

Mental health and substance use among US adults: An analysis of 2011 Behavioral Risk Factor Surveillance Survey

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Background

- Nearly 25% of adults in the United States (U.S.) suffer from mental illness in any year.
- Nearly 50% of all U.S. adults: likely to be affected by at least one mental illness during their life!
- Mental distress: Negative impact on quality of life.
- Evidences suggest role of substance use in mental distress.

Objectives

To examine the relationship between mental health and substance abuse among adults in the United States.

Methods

- Secondary analysis of 2011 Behavioral Risk Factor Surveillance Survey (BRFSS) data.
- 2011 BRFSS data: SAS Transport Format downloaded.
- 2011 BRFSS Codebook downloaded.
- SPSS Version 21 and SAS version 9.3 used for data exploration and analysis.

Dependent variable

- Variable: “Number of days mental health not good”.
- Coded in dataset: MENTHLTH
- Question: *“Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”*
- Arbitrary categorization:
 - Respondents who answered 1 day or more: poor mental health.
 - Others: Not in poor mental health.

Table 1: List of independent variables: Socio-demographics

Variable	SAS Variable Name in dataset	Categories
Gender	SEX	Male; Female
Age category (years)	_AGE_G	18-24; 25-34; 35-44; 45-54; 55-64; 65 or older
Race and ethnicity	_IMPRACE	Non-Hispanic White; non-Hispanic Black; Asian; American Indian/ Alaska Native; Hispanic; Other race
Education completed	_EDUCAG	Did not graduate high school; graduated high school; attended college/technical school; graduated from college/technical school
Employment status	EMPLOY	Employed for wages; self-employed; out of work for >1 year, out of work < 1 year; homemaker; student; retired; unable to work
Income category	_INCOMG	<15,000; 15,000 to <25,000; 25,000 to <35,000; 35,000 to < 50,000; 50,000 or more
Marital status	MARITAL	Married, divorced, widowed, separated, never married, a member of an unmarried couple

Table 2: List of independent variables: Behavioral factors

Variable	SAS Variable Name in dataset	Categories
Current smoking frequency	SMOKDAY2	Every day; some days; not at all
Current frequency of using smokeless tobacco products	USENOW3	Every day; some days; not at all
Consumption of alcoholic drink during the previous 30 days	AVEDRNK2	At least one drink; not at all (One drink: equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor).
Binge drinking during the previous 30 days	DRNK3GE5	At least once; Never (Binge drink: 5 or more drinks for men or 4 or more drinks for women on a single occasion).
Physical health during the previous 30 days	PHYSHLTH	“Not good” on at least one day; Good on all the days
Physical activity	EXERANY2	Participated in some physical activity or exercises, other than regular job; Did not participate in any.

Data Analysis

- Descriptive statistics.
- Chi-square tests of independence: each independent variable with mental health.
- Simple logistic regression.
- Multivariable logistic regression: all variables entered.
- Multivariable model: Adjusted for sampling design and individual respondent weights.
- Participants responding as “don’t know”/ “not sure”/ “refused”: excluded from analysis

Figure 1: Distribution of the 2011 BRFSS sample (%) according to their mental health status in the previous 30 days (N=496702)

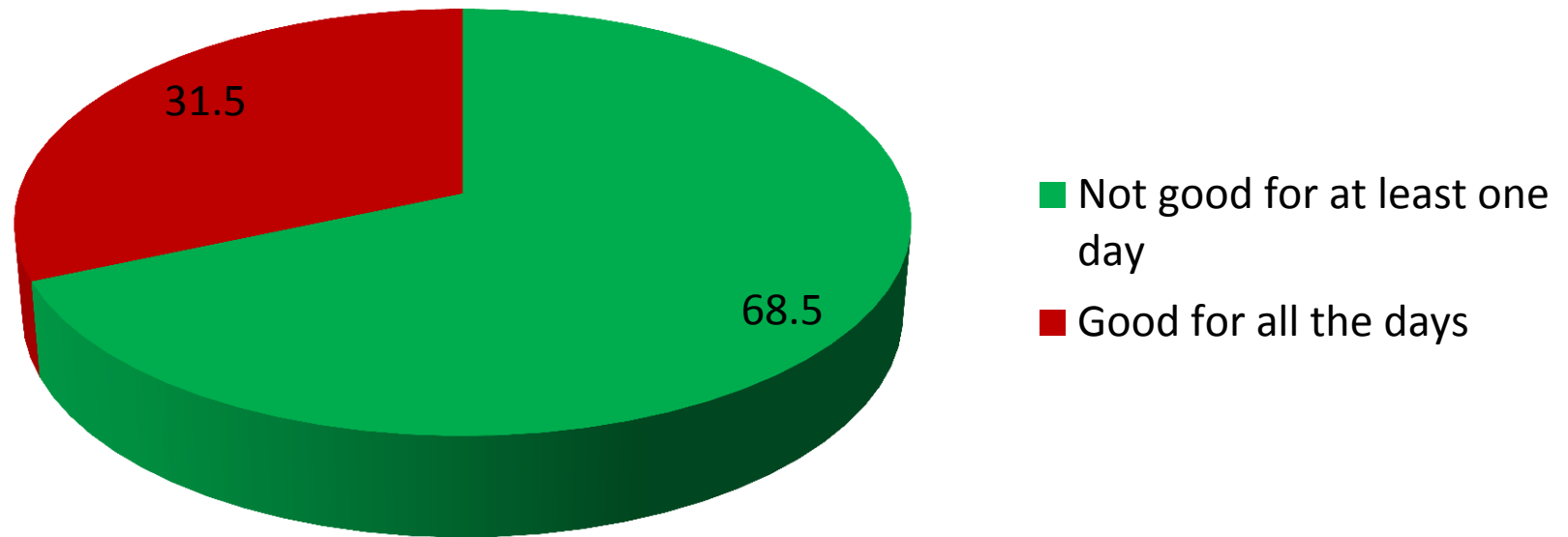
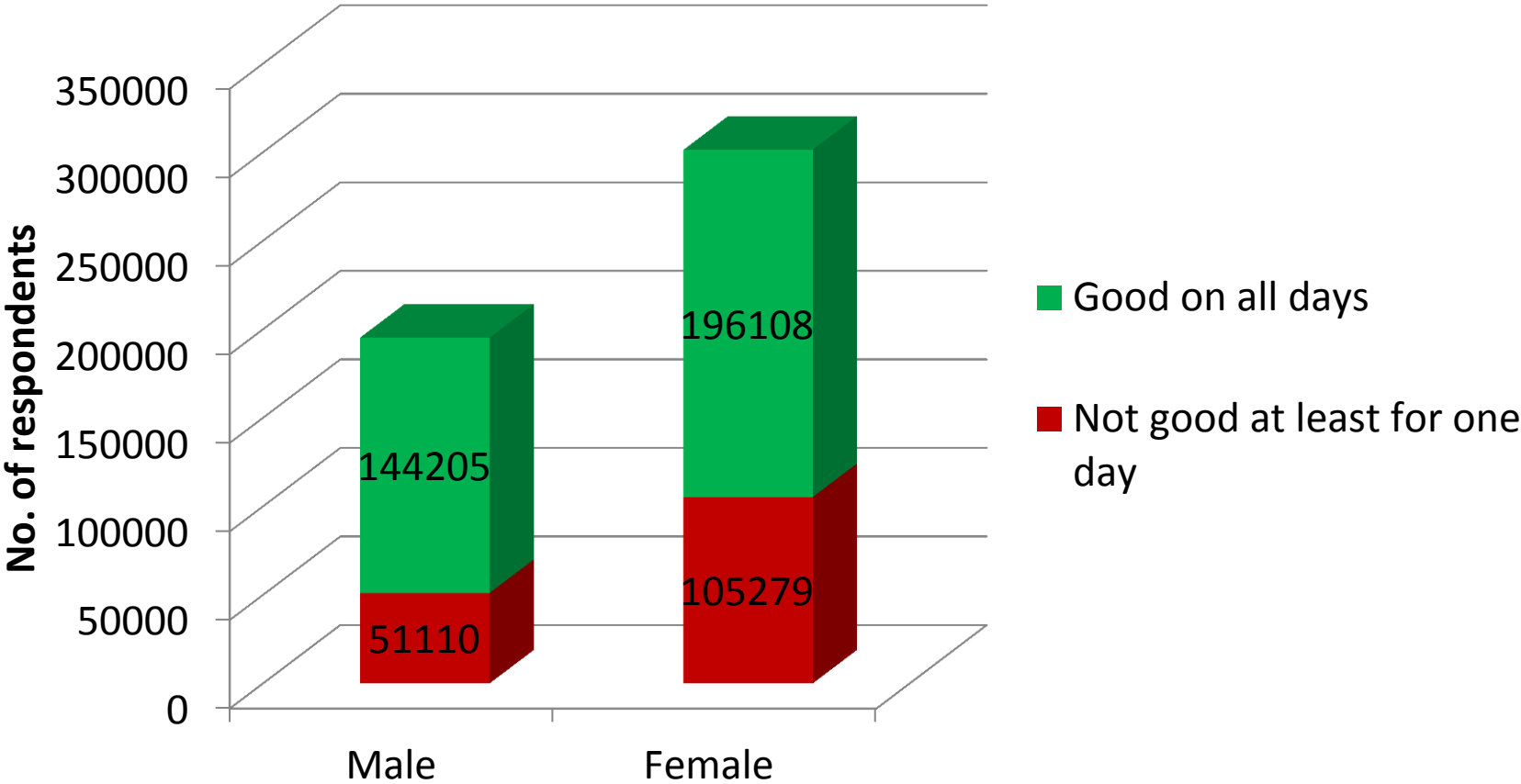


Figure 2: Gender and mental health in the previous 30 days (N=496702)



Summary of bivariate analysis

Proportion of respondents reporting “not good” mental health for at least one day:

- Highest in the youngest age group (44.8%), decreased progressively with age (20.2% in the oldest age group): $P < 0.0001$.
- Higher in those unable to work (60.74%), students (46.23%) and those out of work (45-47%): $P < 0.0001$.
- Decreases progressively with increasing annual income: 45% in <15,000\$ category, 28% in 50,000\$ or more: $P < 0.0001$
- Highest among respondents belonging to other races (40%) and lowest among Asians (23%): $P < 0.0001$

Figure 3: Current smoking frequency and mental health in the previous 30 days (N=496486)



Figure 3: Binge drinking and mental health in the previous 30 days (N=494266)

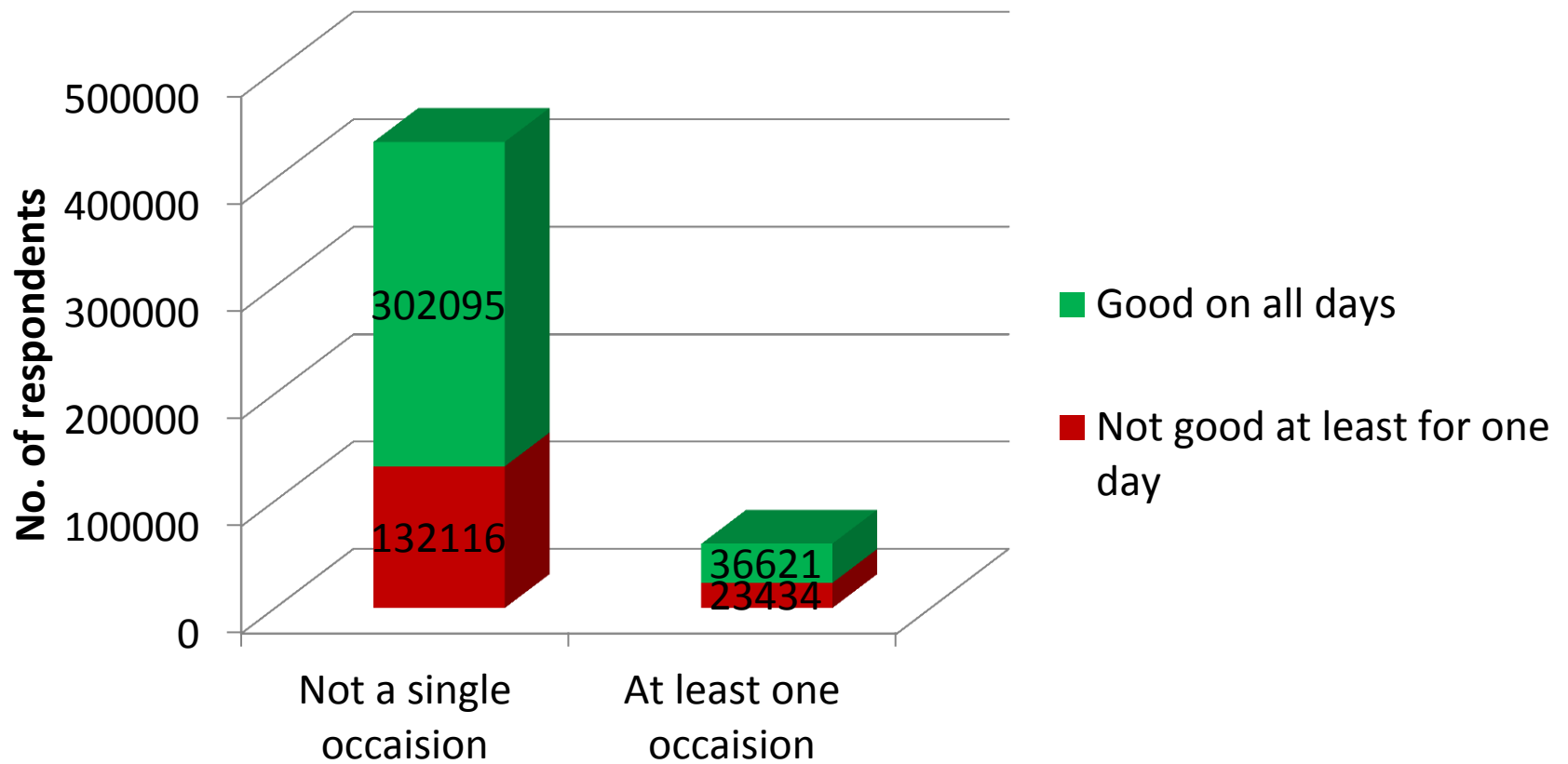


Figure 5: Physical health and mental health in the previous 30 days (N=494266)

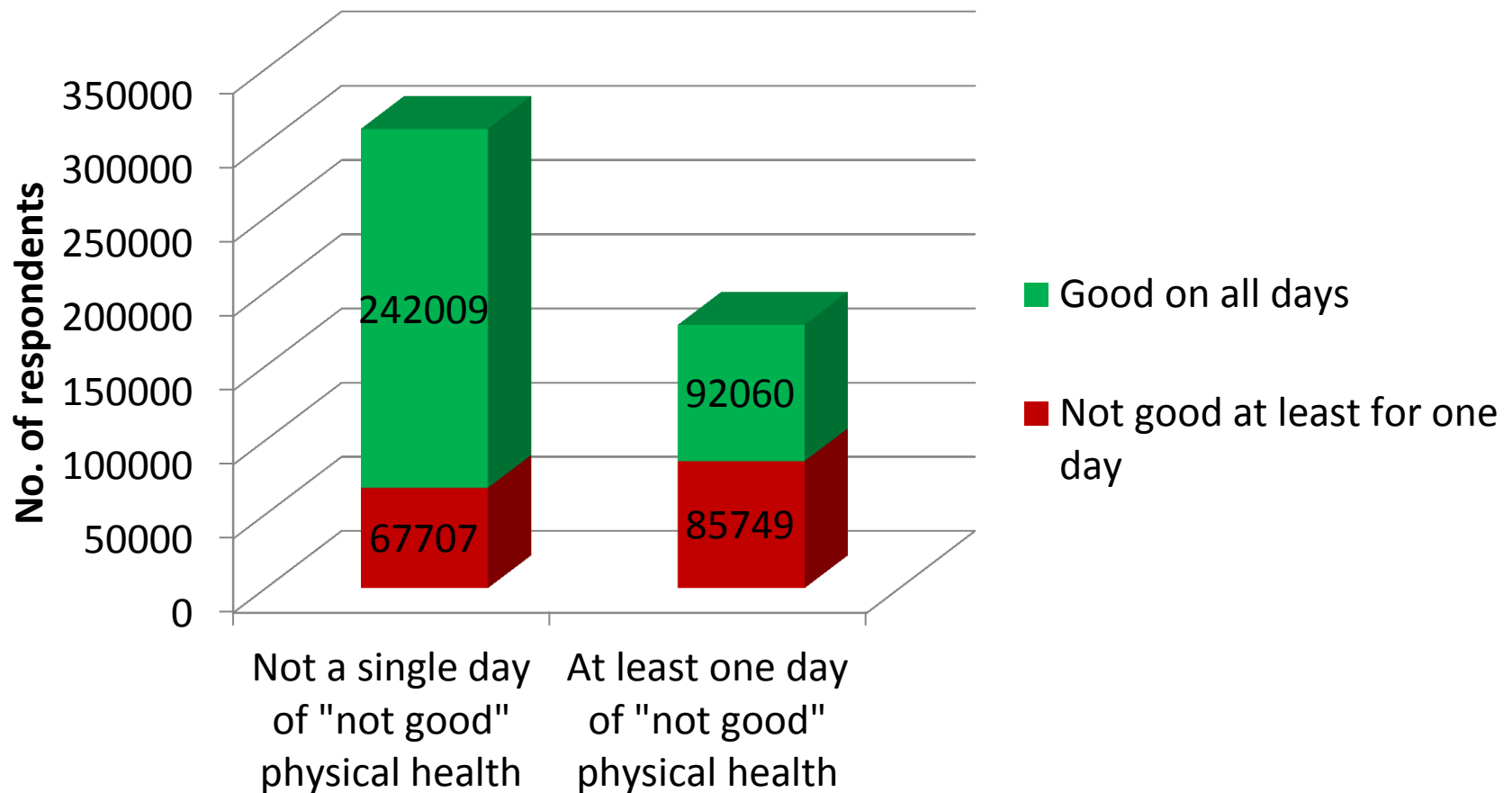


Table 3: Multivariable logistic regression

Items	Children completed routine vaccination (N=778)	
	Adjusted Odds Ratio ^a (OR)	95% Confidence Interval (CI)
Current smoking (<i>Ref: Smokes everyday</i>)		
Smokes some days	0.97	0.90-1.05
Never smokes	0.76	0.73-0.79
At least one occasion of binge drinking in the previous 30 days (<i>Ref: Not a single occasion</i>)	1.25	1.20-1.30
At least one occasion of drinking alcoholic beverage in the previous 30 days (<i>Ref: Not a single occasion</i>)	1.15	1.12-1.19

^a Only the tobacco and alcohol use variables that were statistically significant are shown here. In addition to these, all the socio-demographic and behavioral variables were entered in the model.

Discussion

- Females have significantly higher prevalence of “not good” mental health compared to men.
- Proportion of participants in poor mental health decreases with age.
- Non-Hispanic Blacks, Asians and Hispanics have lower proportion of poor mental health compared to non-Hispanic Whites.
- Prevalence of poor mental health decreases with increase in income.

Discussion (contd.)

- Compared to those who are married, prevalence is higher in all others.
- Participants not currently smoking at all: lower prevalence of poor mental health compared to those who smoke everyday.
- Binge drinkers: higher prevalence.
- Poor physical health: more likely to suffer from poor mental health.

Limitations

- Arbitrary classification of the no. of days mental health not good.
- Listwise deletion of missing cases during analyses.
- Other covariates not taken into account: e.g. sleeping habits, dietary factors, social support, adverse childhood experiences, etc.
- Secondary data analysis.
- Single time point: Causality cannot be inferred.
- Any other substance use: not asked.

Strengths

- Large nationally representative sample.
- Multiple socio-demographic and behavioral variables controlled for.
- Sampling design and participant weights taken into consideration in multivariable analysis.
- Participants' own perception of their health status.

Conclusion

- Tobacco and alcohol use increase the odds of poor mental health.
- Binge drinking increases the odds.
- Behaviors, such as, substance use can predict poor mental health and vice versa.
- Future longitudinal studies needed.

Thank you!

Questions?