



# The Association Between Nicotine Dependence and Generalized Anxiety Disorders



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## Introduction

- Nicotine dependence and smoking usage has become a developing concern and major issue across the United States. With the various tobacco products ranging from e-cigarettes to hookahs, vape pens, disposables and a long list of flavors, there is a guarantee that people who smoke can find many ways to do so (Cofer et al., 2021).
- Many scientific studies have demonstrated linkage between those with nicotine dependence and generalized anxiety disorder, especially because of the feeling of relief that nicotine can have (Sim et al., 2021).
- Although there is a general understanding that age is a significant factor involved in the association between nicotine dependence and anxiety, the literature on what age groups are most likely to experience this overlap remains unclear. (Han, et.al)

## Research Questions

- Is there an association between Nicotine Dependence and General Anxiety Disorder (Lifetime)?
- How does this relationship change when accounting for a “young” and “old” age group?
- Does this association change when considering cigarette frequency?

## Methods

### Sample

- The sample used for this analysis is taken from the 2001-2002 Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC).
- NESARC was representative of 43,093 participants, all non-institutionalized U.S civilians living in households and over the age of 18.

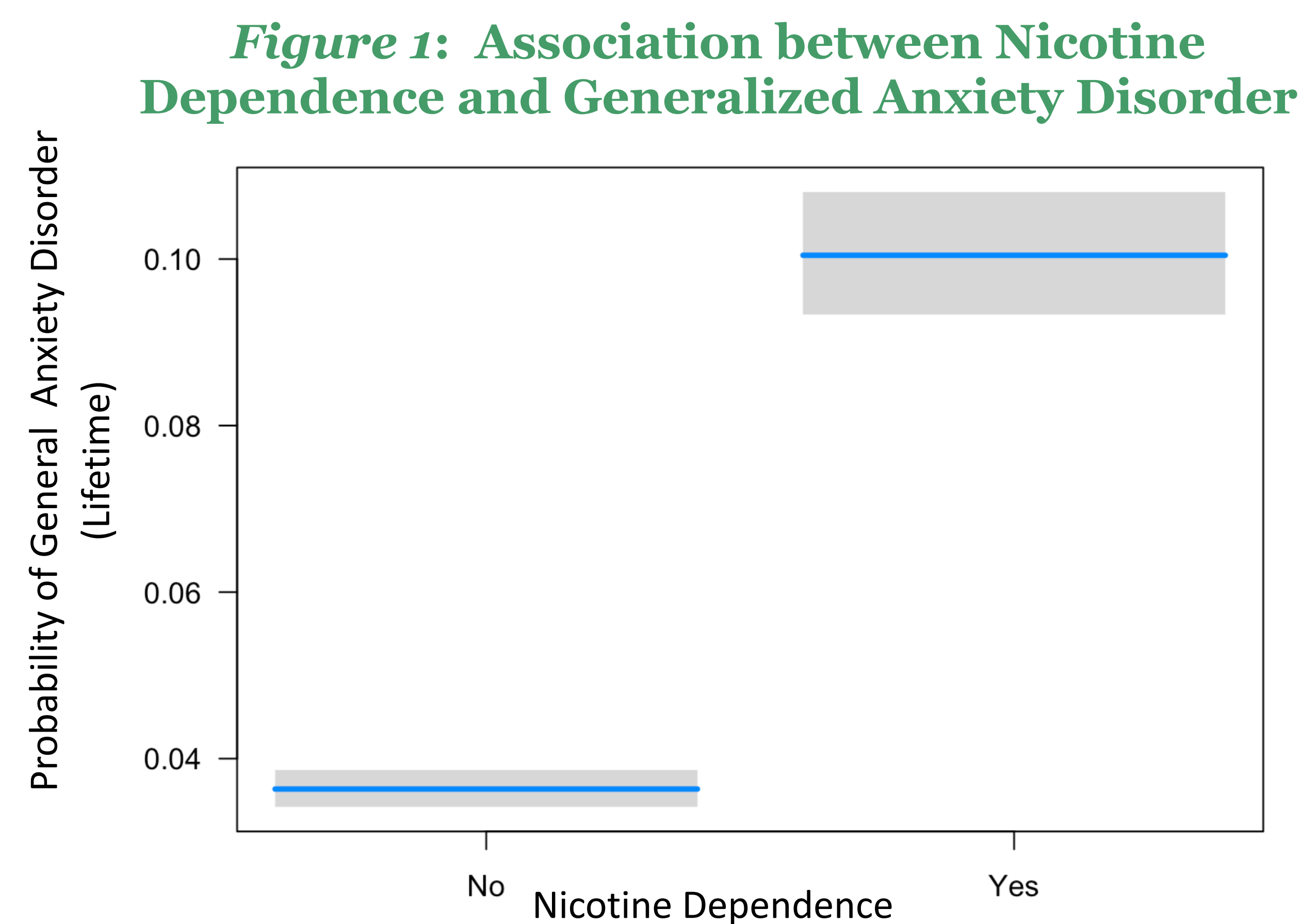
### Measures

- Participants were evaluated on Nicotine Dependence in the section from NESARC that diagnoses participants using criteria and symptoms from the DSM-IV.
- Participants were evaluated on Generalized Anxiety Disorder (Lifetime) based on the NESARC section that diagnoses participants using criteria from the DSM-IV.
- Participants were divided into two groups for the age variable, specifically “Young Age” included those  $18 \leq 58$ ) and “Old Age” included those ( $>58$ ).

## Results

### Bivariate Graph

- Chi-Square analysis showed that Nicotine Dependence and Lifetime General Anxiety Disorder were significantly associated ( $X= 537.4$ , 1 df,  $p\text{-value} < 2.2e-16$ ). (Fig. 1)
- Those with nicotine dependence have a 2.96 times higher odds of having general anxiety compared to those without nicotine dependence.



## Discussion

- There is an association between increased likelihood that a nicotine dependent person is also likely to have generalized anxiety disorder, especially if the person is between the ages of 18 and 58.
- After running an analysis to see if smoking frequency confounds the relationship between nicotine dependence and generalized anxiety disorder, the results still indicated a strong significance ( $p < 2e-16$ )
- There needs to be further warning of the interaction between nicotine dependence and other psychiatric disorders (Depression, BPD, OCD, etc)
- Further research needs to be done that takes into account other factors such as gender, more specific age groups, and socioeconomic status.

## References

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### Multivariate Regression Plot

- Age (O.R.0.85, CI: 0.76, 0.95,  $p < 0.05$ ) is significantly associated with nicotine dependence and Lifetime Generalized Anxiety Disorder (Fig. 2).
- Although it does not moderate (change the direction and strength), it is a covariate
- In particular, the odds of generalized anxiety is expected to increase by a factor of 0.76 for younger compared to older people.

**Figure 2: Estimated probability of General Anxiety Disorders among Nicotine Dependents by Age**

