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SHORT REPORT

Suicidal Ideation and Self-Injury in Trigeminal Neuralgia

Nathan S Fishbein[1], Jafar Bakhshaie[2,3], Jonathan Greenberg[2,3]

[1]Psychology Department, Fordham University, Bronx, NY, USA; [2]Center for Health Outcomes and Interdisciplinary Research, Massachusetts General Hospital, Boston, MA, USA; [3]Harvard Medical School, Boston, MA, USA

Correspondence: Jonathan Greenberg, Center for Health Outcomes and Interdisciplinary Research, Massachusetts General Hospital, Harvard Medical School, 1 Bowdoin Square, 6th Floor, Suite 648, Boston, MA, 02114, USA, Email jgreenberg5@mgh.harvard.edu

Purpose: Trigeminal neuralgia is commonly associated with emotional distress and unique challenges that may increase the risk of suicidality. Nevertheless, suicidality remains understudied in this population. This study reports rates and severity of suicidal ideation and self-injury and the association between suicidality, emotional distress, and pain intensity in a large sample of adults with trigeminal neuralgia and related neuralgias.

Patients and Methods: We recruited 229 adults with trigeminal neuralgia and other related conditions to complete a cross-sectional survey assessing suicidal ideation, self-injury, and emotional distress. We analyzed rates and severity of suicidal ideation and self-injury. We performed independent samples *t*-tests to compare the severity of suicidality between respondents with high and low levels of anxiety, depression, and pain intensity.

Results: Over a third (34.6%) of respondents reported at least some thoughts of suicide in the past 2 weeks, 27.6% reported thinking the world would be better off without them, 57.7% reported thinking about their own death, 14.0% reported thinking about hurting themselves, 2.6% reported hurting themselves purposefully, and 1.3% reported cutting or burning themselves. Over a third of respondents (39.1%) had elevated anxiety, and suicidality was more severe among those with elevated anxiety than among those without ($n = 214$, $p < 0.001$). Over a quarter of respondents (28.5%) had elevated depression, and suicidality was more severe among those with elevated depression than among those without ($n = 213$, $p < 0.001$). Almost two-thirds of respondents (62.9%) had elevated pain intensity, and suicidality was more severe among those with elevated pain intensity than among those without ($n = 228$, $p < 0.001$).

Conclusion: Suicidality is an urgent yet under-addressed concern among adults with trigeminal neuralgia and is associated with high rates of anxiety, depression, and pain intensity in this population. We propose recommendations to enhance suicide screening and develop interventions to reduce suicide risk among those with chronic orofacial pain.

Keywords: suicide, emotional distress, pain, anxiety, depression

Introduction

Chronic orofacial pain (ie, pain in the face, mouth, or jaw for at least one day each month for the last 3 months) is often debilitating and challenging to treat.[1] Individuals with chronic orofacial pain often experience marked emotional distress and may be at a heightened risk for suicidal ideation and behavior.[2,3] Literature focusing on chronic pain suggests that those with chronic pain may be twice as likely to report suicidal behaviors or attempt suicide as those without chronic pain.[3] However, to date, suicidal ideation and self-injurious behaviors specifically among those with chronic orofacial pain remains under-studied and under-addressed.

People with chronic orofacial pain experience unique challenges that may increase distress and exacerbate suicidal ideation. Chronic orofacial pain can entail difficulty talking for sustained periods of time, making socializing difficult and leading to social isolation.[4] Many report intense pain that is highly unpredictable and difficult to manage.[4] Individuals with chronic orofacial pain are often misdiagnosed and undergo unnecessary and sometimes painful or harmful treatments.[5] Pharmacological treatment of chronic orofacial pain is often ineffective and entails a host of negative side effects that can further disrupt everyday functioning.[4,6] Additionally, individuals with chronic orofacial pain have

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reported struggling to receive diagnoses, not being believed by their medical providers, frequently feeling stigmatized when seeking medical care, and frustration with the inadequacy of current pain management options.[4,7,8] Against this backdrop of stressors, alarming levels of anxiety and depression have been reported among individuals with chronic orofacial pain,[9–11] with some showing that elevated anxiety may predict the onset of chronic orofacial pain.[12] These elevated levels of emotional distress may increase suicide risk for this population,[13] and current literature suggests that suicidal ideation may be elevated among those with chronic orofacial pain and that suicidal behavior may be correlated with pain intensity in this population.[14,15] However, this research has been limited by small sample sizes, regionally biased samples, and a focus on temporomandibular disorders, which are just one of many possible causes of orofacial pain.[14,15] Further research on suicide among individuals with chronic orofacial pain is urgently needed.[3,16]

Among types of chronic orofacial pain, relatively little is known about the psychosocial functioning associated with trigeminal neuralgia. Those with trigeminal neuralgia often undergo unnecessary procedures prior to being correctly diagnosed, and research has shown that trigeminal neuralgia and associated pain frequently interfere with daily activities.[17] One recent systematic review found mild-to-moderate levels of depression and moderate-to-severe levels of anxiety in trigeminal neuralgia patients, and further research is needed to identify if such elevations in emotional distress are associated with increased suicide risk among those with trigeminal neuralgia.[18]

This descriptive study aims to report rates and severity of suicidal ideation and self-injurious behaviors among individuals with trigeminal neuralgia and other related neuralgias. A secondary aim is to explore the association between suicidality, emotional distress, and pain intensity in this population.

Methods

Procedures

We recruited 229 adults with trigeminal neuralgia and related conditions (see Table 1 for diagnoses) through a bulletin distributed by the Facial Pain Association (formally known as the Trigeminal Neuralgia Association; see LaRowe et al 2024 for further details on study procedures).[19] Recruitment began on 12/2023 and lasted until 01/2024. Inclusion criteria for the current study were as follows: >18 years of age, self-reported capacity to speak and write English at a sixth-grade level, living in the United States, nonmalignant orofacial pain for 3 months or more, and self-reported diagnosis of trigeminal neuralgia or related condition(s) including other trigeminal neuropathy, glossopharyngeal neuralgia, and multiple cooccurring orofacial pain diagnoses. Exclusion criteria were as follows: diagnosis of burning mouth syndrome, temporomandibular disorder, and persistent idiopathic facial pain. Participants were fully informed of the purpose of the study and provided consent. Participants then completed a survey through REDCap, a HIPAA secure online survey

Table 1 Demographic Characteristics

Variable	
Age (M ± SD)	58.9 ±13.1
Sex [N (%)]	
Male	31 (13.5%)
Female	198 (86.5%)
Race [N (%)]	
White	213 (93.0%)
Black/African American	5 (2.2%)
Asian	1 (0.4%)
Multiracial	6 (2.6%)
Chose not to answer	4 (1.7%)
Ethnicity [N (%)]	
Not Hispanic	215 (93.9%)
Hispanic	9 (3.9%)
Chose not to answer	5 (2.2%)

(*Continued*)

Table 1 (Continued).

Variable	
Marital status [N (%)]	
Married	148 (64.6%)
Living with significant other	6 (2.6%)
Separated or divorced	36 (15.7%)
Widowed	10 (4.4%)
Never married	25 (10.9%)
Chose not to answer	4 (1.7%)
Education [N (%)]	
12 years	14 (6.1%)
<16 years	64 (27.9%)
16 years	69 (30.1%)
>16 years	82 (35.8%)
Employment status [N (%)]	
Employed full-time	56 (24.5%)
Employed part-time	31 (13.5%)
Keeping house/homemaker	8 (3.5%)
Student	4 (1.7%)
Retired	88 (38.4%)
Unemployed	15 (6.6%)
Other	27 (11.8%)
Household income [N (%)]	
<$10,000	8 (3.5%)
$10,000 - $14,999	15 (6.6%)
$15,000 - $19,999	7 (3.1%)
$20,000 - $24,999	15 (6.6%)
$25,000 - $34,999	24 (10.5%)
$35,000 - $49,999	25 (10.9%)
$50,000 - $75,000	21 (9.2%)
≥$75,000	81 (35.4%)
Chose not to answer	33 (14.4%)
Facial pain diagnosis [N (%)]	
Trigeminal neuralgia	113 (49.3%)
Trigeminal neuralgia type 2	21 (9.2%)
Other trigeminal neuropathy	10 (4.4%)
Glossopharyngeal neuralgia	3 (1.3%)
Other diagnosis	14 (6.1%)
Multiple diagnoses	61 (26.6%)
No diagnosis	7 (3.1%)
Pain duration [N (%)]	
<1 year	6 (2.6%)
1–4.99 years	49 (21.4%)
5–9.99 years	66 (28.8%)
≥10 years	108 (47.2%)

platform. All study procedures were approved by the Massachusetts General Hospital IRB and comply with the Declaration of Helsinki. All diagnoses were classified in accordance with the International Classification of Orofacial Pain (ICOP), first edition.

Measures

Demographics and Clinical Characteristics

Participants reported their age, gender, ethnicity, education level, employment, and marital status. Further, they reported their facial pain diagnosis (if known), pain duration, mental health history, and currently used pain or mood medication.

Suicidality

The suicidality subscale of the Inventory of Depression and Anxiety Symptoms (IDAS) is a six-item self-report questionnaire that assesses suicidal ideation and self-injury.[20] Responses are scored on five-point Likert scale, with higher total scores (range 0–30) indicating higher levels of suicidal ideation.

Anxiety

The Overall Anxiety Severity and Impairment Scale (OASIS) is a five-item self-report questionnaire that assesses the severity and impairment of anxiety disorders.[21] Responses are scored on a five-point Likert scale and summed to calculate a total score, with higher total scores (range 0–20) indicating more severe and impairing anxiety. A cutoff score of eight is used to identify respondents who are likely to meet criteria for anxiety diagnoses.[21]

Depression

The Overall Depression Severity and Impairment Scale (ODSIS) is a five-item self-report questionnaire that assesses depression severity and impairment.[22] Responses are scored on a five-point Likert scale and summed to calculate a total score, with higher total scores (range 0–20) indicating more severe and impairing depression. A cutoff score of eight is used to identify respondents who are likely to meet criteria for depression diagnoses.[22]

Pain Intensity

The first item of the Pain, Enjoyment of Life, and General Activity scale (PEG-3) assesses average pain intensity over the past week.[23] Responses are recorded on a ten-point Likert scale, with higher scores (range 0–10) indicating more intense pain. A cut score of 5 is used to identify respondents with elevated pain intensity.[23]

Analytic Strategy

We first examined data for univariate normality and the presence of outliers. We next performed descriptive analyses to assess the percentage of participants endorsing various levels of suicidal ideation and self-injurious behaviors in response to each IDAS question and the mean and standard deviation of the IDAS sum scores. We then performed independent samples *t*-tests to compare the severity of suicidality (ie, sum IDAS scores) between participants with above cut-score and below cut-score levels of anxiety, depression, and pain anxiety. Lastly, we examined bivariate correlations between severity of suicidality and both anxiety and depression to assess overlap in these constructs.

Results

Of all respondents, 229 participants completed the IDAS, 215 participants completed the OASIS, 214 participants completed the ODSIS, and 229 participants completed the first item of the PEG-3. Demographic characteristics of the sample are listed in Table 1, clinical characteristics of the sample are listed in Table 2, and *t*-test results comparing suicidality severity of those above and below clinical cutoffs for anxiety and depression are listed in Table 3.

Suicidal Ideation and Self-Injurious Behaviors

The mean score on the IDAS was 8.44 (SD = 3.43). In the past 2 weeks, 34.6% of participants reported having at least some thoughts of suicide, 2.6% reported hurting themselves purposefully, 57.7% reported thinking about their own death, 14.0% reported thinking about hurting themselves, 1.3% reported cutting or burning themselves on purpose, and 27.6% reported thinking that the world would be better off without them. Responses to each of the IDAS items are reflected in Figure 1.

Table 2 Clinical Characteristics

Variable	M (SD)
Suicidal ideation and self-injurious behaviors (IDAS[a])	8.44 (3.43)
Anxiety (OASIS[b])	6.60 (4.88)
Anxiety score ≥ 8	11.61 (3.26)
Anxiety score < 8	3.40 (2.44)
Depression (ODSIS[c])	5.31 (5.36)
Depression score ≥ 8	12.59 (3.17)
Depression score < 8	2.41 (2.56)
Pain Intensity (PEG-3[d] Item 1)	5.24 (2.60)
Pain intensity score ≥ 5	6.90 (1.47)
Pain intensity score < 5	2.44 (1.43)

Notes: [a]Inventory of Depression and Anxiety Symptoms (IDAS). [b]Overall Anxiety Severity and Impairment Scale (OASIS). [c]Overall Depression Severity and Impairment Scale (ODSIS). [d]Pain, Enjoyment of Life, and General Activity scale (PEG-3).

Table 3 Comparison of Suicidality by Levels of Anxiety and Depression

Variable	Suicidality Score		*t*-test Results (*t*, *p*-value)
	Above Variable Cutoff for Likelihood of Meeting Diagnosis (8) [*M* (*SD*)]	Below Variable Cutoff for Likelihood of Meeting Diagnosis (8) [*M* (*SD*)]	
Anxiety	9.76 (4.07)	7.50 (2.45)	$t(213) = 5.09$, $p < 0.001$
Depression	11.30 (4.75)	7.38 (1.90)	$t(212) = 8.64$, $p < 0.001$

Anxiety

The mean anxiety score on the OASIS was 6.60 (SD = 4.88); 39.1% of respondents (n = 84) had anxiety scores of 8 or above, indicating an increased likelihood of meeting criteria for anxiety diagnoses.[20] An independent samples *t*-test was used to compare suicidality scores between those with anxiety scores of 8 or above (M = 9.76, SD = 4.07) and those with anxiety scores below 8 (M = 7.50, SD = 2.45). There was a significant difference between the groups, $t(213) = 5.09$, $p < 0.001$, with those with anxiety scores of 8 or above showing significantly higher suicidality scores. Bivariate correlation analysis revealed a moderate positive correlation between anxiety scores and suicidality scores, $r = 0.429$, $p < 0.001$.

Depression

The mean depression score on the ODSIS was 5.31 (SD = 5.36); 28.5% of respondents (n = 61) had depression scores of 8 or above, indicating an increased likelihood of meeting criteria for depression diagnoses.[22] An independent samples *t*-test was used to compare suicidality scores between those with depression scores of 8 or above (M = 11.30, SD = 4.75) and those with depression scores below 8 (M = 7.38, SD = 1.90). There was a significant difference between the groups, $t(212) = 8.64$, $p < 0.001$, with those with ODSIS scores of 8 or above showing significantly higher IDAS scores. Bivariate correlation analysis revealed a moderate positive correlation between depression scores and suicidality scores, $r = 0.545$, $p < 0.001$.

Pain Intensity

The mean pain intensity was 5.24 (SD = 2.60); 62.9% of respondents (n = 144) had scores of 5 or above for pain intensity, indicating elevated orofacial pain.[22] An independent samples *t*-test was used to compare suicidality scores between those with pain intensity scores of 5 or above (M = 8.90, SD = 3.84) and those with pain intensity scores below 5 (M = 7.66, SD = 2.43). There was a significant difference between the groups, $t(227) = 2.69$, $p < 0.001$, with those with pain intensity scores of 5 or above showing significantly higher suicidality scores.

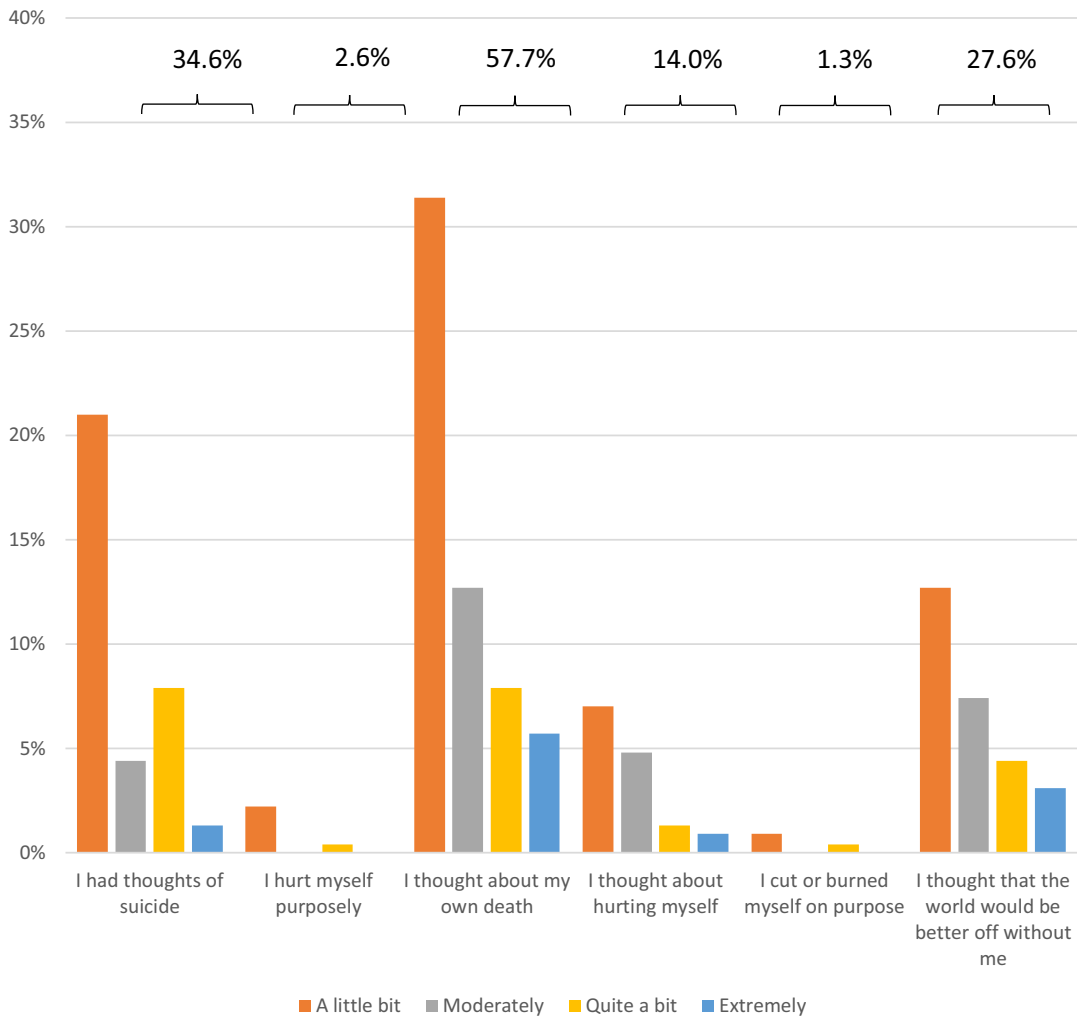

Figure 1 IDAS Question Responses for Participants Who Endorsed Some Level of Suicidal Ideation or Self-Injurious Behaviors.

Discussion

Despite the significant emotional distress and unique stressors associated with trigeminal neuralgia that may heighten suicide risk, there is a lack of research exploring suicidal ideation and self-injurious behaviors among large, nationwide samples of adults with this condition.[4–6,8,15] This study reported rates and severity of suicidal ideation and self-injurious behaviors among a nationwide sample of adults with trigeminal neuralgia and related conditions and examined differences in suicidality severity between those with high and low levels of emotional distress and pain intensity in this population.

Rates of suicidal ideation and self-injurious behaviors were markedly high, with scores being over 5-fold higher than other pain samples, such as adults seeking treatment with lower back pain.[24] Over a third of respondents reported having at least some thoughts of suicide in the past 2 weeks, 3 out of 10 participants reported thinking that the world would be better off without them, and almost 6 in 10 participants reported thinking about their own death. We also found high rates of anxiety and depression, with over a third of participants exceeding the cutoff used to discriminate against those likely to meet criteria for anxiety diagnoses, and almost 3 in 10 participants exceeding the cutoff used to discriminate against those likely to meet criteria for depression diagnoses.[21,22] Elevated anxiety, depression, and pain were all significantly associated with elevated suicidality in our study population, and, consistent with existing literature, anxiety and depression were both moderately correlated with suicidality.[25–27]

These findings emphasize the high risk of suicidal ideation among those with trigeminal neuralgia and related neuralgias and convey an urgent need to screen and target suicidal ideation in this population. Results further highlight the importance of evaluating and targeting depression, anxiety, and pain in this population given their relevance to suicidality. To date, despite the unique challenges confronted by individuals with trigeminal neuralgia, no available interventions are specifically tailored to target suicidal ideation behaviors in this population.[4,8] Results of this study support the need for development of such interventions.

Limitations of this study should be considered, such as the cross-sectional design, which prevents drawing of causal conclusions, and the limited racial and ethnic diversity of our sample. Future longitudinal studies with more diverse samples can further characterize suicide risk among those with trigeminal neuralgia and related neuralgias and inform intervention to help mitigate this risk.

Conclusion

Findings provide novel evidence on the alarming prevalence of suicidality among adults with trigeminal neuralgia and related neuralgias. There is an urgent need for suicide screening and interventions to reduce suicide risk among this population.

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Disclosure

The authors report no conflicts of interest in this work.

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