A comprehensive model of predictors of suicide attempt in individuals with panic disorder: Results from a national 3-year prospective study

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Word count (text only): 3018

Word count (abstract only): 208

References: 82

Table: 1

Figures: 3

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Running Title: Suicide attempt in panic disorder

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All authors contributed to and have approved the final manuscript.

Abstract

Objective: People with panic disorder are at increased risk of suicide. Multiple factors influence their risk suggesting a need to combine them into an integrative model to develop more effective suicide prevention strategies for this population. In this report, we sought to build a comprehensive model of the 3-year risk of suicide attempt in individuals with panic disorder using a longitudinal nationally representative study, the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; wave 1, 2001-2002; wave 2, 2004-2005).

Method: We used structural equation modeling to simultaneously examine effects of six broad groups of clinical factors previously identified as potential predictors of suicide attempt in adults with panic disorder: 1) severity of panic disorder, 2) severity of comorbidity, 3) prior history of suicide attempt, 4) family history of psychiatric disorders, 5) sociodemographic characteristics and 6) treatment-seeking behavior.

Results: The 3-year prevalence rate of suicide attempt was 4.6%. A general psychopathology factor, lower physical health-related quality of life, prior suicide attempt and a greater number of stressful life events at baseline significantly and independently predicted suicide attempt between the two waves ($p<0.05$). R-square of the models ranged from 0.47 to 0.50.

Conclusion: This model may help inform future research and identify high-risk individuals among adults with panic disorder.

Key words: suicide attempt; panic disorder; comorbidity; treatment-seeking behavior; epidemiology.

1. Introduction

Panic disorder affects 5.1% of adults in their lifetime[1] and is strongly associated with increased risk of fatal and nonfatal suicide attempts[2–4]. Between 1.2% and 8.0%[5–8] of individuals with a history of panic disorder die of suicide, and between 7% and 20% attempt suicide in their lifetime[3,5,6,9–11]. Because of this heterogeneity, and the impact of panic disorder on quality of life[12], developing an accurate predictive model of suicide attempt for individuals with panic disorder could help prevent suicide risk, and to develop more effective suicide prevention strategies for high-risk individuals.

Prior research suggests that multiple factors increase the risk of suicide attempt in individuals with panic disorder. They include disorder severity[4,13–20] and specific symptoms such as fear of losing control, fear of dying[4,9,14,15,19] or alexithymia[21,22], early age at onset[3,16,19,20], greater number of panic attacks[19,20], psychiatric comorbidity comprising comorbid mood, anxiety, substance use and personality disorders[3,7,9,11,13,15,16,18,23–31], prior history of suicide attempt[7], family history of psychiatric disorders[16], exposure to childhood maltreatment and stressful life events[24,32,33], and certain sociodemographic characteristics such as younger age, female sex, being divorced/separated, poverty and low socioeconomic status, low educational attainment, and being African American[3,7,11,13,15,16,19,23,27,28,30] (detailed in **eTable 1**).

Despite this knowledge, the prediction of suicide attempt in individuals with panic disorder is complicated by the fact that each individual risk factor, when examined in isolation, accounts only for a small proportion of the variance in suicide risk[18,23,24]. The large number of potential predictors of suicide attempts and their frequent co-occurrence suggests a need to combine them into an integrative model. Yet few integrative models have

been proposed to identify the independent effect of each risk factor and mitigate the influence of confounding variables[15,19,25,34], and most of these models have relied on clinical samples and cross-sectional designs.

In this report, we sought to build a comprehensive model of the 3-year risk of suicide attempt in individuals with panic disorder using a large longitudinal nationally representative study, the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). We used structural equation modeling to simultaneously examine effects of six broad groups of clinical factors previously identified as potential predictors of suicide attempt: 1) severity of panic disorder, 2) severity of comorbidity, 3) prior history of suicide attempt, 4) family history of psychiatric disorders, 5) sociodemographic characteristics and 6) treatment-seeking behavior (**Figure 1**). In line with prior studies[35–39] that have suggested that transdiagnostic factors may account for links between psychiatric disorders and suicide attempt, we used a latent variable approach to take into account panic disorder symptom and comorbid psychiatric disorder co-occurrence.

2. Method

2.1 Sample

Data were drawn from the Wave 1 and Wave 2 of the NESARC, a nationally representative face-to-face survey of the U.S adult population, conducted in 2001-2002 (Wave 1) and 2004-2005 (Wave 2) by the National Institute on Alcoholism and Alcohol Abuse[40]. The target population included the civilian non institutionalized population, aged 18 years and older, residing in the United States. The overall response rate at Wave 1 was 81%, resulting in 43,093 interviews. The cumulative response rate at Wave 2 was 70.2%, resulting in 34,653 Wave 2 interviews[40]. The NESARC research protocol, including written informed consent

procedures, received full human subjects review and approval from the U.S. Census Bureau and the Office of Management and Budget.

2.2 Measures

2.2.1 Assessment of suicide attempt at Wave 2

To assess for incident cases of suicide attempt between Wave 1 and Wave 2, all Wave 2 respondents were asked: 'Since last interview, did you ever attempt suicide?'

2.2.2 Assessments of DSM-IV past-year Axis I and lifetime Axis II diagnoses in Wave 1

Psychiatric disorders were assessed using the Alcohol Use Disorder and Associated Disabilities Interview Schedule, DSM-IV version (AUDADIS-IV), a structured diagnostic instrument administered by trained lay interviewers[40]. Following DSM-IV criteria, a diagnosis of panic disorder required meeting clinical significance criteria (i.e., distress or impairment) and having a primary panic disorder (i.e., excluding substance-induced or general medical conditions). Other Axis I diagnoses included substance use disorders (alcohol use disorder, drug use disorder, and nicotine dependence), mood disorders (major depressive disorder, dysthymic disorder, and mania/hypomania), anxiety disorders (social anxiety disorder, specific phobia, generalized anxiety disorder and agoraphobia), and pathological gambling. For panic disorder and all Axis I disorders, diagnoses were made in the 12 months prior to Wave 1. Axis II disorders were assessed on a lifetime basis. The test-retest reliability and validity of AUDADIS-IV measures of DSM-IV psychiatric disorders are good to excellent for substance use disorders and fair to good for panic disorder and other psychiatric disorders[41,42].

2.2.3 Sociodemographic characteristics in Wave 1

Sociodemographic characteristics included age, sex (men vs. women), marital status (married vs. non-married), race-ethnicity (White vs. non-White), education (college or higher vs. high school graduate or less), and poverty (household income<$20,000). In addition, participants were asked about 12 stressful life events concerning a variety of occupational, familial, financial, and legal issues and whether they had experienced these events in the past year of Wave 1[40]. This variable was dichotomized at the median (i.e., over vs. equal or lower the median, i.e., 3).

2.2.4 Family history of psychiatric disorders in Wave 1

Family history of depression, alcohol use disorder, substance use disorder and antisocial personality disorder in first degree relatives was ascertained in separate modules of the AUDADIS[42]. Family history of psychiatric disorders was considered met if the participant reported that any first degree relative had any of these conditions. The test-retest reliability of AUDADIS family history of psychiatric disorders is very good[42].

2.2.5 Psychiatric and other physical health related quality of life in Wave 1

Participants completed the Version 2 of the Short Form 12 Health Survey (SF-12v2)[43], a 12-item measure that assesses quality of life (over the last four weeks). The SF-12v2 can be scored to produce a norm-based mental component summary score (MCS) and a norm-based physical component summary score (PCS). All standardized scale scores range from 0–100 with a mean of 50 (standard deviation=10); higher scores signify better functioning. Studies support the reliability and convergent validity of the SF-12v2 scale scores in both community and clinical samples[43–45]. The variables MCS and PCS were dichotomized as follows: equal or over the theorical mean (i.e., 50) vs. under the mean.

2.2.6 Treatment-seeking behavior for panic disorder in Wave 1

Participants with a past-year DSM-IV-TR diagnosis of panic disorder who declared going to a hospital or emergency department or to have consulted a mental health professional to receive help for anxiety during the year preceding the Wave 1 interview were considered to have sought treatment for panic disorder.

2.2.7 Assessment of prior lifetime history of suicide attempt at Wave 1

Lifetime prior history of suicide attempt was assessed among participants with a lifetime history of 2-week period of low mood or anhedonia at Wave 1 with the following question: “Did you ever attempt suicide?”. Participants who answered positively were considered as having a prior lifetime history of suicide attempt.

2.3 Statistical analysis

Among participants with a past-year DSM-IV-TR diagnosis of panic disorder at Wave 1, we first performed a set of binary logistic regressions of associations of each categorical or continuous putative factor assessed at Wave 1 with the 3-year occurrence of suicide attempt assessed at Wave 2.

Next, we used confirmatory factor analyses (CFA) to identify latent structures underlying individual comorbid psychiatric disorders and symptoms of panic disorder, respectively. The CFA model allows to clarify from each other effects shared by all mental disorders (represented by the general psychopathology factor), those shared by disorders within each dimension of psychopathology (for example, internalizing dimension) and the specific effect of each mental disorder per se[46].

Specifically, based on previous models used to examine the relationship of psychiatric disorders with suicide attempt in these data[36,37,39,47–49], we built upon the internalizing-externalizing CFA model and performed a bifactor model[46,50,51] to determine whether a general psychopathology factor measured by all psychiatric disorders in addition to disorder-specific factors (i.e., internalizing and externalizing dimensions) fit the underlying structure of psychiatric disorders assessed at Wave 1. To assess the robustness of our results and facilitate comparisons with other work, we conducted a sensitivity analysis using an alternative approach to modeling psychiatric disorder comorbidity and built upon the distress-fear-externalizing CFA model[35,52] that includes antisocial personality disorder, but not other personality disorders. In these bifactor models, following prior research[53–55], agoraphobia was included as an indicator of the fear factor and the internalizing factor, respectively.

We also built upon the CFA model fit by Drenckhan et al.[56], who generated a 3-factor structure respiratory-cardiac-vestibular underlying 10 DSM-IV-TR symptoms of panic disorder, and performed a bifactor CFA model to determine whether a panic disorder liability factor measured by all panic symptoms in addition to the three symptom-specific factors fit the underlying structure of panic disorder symptoms. To assess robustness, we conducted a sensitivity analysis using an alternative approach to modeling panic symptom co-occurrence and built upon the CFA model fit by Rappaport et al.[17] in these data, who generated a 4-factor structure beta adrenergic-alpha adrenergic-cognitive-respiratory underlying 13 DSM-IV-TR symptoms of panic disorder, and performed a bifactor CFA model.

We examined measures of goodness-of-fit, including the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root mean squared error of approximation (RMSEA). CFI and TLI values between 0.90 and 0.95 are considered acceptable, and CFI and TLI values greater than 0.95 and values of RMSEA less than 0.06 indicate good model fit[57].

Finally, following our *a priori* conceptual model (**Figure 1**), we used a structural equation model (SEM) to examine simultaneously the effects of putative predictors assessed at Wave 1 on the 3-year occurrence of suicide attempt assessed at Wave 2, define the direction of associations between them, while taking account of multiple complex associations across predictors. As indicated in **Figure 1**, our conceptual model included six groups of predictors, comprising a total of 19 predictors. To determine if specific disorders/symptoms or disorder/symptom-specific dimensions were associated with suicide attempt above and beyond the effects of other factors, we calculated modification indices (i.e. chi-square tests with 1 degree of freedom) to test if any residuals were correlated with suicide attempt. Because our model was exploratory and defined *a priori*, statistical significance was evaluated using a two-sided design with alpha set *a priori* at 0.05. To reduce the risk of including significant direct effects related to multiple testing, we considered significant direct effects of items with modification index greater or equal to 10.

Missing data rate for at least one variable included in multivariable models was 14.8% (n=115). Missing data were imputed using Markov chain Monte Carlo (MCMC) methods[58]. Significant results using imputed data were not altered after excluding participants with missing data.

All analyses were conducted in Mplus Version 7.2[59] to account for the NESARC's complex design. The default estimator for the analysis was the variance-adjusted weighted least squares (WLSMV), a robust estimator appropriate for ordered categorical observed variables such as the ones used in this study[59].

3. Results

3.1 Bivariate associations between baseline clinical characteristics and 3-year risk of suicide attempt

Among participants with a 12-month DSM-IV diagnosis of panic disorder (N=775) at Wave 1, 4.6% (SE=0.2, n=36) attempted suicide during the 3-year follow-up period. Binary logistic models showed that an early age at onset, prior history of suicide attempt, comorbid mania/hypomania, social anxiety disorder, drug use disorder, nicotine dependence, schizoid, avoidant and antisocial personality disorders, lower physical health-related quality of life, younger age and exposure to a greater number of stressful life events in the past year were each significantly associated with the 3-year occurrence of suicide attempt (**Table 1**).

3.2 Structure of comorbid psychiatric disorders and symptoms of panic disorder

Bifactor models of the structures "distress-fear-externalizing" and "internalizing-externalizing" underlying comorbid psychiatric disorders provided a good fit to the data (CFI≥0.987, TLI≥0.983, RMSEA≤0.033) (**eTables 2 and 3**), as did the bifactor models of the structures "beta adrenergic-alpha adrenergic-cognitive-respiratory" and "respiratory-cardiac-vestibular" underlying symptoms of panic disorder (CFI≥0.982, TLI≥0.977, RMSEA≤0.031) (**eTables 4 and 5**).

3.3 Structural equation model of the 3-year risk of suicide attempt

While modeling multiple associations across predictors, we found that the general psychopathology factor, representing the shared effect of all comorbid psychiatric disorders, prior history of suicide attempt, exposure to a greater number of stressful life events in the past year and lower physical health-related quality of life significantly and independently increased the 3-year risk of suicide attempt. There were no additional direct effects from any other factor or individual panic symptom or psychiatric disorder on suicide attempt. R-square of the models ranged from 0.47 to 0.50, which means that the models explained 47% to 50% of the suicide attempt variance. No sociodemographic characteristics (i.e., sex, age, marital

status, race-ethnicity, education and poverty) had significant independent effects on this risk (**Figures 2 and 3 and eFigures 1 and 2**).

4. Discussion

In a nationally representative sample of adults with panic disorder, the 3-year prevalence of suicide attempt was 4.6%. The general psychopathology factor, prior history of suicide attempt, lower physical health-related quality of life and a greater number of stressful life events in the past year at baseline independently predicted suicide attempt during follow-up. Neither sociodemographic characteristics nor severity of panic disorder had an independent effect on this risk. These findings held when using different approaches to modeling psychiatric comorbidity and symptoms of panic disorder.

Although prior work has shown that several symptoms of panic disorder and most comorbid psychiatric disorders are associated with increased suicide risk in individuals with panic disorder (see **eTable 1**), we found that their effects on this risk occurred exclusively through a factor accounting for the shared effect of all comorbid psychiatric disorders (i.e., the general psychopathology factor). This result suggests that suicide attempt risk in this population may not be specific to any symptom of panic disorder or any comorbid psychiatric disorder, but rather predicted by the number and severity of disorders[2,36,37,60,61]. These patterns of associations are consistent with current dimensional models of psychopathology and highlight the central role of comorbidity in the occurrence of negative outcomes associated with psychiatric disorders[36,62–64]. Our results call attention to the importance of diagnosing and treating comorbid psychiatric disorders and the value of interventions that can simultaneously target multiple psychiatric disorders[65–67]. Furthermore, observational studies suggest that remission of one disorder is associated with remission of additional disorders[65], thus lowering the overall psychopathological load of the individual may be

associated with the decrease of the subsequent risk of suicide attempt. More broadly, our findings support the importance of identifying the risk factors and the neurobiological substrates of this common factor, which would help develop transdiagnostic treatments and improve the efficacy of transdiagnostic preventive interventions.

Panic disorder is highly comorbid with a number of medical illnesses, including respiratory and cardiovascular disorders, and vestibular dysfunction[68,69], which can impair physical health-related quality of life through different mechanisms. First, the heightened state of physiological activation among individuals with panic disorder and comorbid medical disorders, especially when they are perceived as extreme and uncontrollable, can be a source for emotional distress that can increase suicide risk[69,70]. Pain, physical disability and chronicity of medical conditions may also contribute to this association[71,72]. Finally, the presence of medical comorbidity can reduce the efficacy of the treatment for panic disorder[68,69]. Taken together, these findings support the importance of diagnosing and treating comorbid medical disorders and their functional consequences, which might reduce suicide risk as well as improve patient well-being.

Although many sociodemographic characteristics, such as low educational attainment and poverty have been implicated as risk factors for suicide attempt in individuals with panic disorder (see **eTable 1**), none of the sociodemographic characteristics assessed in this study predicted this risk independently of psychopathology. Because the effects of psychosocial adversity and psychiatric disorders are bidirectional[73], separating their effects on suicide risk can be difficult. However, our results suggest that after accounting for clinical severity, sociodemographic variables may play a lesser role in the risk of suicide attempt than previously thought. Nevertheless, because sociodemographic characteristics are easy to identify and associated with the risk of psychiatric disorders, they may be useful for risk stratification and targeting of selective preventive interventions[74,75].

We found that treatment-seeking behavior had no significant independent effect on suicide attempt risk reduction. However, it should be noted that several factors might have prevented us from detecting a protective effect of help-seeking behavior. First, this behavior was assessed broadly. Second, only around half of individuals with panic disorder sought help for panic disorder. Third, the treatment of panic disorder is often suboptimal. Increased access to evidence-based treatment of panic disorder may help decrease the risk of suicide attempt[76]. Finally, the 3-year timeframe used to examine the occurrence of suicide attempt may have limited the statistical power to detect this effect. This finding suggests the need to assess suicide risk in all individuals with panic disorder and to improve access to psychiatric health care for these subjects[77].

Our study has several limitations. First, although this study examined a wide range of psychiatric disorders, several psychiatric disorders (e.g., borderline personality disorder and schizophrenia) known to be linked to suicide risk[78–80], as well as chronic and lethal medical conditions were not assessed at Wave 1. Second, despite its prospective design, our study cannot establish a causal relationship between predictors and the occurrence of suicide attempt[81]. Third, the number of incident suicide attempt cases was modest (n=36), limiting the statistical power of our models and leaving little statistical power to assess residual effects beyond the general psychopathology factor. Thus, using another statistical method might not have yielded a significant result. Finally, our model does not capture many social ecological dimensions of suicide risk reduction such as the protective role of increasing positive connectedness with family and peers[82].

In summary, we propose a comprehensive model of suicide attempt in adults with panic disorder using a large longitudinal national study. Clinicians assessing suicide risk among adults with panic disorder should query about the severity and the number of comorbid psychiatric disorders, prior suicide attempt, current stressful life events, and physical-related

quality of life. We hope that this model may help inform future research and identify high-risk individuals among adults with panic disorder.

Data Availability Statement: The original data set for the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) is available from the National Institute on Alcohol Abuse and Alcoholism (http://www.niaaa.nih.gov).

Conflicts of interest: Pr. Lemogne reports personal fees and non-financial support from Boehringer Ingelheim and Lundbeck, personal fees from Janssen-Cilag and non-financial support from Otsuka Pharmaceuticals, outside the submitted work. Pr. Limosin has received speaker and consulting fees from AstraZeneca, Janssen, Lundbeck, and Servier outside the submitted work. Dr. Airagnes has received speaker and consulting fees from Pfizer and Lundbeck. Dr. Hoertel reports personal fees and non-financial support from Lundbeck, outside the submitted work. Other authors report no conflicts of interest.

Disclaimer: The views and opinions expressed in this report are those of the authors and should not be construed to represent the views of any of the sponsoring organizations, agencies, or the US government.

Acknowledgments: The National Epidemiologic Survey on Alcohol and Related Conditions was sponsored by the National Institute on Alcohol Abuse and Alcoholism and funded, in part, by the Intramural Program, NIAAA, National Institutes of Health. The sponsors had no additional role in the design and conduct of the study; collection, management, analysis and interpretation of the data; and preparation, review or approval of the manuscript.

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Figure 1. A conceptual comprehensive model of the 3-year occurrence of suicide attempt in individuals with a past year DSM-IV-TR diagnosis of panic disorder (n=775).

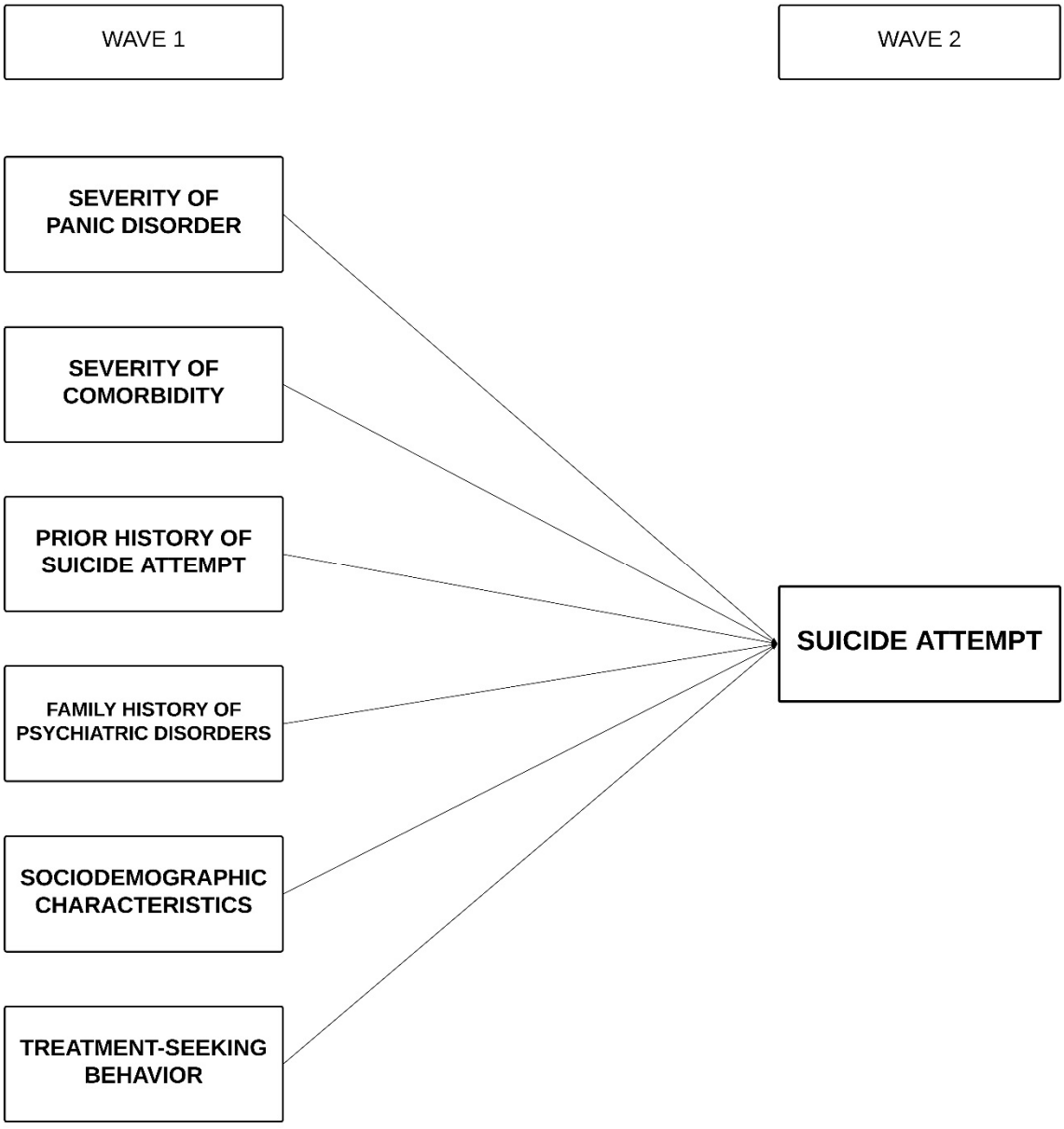


Table 1. Associations of baseline indicators of panic disorder severity, psychiatric comorbidity, quality of life, sociodemographic characteristics and treatment-seeking behavior at Wave 1 in individuals with a past-year DSM-IV-TR diagnosis of panic disorder (n=775) according to the 3-year occurrence of suicide attempt.

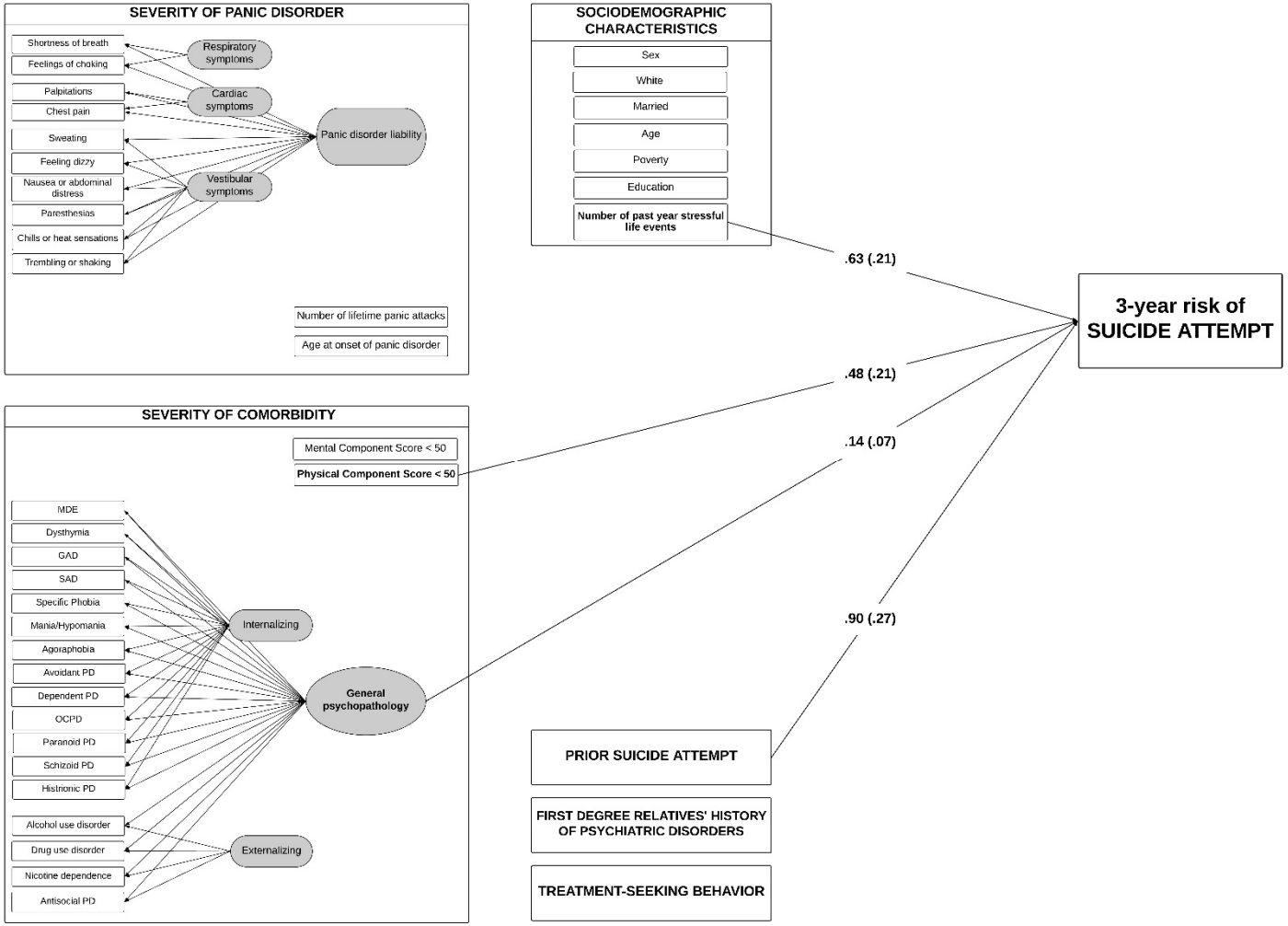
	3-year occurrence of suicide attempt		
	Yes N=36	No N=739	
	% (SE) / Mean (SE) [a]	% (SE) / Mean (SE) [a]	OR [95%CI] / Wald F [c]
Severity of panic disorder			
Symptoms of panic disorder			
Palpitations	100.0 (0.0)	95.2 (0.8)	NA
Sweating	84.5 (6.9)	74.8 (2.0)	1.8 [0.6-5.3]
Trembling or shaking	87.5 (11.0)	76.5 (2.1)	NA
Sensations of shortness of breath	98.8 (1.2)	87.2 (1.5)	NA
Feelings of choking	37.5 (10.3)	42.4 (2.2)	0.8 [0.3-2.0]
Chest pain or discomfort	79.0 (7.2)	62.4 (2.2)	2.3 [1.0-5.4]
Nausea or abdominal distress	71.3 (12.1)	60.2 (2.0)	1.6 [0.5-5.3]
Feeling dizzy	71.3 (10.9)	73.6 (2.0)	0.9 [0.3-2.6]
Chills or heat sensations	61.5 (12.4)	72.9 (2.1)	0.6 [0.2-1.7]
Paresthesias	64.5 (10.8)	54.9 (2.4)	1.5 [0.6-3.8]
Derealization or depersonalization	55.8 (10.9)	65.1 (2.3)	0.7 [0.3-1.7]
Fear of losing control or going crazy	69.4 (11.6)	64.0 (2.2)	1.3 [0.4-3.8]
Fear of dying	54.0 (11.1)	53.9 (2.2)	1.0 [0.4-2.5]
Number of lifetime panic attacks	8.3 (2.9)	10.6 (1.1)	0.36
Age at onset of panic disorder	25.2 (2.4)	31.4 (0.6)	**4.14***
First degree relatives' history of psychiatric disorders	86.0 (7.3)	81.3 (1.7)	1.4 [0.4-4.9]
Prior suicide attempt	72.3 (12.4)	13.6 (1.4)	**16.7 [4.7-58.8]****
Psychiatric comorbidity [b]			

Any Axis I or II disorder	100.0 (0.0)	84.8 (1.6)	NA
MDE	63.0 (10.3)	40.8 (2.4)	2.5 [1.0-6.2]
Dysthymia	12.8 (5.5)	7.2 (1.1)	1.9 [0.7-5.3]
Mania/hypomania	42.0 (10.3)	21.3 (1.9)	**2.7 [1.1-6.3]***
GAD	32.1 (9.1)	21.4 (1.7)	1.7 [0.8-4.0]
Social anxiety disorder	38.5 (10.1)	20.2 (1.7)	**2.5 [1.0-5.9]***
Specific phobia	46.8 (10.4)	31.8 (2.0)	1.9 [0.8-4.4]
Agoraphobia	24.8 (8.1)	27.1 (2.1)	0.9 [0.4-2.1]
Alcohol use disorder	30.7 (9.3)	15.6 (1.8)	2.4 [1.0-6.0]
Drug use disorder	20.1 (8.7)	6.9 (1.1)	**3.4 [1.1-10.5]***
Nicotine dependence	63.5 (10.6)	34.3 (2.1)	**3.3 [1.3-8.3]***
Histrionic PD	12.6 (6.2)	8.3 (1.2)	1.6 [0.5-5.0]
Schizoid PD	33.7 (10.6)	14.8 (1.3)	**2.9 [1.1-7.6]***
Paranoid PD	41.2 (10.5)	23.0 (2.0)	2.3 [1.0-5.8]
OCPD	44.6 (12.2)	26.6 (2.0)	2.2 [0.8-6.0]
Dependent PD	11.1 (5.4)	5.2 (1.0)	2.3 [0.7-7.2]
Avoidant PD	31.4 (9.0)	15.7 (1.6)	**2.5 [1.0-5.8]***
Antisocial PD	32.3 (8.3)	12.1 (1.6)	**3.5 [1.5-7.9]*****
Quality of life			
Mental component score (MCS)			
≥50	12.5 (8.3)	33.7 (2.3)	1.00
<50	87.5 (8.3)	66.3 (2.3)	3.6 [0.8-16.0]
Physical component score (PCS)			
≥50	28.6 (8.4)	53.7 (2.2)	1.00
<50	71.4 (8.4)	46.3 (2.2)	**2.9 [1.3-6.6]***
Sociodemographic characteristics			
Sex			
Men	35.1 (9.4)	28.5 (2.1)	1.00
Women	65.0 (9.4)	71.5 (2.1)	1.4 [0.6-3.2]
Race/Ethnicity			
White	79.1 (6.1)	77.1 (2.2)	1.00
Non-White	20.9 (6.1)	22.9 (2.2)	1.1 [0.5-2.4]
Marital Status			
Married or as if married	51.4 (9.7)	58.2 (2.0)	0.8 [0.4-1.7]

Not married	48.6 (9.7)	41.8 (2.0)	1.00
Age	34.6 (2.1)	41.1 (0.6)	**6.39***
Poverty (household income<$20,000)	29.4 (9.4)	28.9 (1.9)	1.0 [0.4-2.6]
Number of past year stressful life events			
≤3	19.6 (7.1)	67.0 (2.0)	1.00
>4	80.4 (7.1)	33.0 (2.0)	**8.3 [3.3-20.8]****
Education			
College or higher	34.2 (10.9)	44.9 (2.3)	0.6 [0.2-1.7]
High school graduate or less	65.8 (10.9)	55.1 (2.3)	1.00
Seeking treatment for panic symptoms	69.8 (9.0)	49.9 (2.3)	2.3 [0.9-5.5]

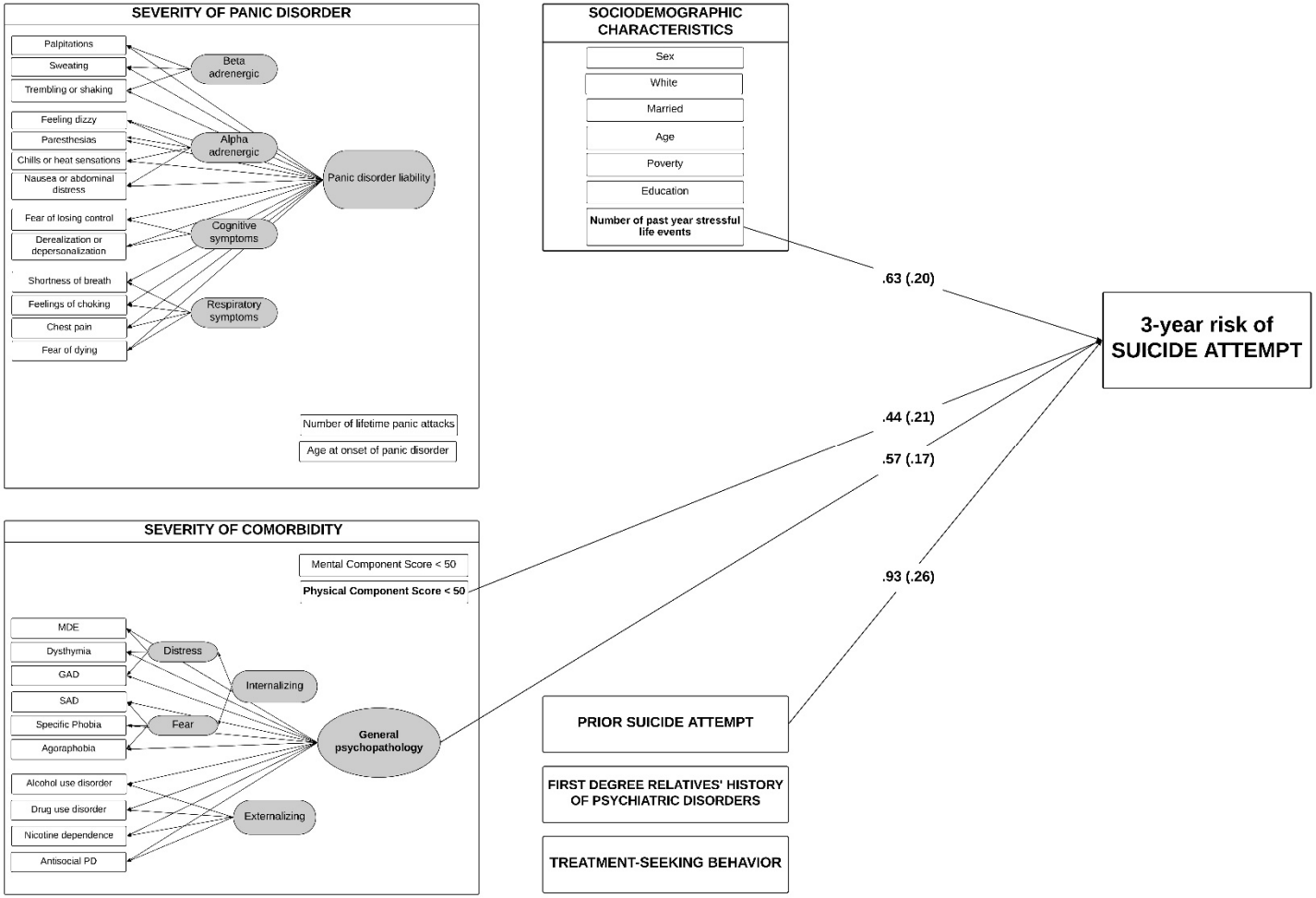
[a] Percentages and means are weighted.
[b] Axis I disorders were past year diagnoses while Axis II disorders were assessed on a lifetime basis.
Abbreviations: MDE, major depressive episode; GAD, generalized anxiety disorder; SE, standard error; PD, personality disorder; OCPD, obsessive-compulsive personality disorder; NA, not applicable.
[c] Crude ORs/Wald F (d.f.=1) indicate measures of association for binary/continuous variables and were estimated using logistic regression models; ORs and Wald F tests in bold are statistically significant with alpha set *a priori* fixed at 0.05.
**** two-sided p-value (p) <.001; *** p<.005; ** p<.01; * p<.05.

Figure 2. Structural equation model of the 3-year risk of suicide attempt in a general population sample of adults with a past-year DSM-IV-TR diagnosis of panic disorder (n=775), including the bifactor models of the structures "Internalizing-Externalizing" and "Respiratory-Cardiac-Vestibular" underlying comorbid psychiatric disorders and panic disorder symptoms, respectively. [a]



[a] Ellipses are used to denote latent constructs, rectangles are used to denote the observed variables. Regression coefficients shown are standardized. Values in brackets indicate their standard errors. Only significant effects (two-sided $p<.05$) are represented in the model.
Axis I disorders were past year diagnoses while Axis II disorders were assessed on a lifetime basis.
Abbreviations: MDE, major depressive episode; GAD, generalized anxiety disorder; SAD, social anxiety disorder; PD, personality disorder; OCPD, obsessive-compulsive personality disorder.

Figure 3. Structural equation model of the 3-year risk of suicide attempt in a general population sample of adults with a past-year DSM-IV-TR diagnosis of panic disorder (n=775), including the bifactor models of the structures "Distress-Fear-Externalizing" and "Beta adrenergic-Alpha adrenergic-Cognitive-Respiratory" underlying comorbid mental disorders and panic disorder symptoms, respectively.[a]



[a] Ellipses are used to denote latent constructs, rectangles are used to denote the observed variables. Regression coefficients shown are standardized. Values in brackets indicate their standard errors. Only significant effects (two-sided $p<.05$) are represented in the model.
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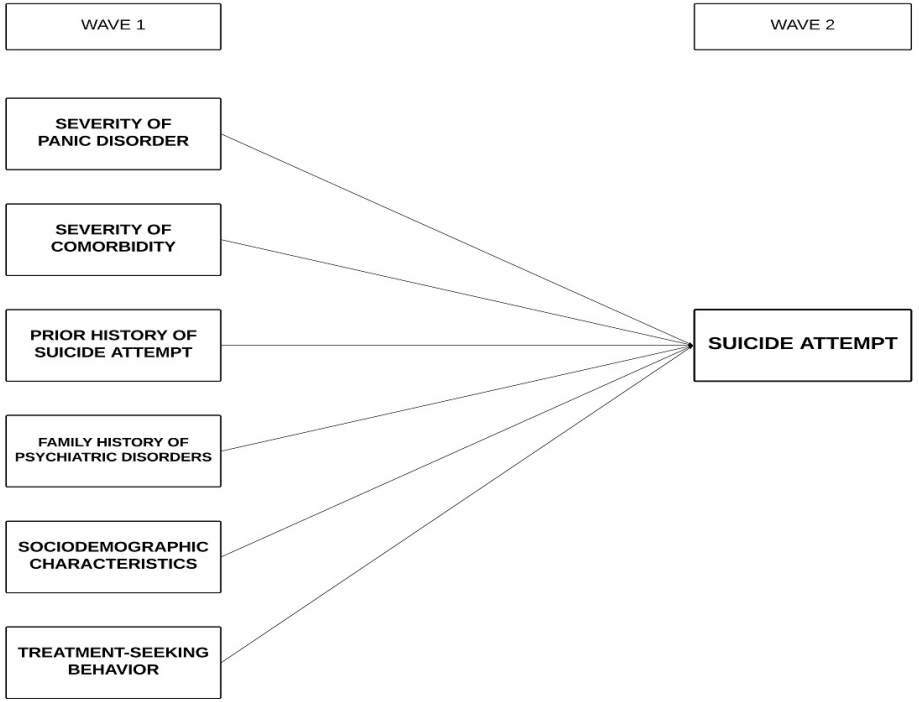
WAVE 1
WAVE 2
SEVERITY OF PANIC DISORDER
SEVERITY OF COMORBIDITY
PRIOR HISTORY OF SUICIDE ATTEMPT
FAMILY HISTORY OF PSYCHIATRIC DISORDERS
SOCIODEMOGRAPHIC CHARACTERISTICS
TREATMENT-SEEKING BEHAVIOR
SUICIDE ATTEMPT