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# Evaluation of Suicidal Ideation in the National Health and Wellness Survey (NHWS): A Focus on Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD)

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## Introduction

- Suicidal ideation (SI) involves thinking about or planning to commit suicide; suicide is one of the leading causes of death among US adults, especially those aged  $\leq 44$  years.<sup>1</sup>
- SI is a growing public health issue, particularly among individuals with mental health conditions.<sup>2,3</sup>
- A better understanding of the prevalence of SI among those with common mental health conditions is necessary to inform targeted interventions and screening for SI in these populations.

## Objective

- This study examines the prevalence of SI among a sample population of US adults, focusing on those reporting symptoms of generalized anxiety disorder (GAD) and major depressive disorder (MDD).

## Methods

### Study Design

- This was a cross-sectional retrospective study.

### Data Source

- This study included data from the 2022 US National Health and Wellness Survey (NHWS).
- The NHWS is an annual internet-based survey; all data are self-reported. Recruitment is designed to represent the general US adult (age  $\geq 18$ ) population in terms of age, race/ethnicity, and gender distributions.
- Data were reported by NHWS respondents on 1) demographics, 2) GAD and MDD experience and diagnosis, 3) GAD treatment use, 4) 7-item GAD Questionnaire (GAD-7), and 5) 9-item Patient Health Questionnaire (PHQ-9).

### Inclusion Criteria

- Aged  $\geq 18$  years.
- Resident of the US.
- Completed 2022 US NHWS.

### Exclusion Criteria

- None

### Variables

- GAD symptoms
  - GAD-7: Recall period of past 2 weeks; scores range from 0-21, with higher scores indicating more severe symptoms; scores of  $\geq 10$ , 0-4, 5-9, 10-14, and  $\geq 15$  reflect positive GAD screen and none/minimal, mild, moderate, and severe GAD symptoms, respectively.<sup>4</sup>
- MDD symptoms and SI
  - PHQ-9: Recall period of past 2 weeks; scores range from 0-27, with higher scores indicating more severe symptoms; scores of  $\geq 10$ , 0-4, 5-9, 10-14, 15-19, and  $\geq 20$  indicate positive MDD screen and none/minimal, mild, moderate, moderately severe, and severe MDD symptoms, respectively.<sup>5</sup>
  - Item 9 of PHQ-9, SI: Defined as responses of 'several days', 'more than half the days', or 'nearly every day' on PHQ-9 item 'Over the last two weeks, how often have you been bothered by thoughts that you would be better off dead, or of hurting yourself in some way?'
- GAD cohorts
  - GAD only cohort was defined as: 1) never experienced depression and 2a) experienced GAD in past 12 months and has GAD diagnosis or 2b) ever experienced GAD and has GAD diagnosis, with GAD-7 score  $<10$  and use prescription/psychotherapy or 2c) has a GAD-7 score  $\geq 10$ .
  - GAD/MDD cohort was defined as: 1a) experienced GAD in past 12 months and has GAD diagnosis or 1b) ever experienced GAD and has GAD diagnosis, with GAD-7 score  $<10$  and use prescription/psychotherapy or 1c) has GAD-7 score  $\geq 10$ , and either 2a) experienced depression in past 12 months and diagnosed with depression or 2b) PHQ-9 score of  $\geq 10$ .
- Demographics
  - Age group, sex, race/ethnicity, and employment status.

- Data Analysis
  - Prevalence of SI was reported as frequencies and percentages, which were weighted to match the demographic composition of the US adult population based on the 2021 US Census Bureau
    - Estimates for the total sample were stratified by demographic characteristics and GAD symptom severity level.
    - Estimates for the GAD only and GAD/MDD cohorts were stratified by GAD symptom severity level.
  - Frequencies and percentages were reported for weighted sample demographics.

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## Results

### Sample Characteristics

- Table 1 shows sample characteristics for the total sample, as well as the GAD only and GAD/MDD cohorts.
- Overall, 75,261 adults in the total sample were included in analyses, which projects to approximately 253.15 million (M) adults. The GAD only cohort included 10,450 adults (projects to 31.87 M), with the GAD/MDD cohort including 18,060 adults (projects to 60.40 M).
- Nearly a quarter (23.3%) of the total sample reported moderate or severe GAD symptoms.
- The GAD only and GAD/MDD cohorts tended to be younger in age; those with GAD only were most often currently employed and were least likely to be female.

Table 1: Sample characteristics (weighted)

Age Group (years)	Total Sample N=253,150 M			GAD Only N=23,867 M	GAD/MDD N=60,042 M
	n (%)	n (%)	n (%)	n (%)	n (%)
18-34	72,896 (28.8)	14,797 (46.4)	27,113 (45.2)		
35-44	42,060 (16.6)	9,535 (29.9)	14,924 (24.9)		
45-54	39,435 (15.6)	4,694 (14.7)	9,788 (16.3)		
55-64	41,719 (16.5)	1,806 (5.7)	5,792 (9.7)		
$\geq 65$	57,040 (22.5)	1,035 (3.3)	2,425 (4.0)		
	130,826 (51.1)	13,463 (42.3)	32,308 (53.8)		
Female					
Race/Ethnicity					
White	157,460 (62.2)	17,804 (55.9)	33,307 (55.5)		
African American/Black	30,674 (12.1)	3,040 (9.6)	6,718 (11.2)		
American Indian	1,622 (0.6)	99 (0.3)	454 (0.8)		
Asian	12,464 (4.9)	1,502 (4.7)	2,263 (3.8)		
Hispanic	42,349 (16.7)	8,878 (27.9)	15,185 (25.3)		
Mixed or Other Race/Ethnicity		543 (1.7)	2,115 (3.5)		
Employment Status					
Employed*	148,571 (58.7)	25,585 (80.3)	40,688 (67.8)		
Homemaker	11,105 (4.4)	1,236 (3.9)	3,177 (5.3)		
Retired	58,194 (23.0)	1,578 (5.0)	4,070 (6.8)		
Student	10,128 (4.0)	1,149 (3.6)	3,241 (5.4)		
Disability (Long-Term or Short-Term)	9,167 (3.6)	994 (3.1)	3,803 (6.3)		
Other Employment Status*	15,985 (6.3)	1,325 (4.2)	5,063 (8.4)		
GAD Symptom Severity (GAD-7 Score)					
None/Minimal	145,039 (57.3)	1,282 (4.0)	2,438 (4.1)		
Mild	99,141 (19.4)	996 (3.1)	5,092 (8.3)		
Moderate	32,517 (12.9)	15,779 (49.5)	27,592 (46.0)		
Severe	26,453 (10.4)	13,810 (43.3)	25,003 (41.6)		

Note. Results shown are weighted to project to US general adult population; counts are represented in thousands. GAD: generalized anxiety disorder; GAD-7: 7-item GAD Questionnaire; M: million; MDD: major depressive disorder.

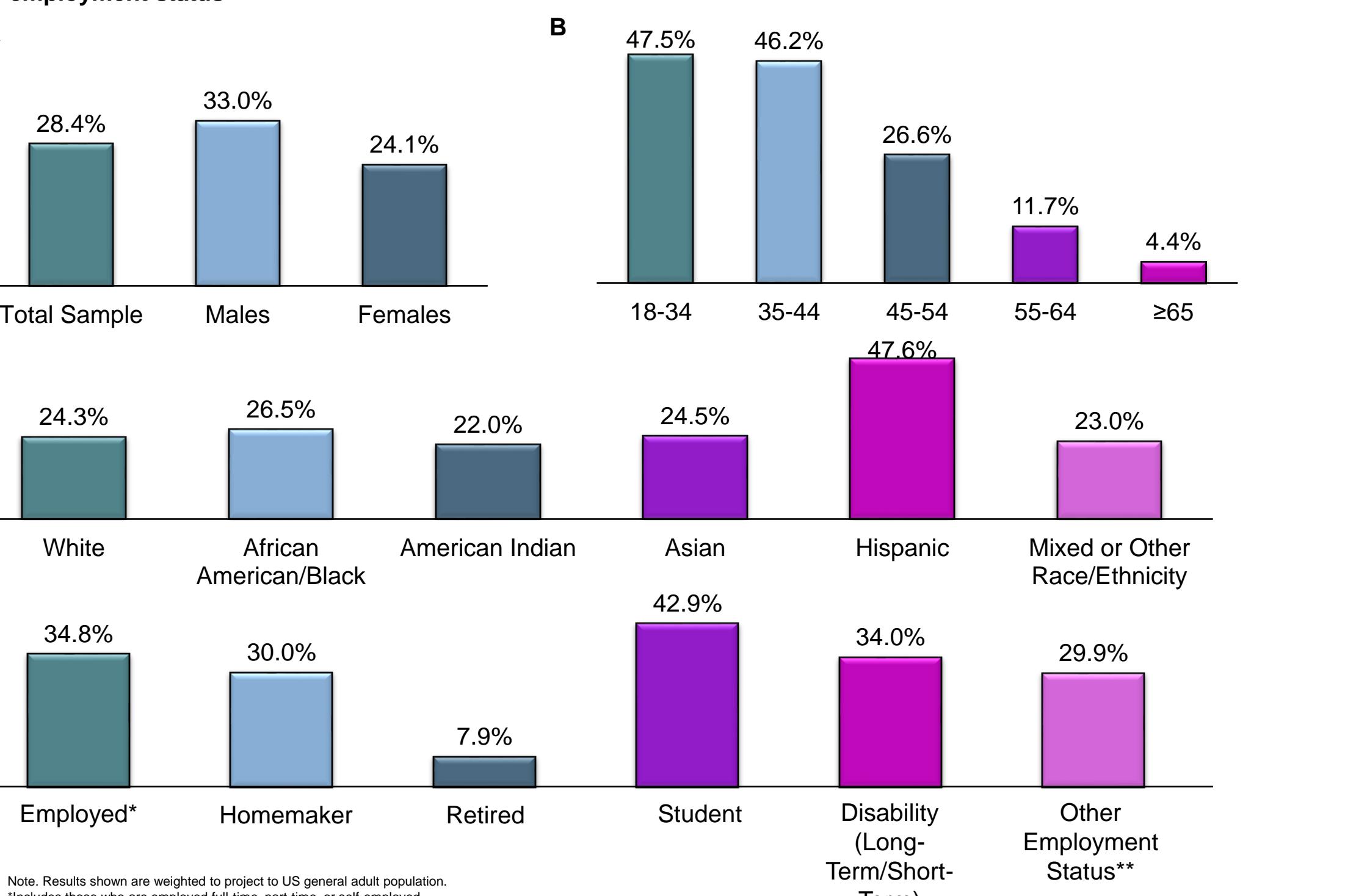
\*Includes those who are employed full-time, part-time, or self-employed.

\*\*Includes those who are not employed but looking for work or not employed and not looking for work.

### SI Prevalence in Total Sample

- Overall, 28.4% of adults in the total sample reported SI, with SI being highest among males (33.0%), young adults (aged 18-34 years; 47.5%), Hispanics (47.6%), and students (42.9%) (Figure 1A-D).

Figure 1: Suicidal ideation prevalence (A) among the total sample and by sex, (B) by age group, (C) by race/ethnicity, and (D) by employment status



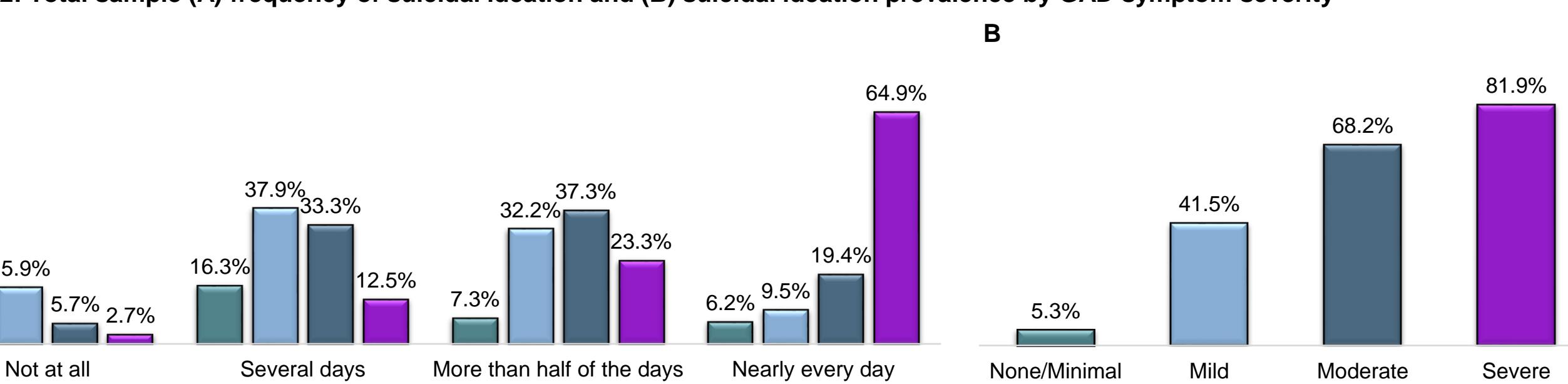
Note. Results shown are weighted to project to US general adult population.

\*Includes those who are employed full-time, part-time, or self-employed.

\*\*Includes those who are not employed but looking for work or not employed and not looking for work.

- Of the 26.45 M adults in the total sample who reported severe GAD symptoms, almost half (12.57 M, 47.5%) reported experiencing SI nearly every day.
- Among the total sample of adults, increasing GAD symptom severity was associated with increasing SI frequency and prevalence (Figure 2A-B).

Figure 2: Total sample (A) frequency of suicidal ideation and (B) suicidal ideation prevalence by GAD symptom severity

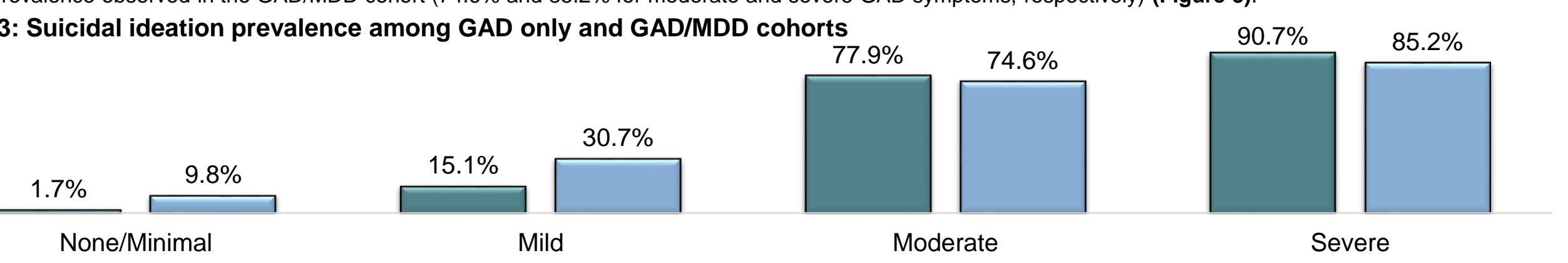


Note. Results shown are weighted to project to US general adult population.

### SI Prevalence in GAD Only and GAD/MDD Cohorts

- Of the 91.91 M adults who have GAD symptoms, 60.04 M (65.3%) also have MDD symptoms.
- Those in the GAD only cohort with moderate or severe GAD symptoms reported elevated prevalence of SI, 77.9% and 90.7%, respectively, with a similar trend in SI prevalence observed in the GAD/MDD cohort (74.6% and 85.2% for moderate and severe GAD symptoms, respectively) (Figure 3).

Figure 3: Suicidal ideation prevalence among GAD only and GAD/MDD cohorts



Note. Results shown are weighted to project to US general adult population.

## Limitations

- Our study is cross-sectional and cannot provide evidence of causality for the associations between GAD and MDD symptom severity, demographic characteristics, and SI.
- All data collected in the survey were self-reported, and survey responses may potentially be affected by recall error or other response biases.
- Although GAD-7 and PHQ-9 are validated screening tools, a positive screen for GAD and MDD is not equivalent to a diagnosis. Thus, some individuals may have been misclassified as having GAD only or both GAD and MDD in analyses, and the number of diagnosed individuals may be somewhat overinflated, as they are based on assessment scale scores and a self-reported diagnosis.
- Item 9 of the PHQ-9 consists of a single response regarding the individual's passive thoughts of death and the desire for self-harm within the past two weeks. Therefore, SI should be further evaluated with a validated suicide risk inventory tool, like the Columbia-Suicide Severity Rating Scale (C-SSRS), and the judgement of an experienced clinician.<sup>6</sup>

## Strengths

- This study adds to the limited existing knowledge of the prevalence of SI within the overall US adult population, as well as among various demographic subgroups and the subpopulations of adults with GAD only and GAD/MDD.
- The large representative sample, which was weighted, allowed for estimates to be projected to the broader US adult population and to the subpopulations of adults with GAD only and GAD/MDD.

## Conclusions

- SI is highly prevalent in the US among individuals who have GAD symptoms, with or without MDD symptoms, and SI prevalence increases with greater GAD symptom severity.
- These findings emphasize the importance of thorough screening for SI among adults with GAD and those with GAD and MDD, including younger adults, males, Hispanics, and students.
- Future longitudinal research is needed to understand the extent to which targeted screening of adults with GAD and those with GAD and MDD may reduce SI.

## Acknowledgements

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