigars	Marijuana	Rx Meds	Vapes	Nicotine gummies	CBD	Delta-8/10/P	Kratom
Demographics	0.788	0.766	0.810	0.804	0.804	0.747	0.789	0.820	0.813	0.826
Future orientation	0.798	0.774	0.813	0.814	0.837	0.756	0.799	0.858	0.849	0.870
Prosocial activities	0.797	0.773	0.811	0.814	0.854	0.751	0.792	0.854	0.827	0.858
Perceived harms	0.822	0.800	0.825	0.834	0.846	0.788	0.836	0.849	0.845	0.890
Close relationships	0.790	0.768	0.812	0.808	0.815	0.757	0.794	0.832	0.826	0.843
Connection	0.798	0.774	0.814	0.821	0.844	0.762	0.818	0.868	0.850	0.867
Peer disapproval	0.831	0.814	0.841	0.838	0.868	0.785	0.867	0.870	0.875	0.887
Peer use	0.850	0.822	0.846	0.865	0.842	0.808	0.840	0.867	0.859	0.888
Parental disapproval	0.799	0.774	0.821	0.811	0.846	0.760	0.824	0.830	0.844	0.841
Parental use	0.801	0.773	0.813	0.806	0.830	0.761	0.802	0.828	0.827	0.840
Difficulty of Access	0.806	0.776	0.819	0.834	0.838	0.766	0.823	0.866	0.867	0.865

Reminder: AUC illustrates the <u>strength</u> of relationship, <u>NOT</u> the direction of the relationship.

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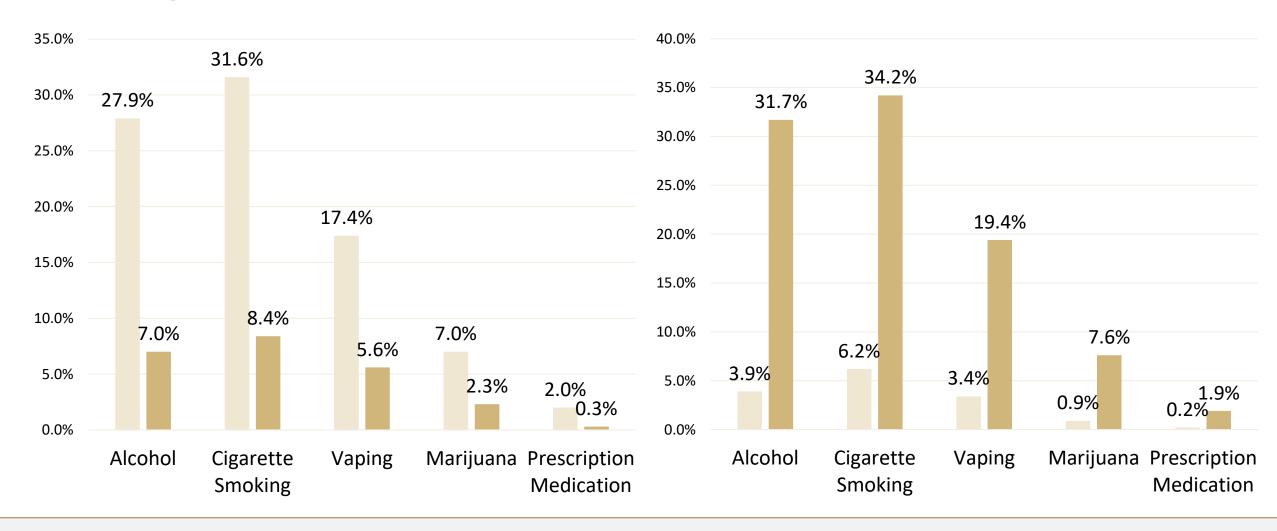
When you have things to look forward to, you are protected

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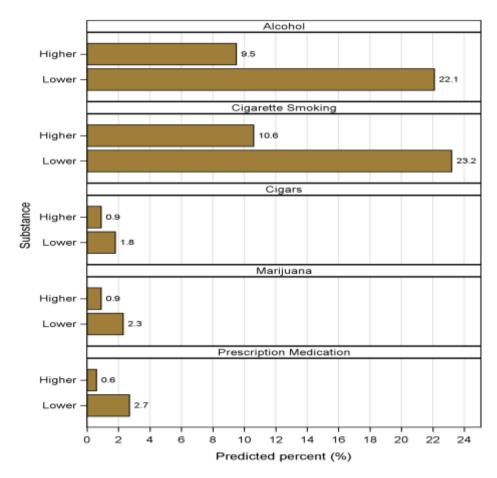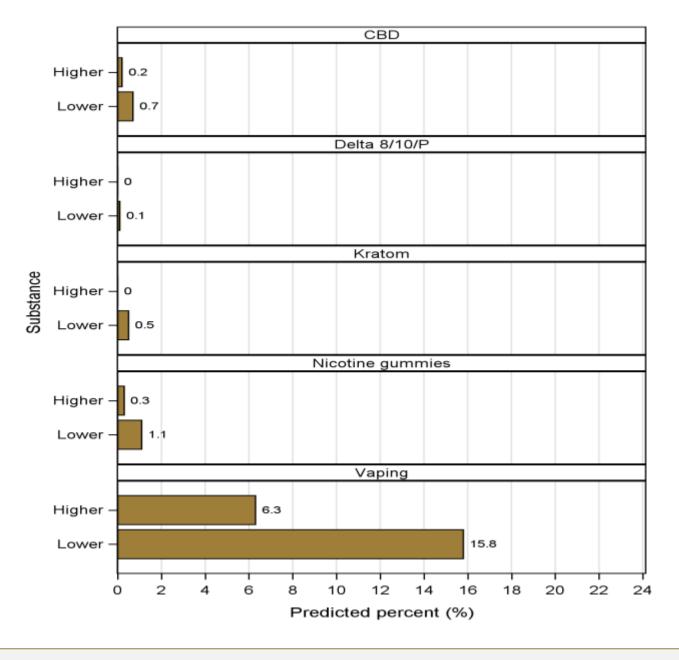
Long standing vs recent and emerging substance use by close relationships

Lower (Mean - 1 SD) Higher (Mean + 1 SD)

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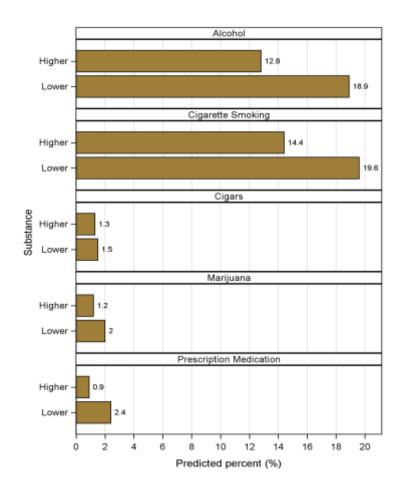
Perception of harm matters

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Connection matters

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Peers matter a lot

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Access increases risk

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Polysubstance Misuse

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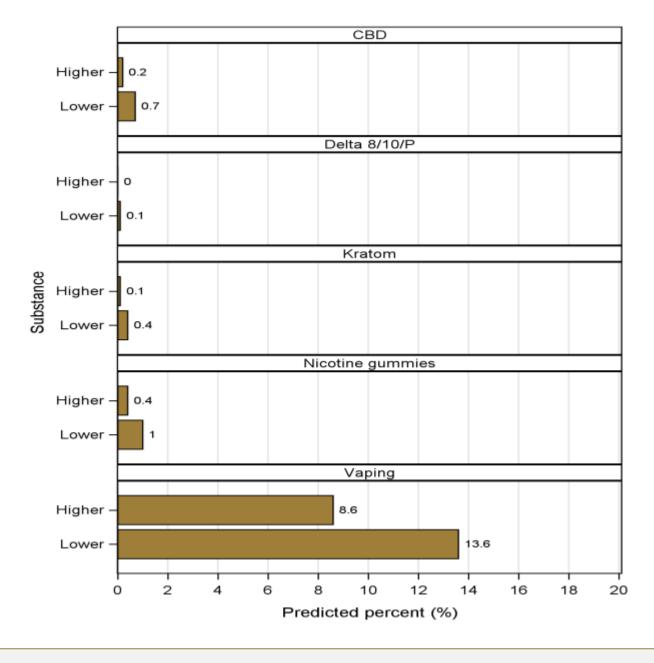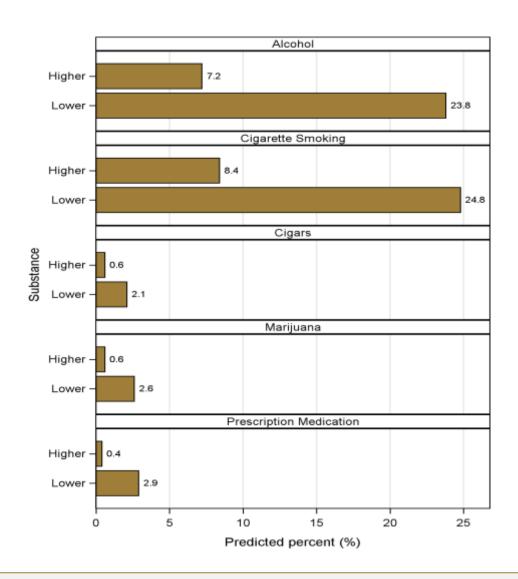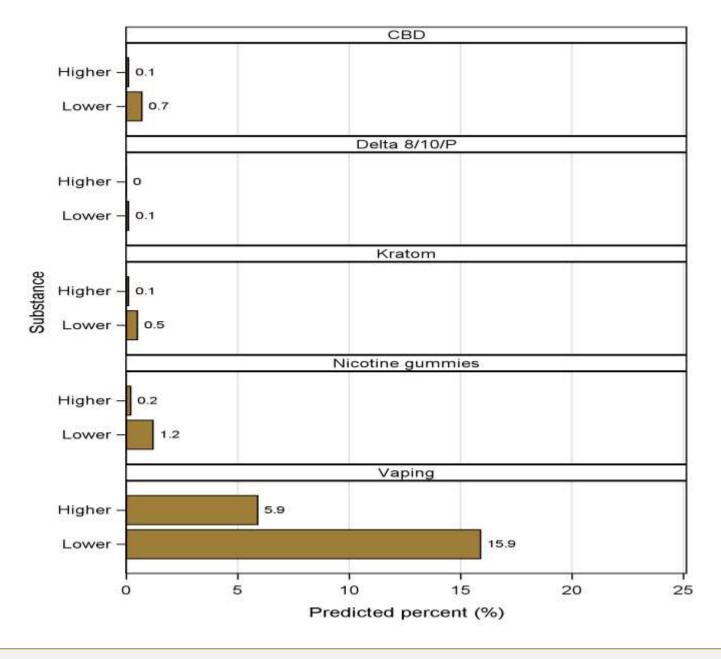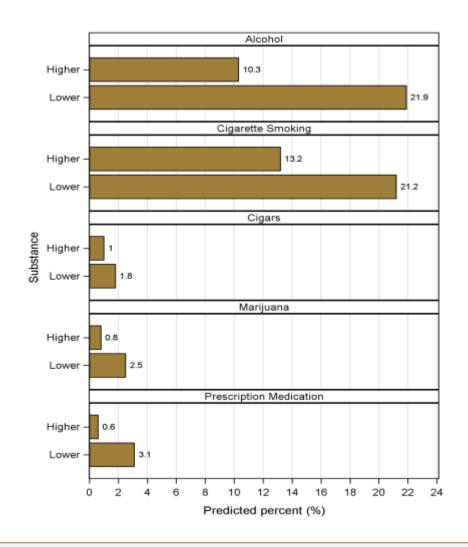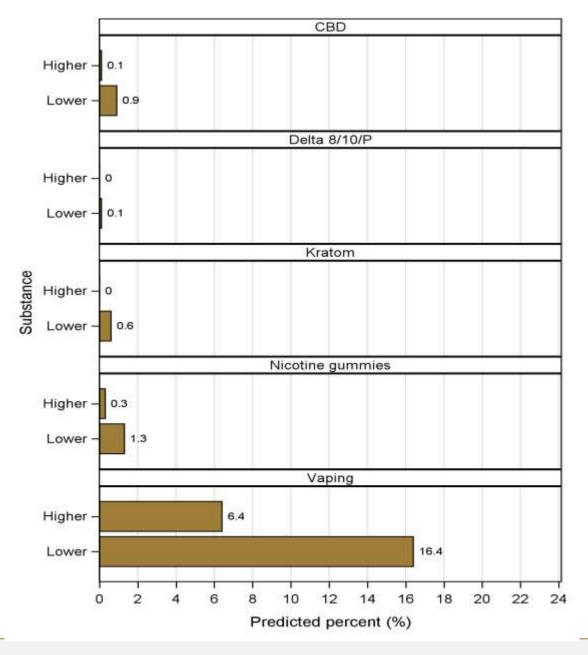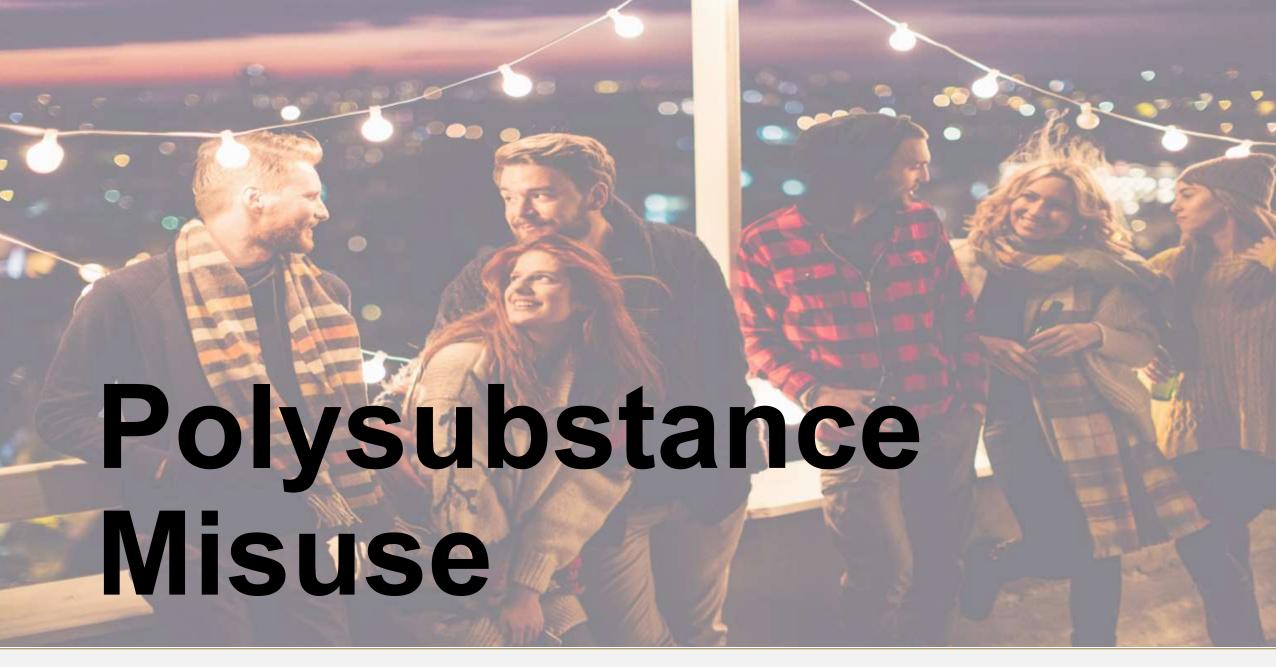
Background: Poly Substance Misuse

- The use of more than one drug at the same time or within a short time.

- It may be intentional or unintentional.

- It is common, nearly half of all drug overdoses deaths involve multiple drugs (CDC, 2019)

- But most knowledge of polysubstance misuse comes from…

    - Overdose data

    - Treatment data

https://www.cdc.gov/stopoverdose/polysubstance-use/index.html

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Polysubstance misuse defined

"Did you ever use multiple substances (such as alcohol and cannabis) at the same time, such that the effects overlapped?"

Asked of all respondents who reported ever (mis)using 2+ substances including:

- Alcohol
- Cigarettes
- E-cigarette
- Cigars, cigarillos, little cigars
- Chewing tobacco, snuff, dip, snus, or pouches
- Nicotine gummies, gums, lozenges, or dissolvables
- Marijuana
- CBD
- Delta 8, Delta 10, Delta P
- Synthetic marijuana
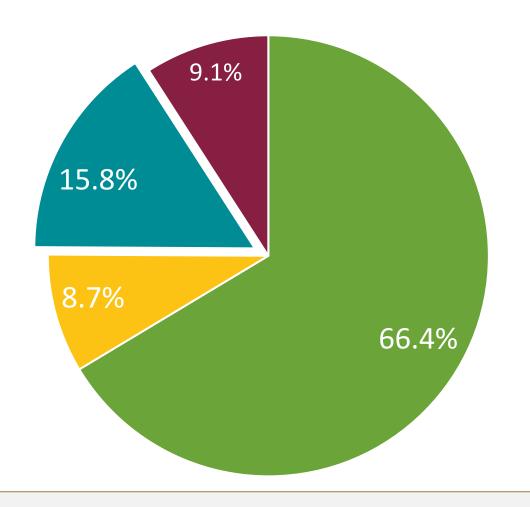
- Prescription medication misuse
- Over-the-counter medications
- Inhalants
- Kratom
- Steroids
- Hallucinogens
- Cocaine
- Methamphetamines
- Heroin or fentanyl

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Polysubstance misuse is common

66.4% of respondents did not use any subsreported using 2 or more substances

Of those, 36.3% reported poly substance misuse

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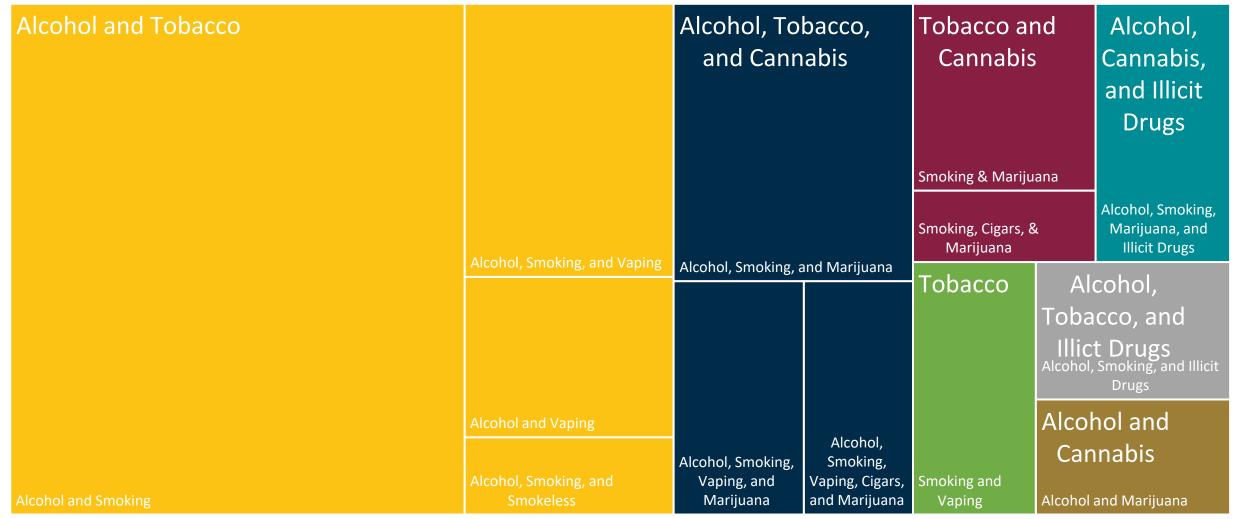
Polysubstance misuse is common among those who have used substances

- No substance use (66.4%)
- One substance used (8.7%)
- 2+ substances (15.8%)
- 2+ substances at same time (9.1%)

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Polysubstance misuse almost always includes alcohol and a tobacco product (or two).

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The strongest relationships between demographic characteristics and polysubstance misuse varies by poly substance misuse pattern, suggesting the need for culturally nuanced prevention strategies.

	Alcohol & Smoking	Alcohol, Smoking, & Marijuana	Alcohol, Smoking, & Vaping	Alcohol & Illicit Substances	Smoking and Marijuana
Sex	0.561	0.527	0.628	0.633	0.5848
Race/Ethnicity	0.544	0.576	0.633	0.629	0.716
Socioeconomic Status	0.587	0.598	0.686	0.726	0.626
Sexual Orientation/ Gender Identity	0.531	0.591	0.637	0.641	0.521
All Demographics	0.617	0.646	0.697	0.807	0.782

AUC

AUC = Area Under the Receiver Operating Characteristic Curve. As AUC increases, predictive ability increases due to strength of relationship.

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Relationship between SDOH and polysubstance misuse varies by polysubstance patterns, and is strongest for the use of alcohol and illicit substances.

	Alcohol & Smoking	Alcohol, Smoking, & Marijuana	Alcohol, Vaping, & Smoking	Alcohol & Illicit Substances	Smoking & Marijuana
Just Demographics	0.616	0.645	0.692	0.803	0.777
Everyday Discrimination	0.616	0.653	0.695	0.812	0.780
Community ACEs	0.618	0.644	0.694	0.824	0.775
Parental Separation	0.616	0.652	0.692	0.811	0.779
Residence Stability	--	--	--	--	--
Housing Quality Concerns	0.626	0.652	0.702	0.812	0.778
Lack of Reliable Transportation	0.619	0.660	0.694	0.805	0.781
Homelessness	0.616	0.649	0.717	0.804	0.776
Food Insecurity	0.617	0.658	0.699	0.803	0.707
Immigration Concerns	0.619	0.644	0.697	0.807	0.780

Reminder: AUC illustrates the <u>strength</u> of relationship, <u>NOT</u> the direction of the relationship.
Note: Unable to estimate AUC for residence stability and poly substance misuse.

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Ever Polysubstance use
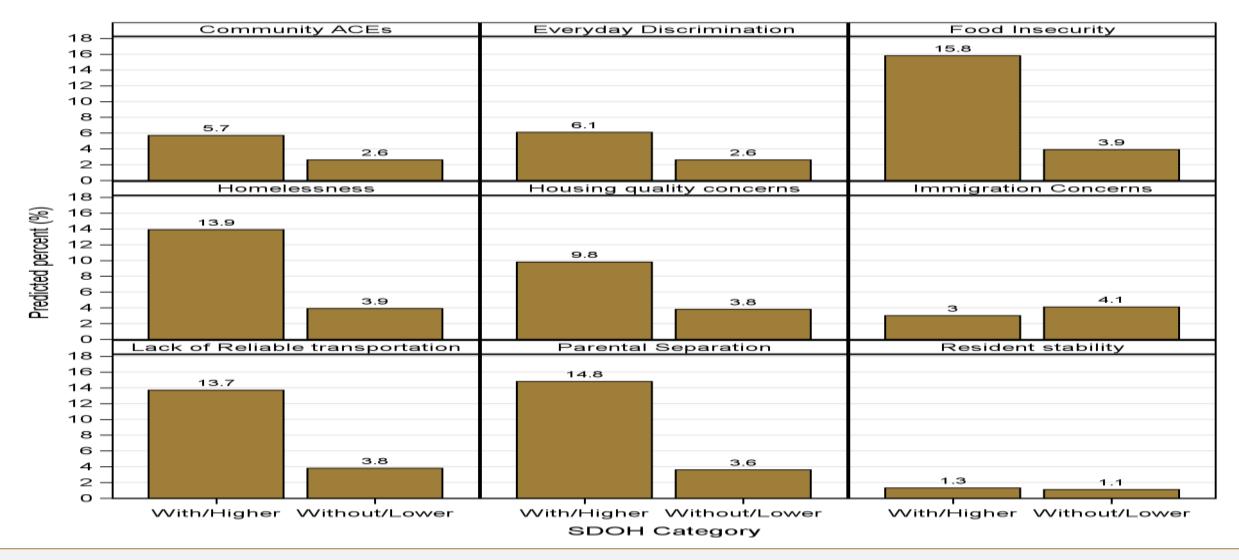
Social Determinants of Health

Just Demographics	Everyday Discrimination	Community ACEs	Parental Separation	Residence Stability (youth only*)	Housing Quality Concerns	Lack of Reliable Transportation	Homelessness	Food Insecurity	Immigration Concerns
0.812	0.840	0.832	0.827	0.789	0.816	0.819	0.816	0.814	0.812

Risk and Protective Factors

Just demographics	Future	Prosocial activities (3)	Perceived harms	Close relationships (2)	Connection	Peer disapproval	Peer use	Parental disapproval	Parental use	Difficulty of Access
0.812	0.819	0.816	0.836	0.814	0.823	0.838	0.862	0.821	0.814	0.822

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Ever Polysubstance use and SDOH

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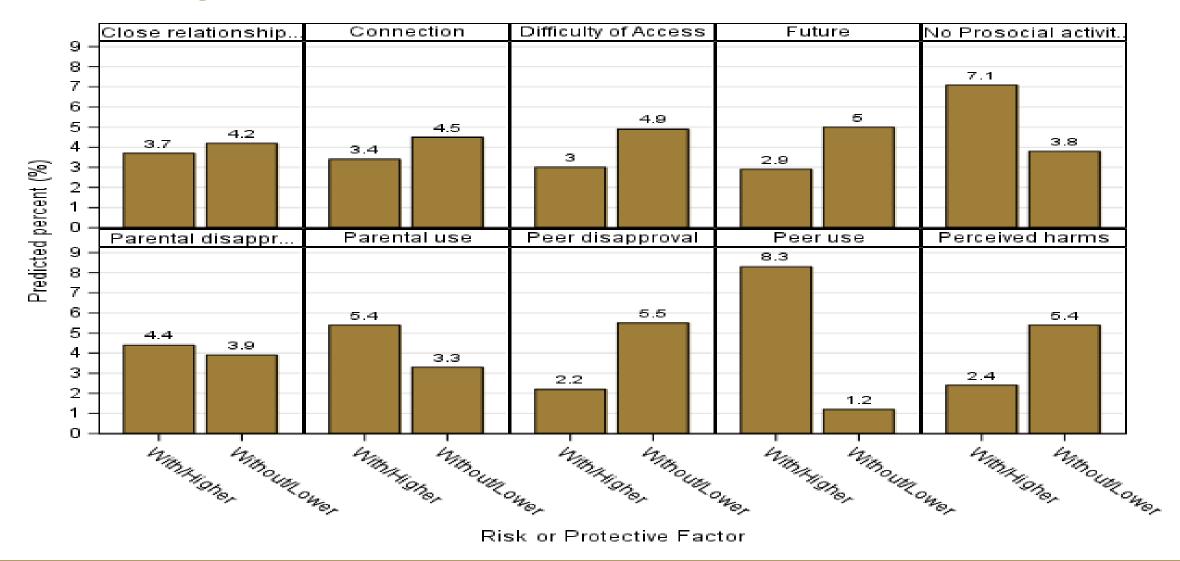
Ever Polysubstance use and Risk & Protective Factors

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Conclusions

- Demographics and social determinants of health matter when it comes to emerging substance misuse and polysubstance misuse.

- But how much matters, communities should reflect upon similarities and differences by substance when making decisions.

- Risk and protective factors also vary by substance (and poly substance misuse patterns), and it's very likely that different approaches will be needed for different substances and different populations.

- Prevalence is one way to think about substance use, but some populations experience greater consequences, may accelerate in use more quickly or slowly, etc., inclusion of people with lived experiences at decision making table is imperative.

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Additional questions being considered

- What does this data suggest for substances where we can address prevention similarly and where must we be unique!

- How does substance misuse vary with mental health, and what implications does this have our prevention strategies.

- How do risk and protective factors vary by demographic characteristics and social determinants of health, and how can we use that information to reduce disparities.

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Thank you !

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