Prevalence of Generalized Anxiety Disorder Among Five European Countries Before and During COVID

EPP0549

Daniel Karlin,[1] Susan J. Suponcic,[2] Nemin Chen,[3] Corklin Steinhart,[1] Phong Duong[1]

[1]MindMed, New York, NY, USA; [2]Value & Access Advisors, LLC, St. Petersburg, FL, USA; [3]Oracle Life Sciences, Austin, TX, USA

Background

- Globally, there is a mental health crisis, with anxiety disorders being the most prevalent mental health condition.[1]
- The prevalence of anxiety disorders has been increasing over the recent decades.[2] Generalized anxiety disorder (GAD) is one of the most prevalent anxiety disorders in the general population.[3]
- Previous studies suggest that the COVID-19 pandemic (COVID) may have multiple impacts on mental health across populations.[4] However, the impact of COVID on GAD prevalence has not been quantified across European countries.
- A better understanding of the impact of COVID on GAD prevalence is needed to establish a new baseline of GAD prevalence estimates in European countries.

Objectives

- To assess the prevalence of GAD positive screens, as well as moderate and severe GAD symptoms, before and during COVID in 5 European countries, using the GAD-7.[5]

Methods

Study Design

- The National Health and Wellness Survey (NHWS) is an annual internet-based self-report survey.
  - NHWS is administered in each country independently (France, Germany, United Kingdom [UK], Italy, and Spain) with recruitment designed to represent the general adult population in terms of age and gender distributions in each country.
- Respondents who participated in the annual European NHWS fielded from December 2019 to March 2020 were then quota sampled by age and gender and recontacted to complete a shorter survey (COVID Pulse Survey) in May 2020 to assess the impact of COVID on their mental health.
- In the NHWS, respondents reported their demographics and health-related characteristics. Respondents to both the NHWS and the COVID Pulse Survey reported their age and gender and completed the GAD-7.

Inclusion Criteria

- Aged ≥18 years
- Resident of one of the countries where NHWS was fielded (France, Germany, UK, Italy, or Spain)
- Completed both country-specific 2020 NHWS and COVID Pulse Survey

Exclusion Criteria

- Respondents whose age and gender mismatched between the two surveys

Variables

- GAD symptom severity was defined by GAD-7 score as: none (≤4), mild (5-9), moderate (10-14), and severe GAD (≥15).[5]
- GAD positive screen was defined by GAD-7 score as: yes (≥10), no (≤9).[5]
- Sample characteristics measured at baseline included age, gender, marital status, education, employment status, and the Charlson Comorbidity Index (CCI).[6] The CCI represents a weighted sum of multiple comorbid conditions predictive of mortality, with higher CCI scores indicating greater comorbidity burden.[6]

Data Analysis

- Distribution of covariates by country were summarized as means and standard deviations (SDs) for continuous variables and numbers and percentages for categorical variables. Covariates were also summarized for the pooled European sample for the overall distribution across the 5 countries.
- Numbers and percentages of respondents by GAD symptom severity and GAD positive screen were summarized for the pooled European sample and for each country, both before and during COVID.
- Chi-square tests were used to evaluate the difference in the distribution of GAD symptom severity across countries. McNemar's tests were used to evaluate the changes in GAD positive screen distribution from before to during COVID for both pooled and country-specific data.
  - *P*-values <0.05, 2-tailed were considered to be statistically significant.

Results

Study Sample

- Demographic characteristics of the study sample are presented in **Table 1**.
- Among the 2,500 respondents who completed both the NHWS and COVID Pulse Survey, 2,401 adults had consistent age and gender information and were included in the analysis: France, n=482; Germany, n=487; UK, n=487; Italy, n=474; Spain, n=471.
- The average age of the respondents from the 5 European countries was 49.7 ± 16.4 years.
  - Distributions of age were similar across the 5 countries.
- Overall, about 55% of the respondents were male, about 60% were married or living with a partner, and 40% had a university degree or higher education.
  - Distributions of gender were similar across the 5 countries.
  - Percentages of respondents who were married or living with a partner were higher in Italy (66%) and Spain (65%) and lower in Germany (53%).
  - Respondents from France were more likely to have a university degree or higher education (52%), while respondents from Germany were less likely to have a university degree or higher education (30%).
- More than half (57%) of the respondents were employed. The average CCI score was 0.5 ± 1.2 across the 5 European countries.
  - The employment rate was highest in Spain (62%) and lowest in Italy (53%).
  - Distributions of CCI score were similar across the 5 countries.

Table 1. Sample Characteristics at Baseline

	Pooled Countries (N=2,401)	France (n=482)	Germany (n=487)	UK (n=487)	Italy (n=474)	Spain (n=471)
Age (mean, SD)	49.7, 16.4	49.7, 16.9	51.0, 16.3	48.4, 16.7	50.9, 16.2	48.6, 15.6
Male sex (n, %)	1,324, 55%	263, 55%	267, 55%	268, 55%	264, 56%	262, 56%
Marital status (n, %)*						
Married/living with partner	1,438, 60%	290, 60%	256, 53%	272, 56%	313, 66%	307, 65%
Single/not living with partner	678, 28%	137, 28%	149, 31%	155, 32%	114, 24%	123, 26%
Divorced/separated/widowed	284, 12%	55, 11%	82, 17%	59, 12%	47, 10%	41, 9%
Education (n, %)**						
Less than university	1,441, 60%	232, 48%	338, 69 %	295, 61%	302, 64%	274, 58%
University or higher	950, 40%	249, 52%	145, 30%	187, 38%	172, 36%	197, 42%
Employed (FT/ PT/ SE) (n, %)	1,373, 57%	270, 56%	277, 57%	282, 58%	253, 53%	291, 62%
CCI (mean, SD)	0.5, 1.2	0.4, 1.1	0.6, 1.2	0.4, 1.1	0.5, 1.7	0.5, 1.0

Note: UK: United Kingdom; SD: standard deviation; FT: full time; PT: part time; SE: self-employed; CCI: Charlson Comorbidity Index
*One participant from UK declined to answer. **One participant from France, 4 participants from Germany, and 5 participants from UK declined to answer.

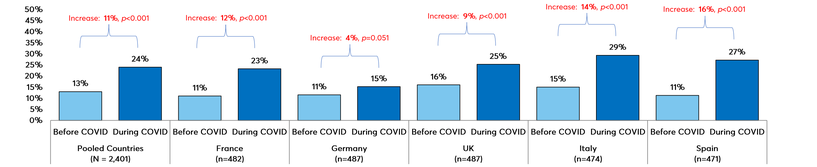
GAD Positive Screens Before and During COVID

- Data on GAD positive screens are shown in **Figure 1**.
- Statistically significant increases in the prevalence of positive screen over pre-COVID baseline levels were observed for the pooled European sample and across all countries (all, p<0.001), except Germany.
- Before COVID, 13% (n=311) screened positive for GAD in the pooled European sample. During COVID, the proportion of GAD positive screen in the pooled European sample almost doubled from the proportion before COVID (24%, n=576).
- Before COVID, the prevalence of positive screen ranged from 11% (France, Germany, Spain) to 16% (UK). During COVID, Spain had the highest increase in the prevalence of positive screen (increase: 16%), followed by Italy, France, and UK (increase: 14%, 12%, and 9%, respectively).
  - Germany was the least affected, overall (increase: 4%).

GAD Symptom Severity Before and During COVID

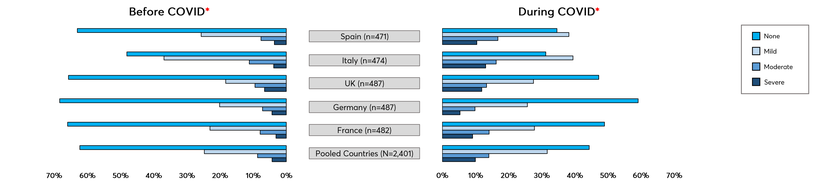
- Data on GAD symptom severity are shown in **Figure 2**.
- Before COVID, 9% (n=208) had moderate symptoms, and 4% (n=103) had severe symptoms in the pooled European sample. During COVID, the distribution of GAD symptoms shifted towards greater severity, with 14% (n=337) moderate and 10% (n=239) severe in the pooled European sample.
- Before COVID, the prevalence of moderate symptoms ranged from 7% to 11% in the 5 countries (Germany: 7%; France, Spain: 8%; UK: 9%; Italy: 11%); the range shifted to 10% to 17% during COVID (Germany: 10%; UK: 13%; France: 14%; Italy: 16%; Spain: 17%).
  - Spain was the most impacted on the prevalence of moderate symptoms.
- Before COVID, the prevalence of severe symptoms ranged from 3% to 7% (France: 3%; Germany, Italy, Spain: 4%; UK: 7%); the range shifted to 5% to 13% during COVID (Germany: 5%; France: 9%; Spain: 10%; UK: 12%; Italy: 13%).
  - Italy was the most impacted on the prevalence of severe symptoms.
- The differences in distributions of GAD by symptom severity were significant across countries, both before and during COVID (all, p<0.001).

Figure 1. Proportion of Respondents with Positive Screen for Generalized Anxiety Disorder from Pooled Countries and by Country, Before and During COVID-19



Note: Positive screen for GAD is defined as GAD-7 scores of ≥10. *P*-values (2-tailed) shown are based on a McNemar's test of change from before COVID to during COVID in the proportion of respondents with a positive GAD screen across countries.

Figure 2. Proportion of Respondents from the 5 European Countries with None, Mild, Moderate, and Severe Generalized Anxiety Disorder Symptoms, Before and During COVID-19



Note: None, mild, moderate, and severe symptoms are based on GAD-7 scores of ≤4, 5-9, 10-14, and ≥15, respectively. *p<0.001, both before and during COVID. *P*-values (2-tailed) are based on a Chi-square test of the distribution of GAD symptom severity levels across countries before COVID and during COVID.

Limitations

- Our estimation of GAD prevalence may be influenced by selection bias as most respondents were recruited online and may not be representative of populations without access to internet.
- Our results only provide evidence on the prevalence of GAD positive screen and symptom severity and their changes during early COVID. Longitudinal assessments after early COVID are needed to understand whether there is a lasting COVID impact on GAD prevalence.

Strengths

- This is the first study to compare the prevalence of GAD by symptom severity and positive screen before and during COVID across and within multiple European countries.
- We used the GAD-7, which has demonstrated good validity and reliability in the general population,[5,7] to screen for GAD and to assess symptom severity.
- We implemented the two surveys with closing dates to minimize the impact of factors other than COVID on GAD-7 screening.

Conclusions

- Estimates of positive screen for GAD almost doubled from pre-COVID baseline and had a statistically significant increase to 24% across the 5 European countries during early COVID.
- The distribution of GAD symptoms shifted towards greater severity during early COVID, with 14% moderate (from 9% before COVID) and 10% severe (from 4% before COVID) across the 5 European countries.
- Surges in positive screen and GAD symptom severity during early COVID were observed in all 5 European countries, with the most profound impact in Spain and Italy. Germany was the least affected, overall.
- With the continual increase in GAD prevalence over time, COVID has the potential to unveil anxiety within the general population that might have been concealed without the pandemic.
- With new baseline GAD estimates, the country-specific data on the impact of COVID on GAD could help to inform appropriate allocation of mental health resources to address the growing challenges.

References

1. Bandelow B, Michaelis S. Epidemiology of anxiety disorders in the 21st century. *Dialogues Clin Neurosci.* 2015;17(3):327-335. doi:10.31887/dcns.2015.17.3/bbandelow
2. Javaid SF, Hashim IJ, Hashim MJ, Stip E, Samad MA, Ahbabi AA. Epidemiology of anxiety disorders: global burden and sociodemographic associations. *Middle East Current Psychiatry.* 2023;30(1). doi:10.1186/s43045-023-00315-3.
3. Revicki DA, Travers K, Wyrwich KW, et al. Humanistic and economic burden of generalized anxiety disorder in North America and Europe. *J Affect Disord.* 2012;140(2):103-112. doi:10.1016/j.jad.2011.11.014.
4. Hossain MM, Tasnim S, Sultana A, et al. Epidemiology of mental health problems in COVID-19: A review. *F1000Res.* 2020;9. doi:10.12688/f1000research.24457.1.
5. Spitzer RL, Kroenke K, Williams JBW, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med.* 2006;166(10):1092-1097. doi:10.1001/archinte.166.10.1092.
6. Charlson ME, Pompei P, Ales KL, Mackenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis.* 1987;40(5):373-383. doi:10.1016/0021-9681(87)90171-8.
7. Löwe B, Decker O, Müller S, et al. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Med Care.* 2008;46(3):266-274. doi:10.1097/MLR.0b013e318160d093.

Acknowledgements/Disclosures

- The study was funded by Mind Medicine Inc.
- Dr. Corklin Steinhart is a former employee of MindMed and was employed at the time of this work.