CME INSTITUTE™

CME Background
Articles are selected for credit designation based on an assessment of the educational needs of CME participants, with the purpose of providing readers with a curriculum of CME articles on a variety of topics throughout each volume. Activities are planned using a process that links identified needs with desired results.

To obtain credit, read the article, correctly answer at least 70% of the questions in the Posttest, and complete the Evaluation. The Posttest and Evaluation are available at http://www.cmeinstitute.com/activities/journal.asp.

CME Objective
After studying this article, you should be able to:

- Identify sociodemographic and clinical characteristics associated with major suicide attempt repeaters

Accreditation Statement
The CME Institute of Physicians Postgraduate Press, Inc., is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Credit Designation
The CME Institute of Physicians Postgraduate Press, Inc., designates this journal-based CME activity for a maximum of 1.0 *AMA PRA Category 1 Credit™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Note: The American Academy of Physician Assistants (AAPA) accepts certificates of participation for educational activities certified for *AMA PRA Category 1 Credit™* from organizations accredited by ACCME or a recognized state medical society. Physician assistants may receive a maximum of 1.0 hour of Category I credit for completing this program.

Date of Original Release/Review
This educational activity is eligible for *AMA PRA Category 1 Credit™* through August 31, 2017. The latest review of this material was July 2014.

Financial Disclosure
All individuals in a position to influence the content of this activity were asked to complete a statement regarding all relevant personal financial relationships between themselves or their spouse/partner and any commercial interest. The CME Institute has resolved any conflicts of interest that were identified. In the past year, Larry Culpepper, MD, MPH, Editor in Chief, has been a consultant for Forest, Lundbeck, Merck, Sunovion, and Takeda. No member of the CME Institute staff reported any relevant personal financial relationships. **Faculty financial disclosure appears with the article.**

A Cross-Sectional Study of Major Repeaters: A Distinct Phenotype of Suicidal Behavior

Hilario Blasco-Fontecilla, MD, PhD; Isabelle Jaussent, PhD; Emilie Olié, MD, MsC; Severine Béziat, MSc; Sebastien Guillaume, MD, PhD; Paula Artieda-Urrutia, MD; Enrique Baca-Garcia, MD, PhD; Jose de Leon, MD; and Philippe Courtet, MD, PhD

ABSTRACT

Objective: The characterization of major repeaters (individuals with ≥ 5 lifetime suicide attempts) is a neglected area of research. Our aim was to establish whether or not major repeaters are a distinctive suicidal phenotype, taking into account a wide range of potential competing risks including sociodemographic characteristics, personal and familial history, psychiatric diagnoses, and personality traits.

Method: This cross-sectional study included 372 suicide attempters admitted to a specialized unit for suicide attempters in Montpellier University Hospital, Montpellier, France, between October 12, 2000, and June 10, 2010. Logistic regression models controlling for potential confounders were used.

Results: When compared with subjects who attempted suicide < 5 times, major repeaters were more likely to be female (odds ratio [OR] = 5.54; 95% CI, 1.41–21.81), to have a lower educational level (OR = 5.1; 95% CI, 1.55–17.2), to have lifetime diagnoses of anorexia nervosa (OR = 3.45; 95% CI, 1.10–10.84) and substance dependence (OR = 5.00; 95% CI, 1.37–18.27), and to have lower levels of anger expressed outward (OR = 0.17; 95% CI, 0.06–0.47) and higher levels of trait anger (OR = 2.82; 95% CI, 1.18–6.75). Major repeaters had significantly higher suicide risk (lethality) scores (OR = 2.14; 95% CI, 1.08–4.23).

Conclusion: Major repeaters are a distinctive suicidal phenotype characterized by a distinctive sociodemographic (ie, female gender, low education) and clinical profile (ie, trait anger, substance dependence, anorexia nervosa). If our results are replicated, specific preventive plans should be tailored to major repeaters.

Prim Care Companion CNS Disord 2014;16(4):doi:10.4088/PCC.14m01633
© Copyright 2014 Physicians Postgraduate Press, Inc.

Submitted: *February 1, 2014; accepted April 25, 2014.*
Published online: *August 7, 2014.*
Corresponding author: *Hilario Blasco-Fontecilla, MD, PhD, Villalba MHC, Department of Psychiatry, IDIPHIM-Puerta de Hierro University Hospital, CIBERSAM, Calle de Los Madroños 5, 28400 Collado Villalba, Spain (hmblasco@yahoo.es).*

Every year, 10 to 20 million people attempt suicide.[1] Suicide attempts are between 10 and 40 times more frequent than completed suicides.[2] Repetition of suicide attempts is frequent, and its study is important at least for 2 reasons. First, a history of suicide attempts is the strongest predictor of future suicidal behavior.[3] Indeed, the estimated rate of nonfatal suicide attempt repetition among suicide attempters is up to 40% after 3 to 8 years of follow-up.[4–6] Second, suicide attempts represent a major source of economic burden.[7]

The repetition of suicide attempts has been related to various risk factors: (1) sociodemographic (age and low educational level),[8] unemployment,[9] or being unmarried[10]; (2) personal history, particularly childhood abuse[11]; and (3) psychopathological (personality disorders,[12] anxiety disorders,[13] and addictions,[14] among others). Moreover, repetition of suicide attempts has been related to a greater severity of suicidal symptoms.[15] Although the literature comparing

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

Clinical Points

- Major repeaters appear to be a distinctive suicidal phenotype characterized by a distinctive sociodemographic and clinical profile.
- Major repeaters are more likely to be diagnosed with any type of childhood maltreatment.
- Specific preventive plans should be tailored to major repeaters.

multiple suicide attempters versus single attempters is vast,[16,17] the characterization of major repeaters (individuals with ≥5 lifetime suicide attempts) is particularly poor.[18] Major repeaters represent about 10%–15% of all suicide attempters.[18–20] They are heavy consumers of health resources, pose a challenge to clinicians,[18] and are at higher risk of suicide completion.[21,22]

Unfortunately, apart from the study by Kreitman and Casey,[18] there are no further methodologically sound studies considering this subcategory of multiple suicide attempters. In their seminal article, Kreitman and Casey[18] studied over 3,000 individuals admitted to the Regional Poisoning Treatment Center, Edinburgh, Scotland, for parasuicide. They arbitrarily divided individuals into those with no previous parasuicide ("first-evers"), those with a lifetime history of 2–4 parasuicides ("minor repeaters"), and those with ≥5 lifetime parasuicides ("major or grand repeaters"). Interestingly, they warned that the variables associated with an increased risk of repetition of parasuicide were not necessarily the same as those related to major repetition.[18]

In sum, there has been little research regarding the clinical profile of major repeaters. The identification of major repeaters as a distinctive suicidal phenotype is important because specific prevention plans could help to reduce the economic burden and suicide risk of this subpopulation. The main objective of the present study was to better characterize major repeaters and to test whether or not they represent a distinctive suicidal phenotype. We expected to find that major repeaters are more likely (1) to be diagnosed with childhood trauma (abuse/neglect), (2) to have pathological personality traits (impulsivity, novelty seeking, harm avoidance, and anger), and (3) to have a more severe suicide profile when compared with non–major suicide attempters (individuals with 1 to 4 lifetime suicide attempts).

METHOD

Sample

The study included 372 suicide attempters. The mean patient age was 40.3 years (SD = 13.3; range, 18–83). The prevalence of female gender was 71% (264/372), of higher education (>12 years) was 45% (166/372), and of married status was 38% (140/372).

Procedure

All participants were assessed using a protocol designed to collect information regarding sociodemographic (age, gender, marital status, years of education, number of children) and clinical variables (prematurity, history of childhood abuse/neglect, family history of suicidal behavior, Mini-International Neuropsychiatric Interview [MINI] diagnoses, and personality traits) following a guideline for suicide assessment.[23] Data were obtained cross-sectionally from suicide attempters consecutively hospitalized after a suicide attempt in a unit of the Montpellier University Hospital, Montpellier, France, which specializes in treating suicide, between October 12, 2000, and June 10, 2010. A suicide attempt was defined as a self-destructive behavior with intent to end one's life independent of resulting damage.[24,25] To be included, patients had to be aged ≥18 years, to be French-speaking, and to have all 4 biological grandparents from Western European countries, as the present study is based on an ongoing genetic study of suicide attempt. More information can be found elsewhere.[26] All participants signed an informed consent form after the explanation of the study objective and procedures. The local Ethics Committee (CPP Sud Mediterranée IV, CHU Montpellier, France) approved the study.

Measures

Psychiatric diagnoses using the MINI[27] were provided by trained psychiatrists or clinical psychologists. They held consensus meetings and were regularly monitored by the experienced psychiatrists who were investigators in the study (E.O., S.G., P.C.).

Childhood abuse was assessed with the validated French version of the 28-item Childhood Trauma Questionnaire (CTQ).[28,29] The CTQ is a self-report questionnaire with good reliability and validity for screening diagnoses of physical, sexual, and emotional abuse and emotional and physical neglect.[30] The CTQ has demonstrated excellent test-retest reliability and convergent validity.[31] Each item is rated from 1 (never) to 5 (very often), and scores range from 5 to 25 for each type of trauma. According to Bernstein and Fink,[28] thresholds or cutoff scores have been set for each type of trauma at 4 levels of maltreatment: none, low, moderate, and severe. The different cutoffs have been shown to have good specificity and sensibility.[28]

Personality traits were studied with 3 scales. The French version of the Tridimensional Personality Questionnaire is a 100-item true/false questionnaire that measures novelty seeking, harm avoidance, and reward dependence.[32] The French version of the Barratt Impulsiveness Scale Version 10 was used to evaluate impulsivity traits.[33] The scale includes 34 self-report items scored 1 to 4 (rarely/never, occasionally, often, and almost always/always), with a score of 4 indicating the highest impulsivity.[34] The French version of the State-Trait Anger Expression Inventory was used to measure anger.[35] This 44-item questionnaire has 5 subscales measuring anger as an emotional state (state anger), a trait (trait anger), and 3 facets of anger expression: (1) anger expressed outward (anger-out), (2) anger that is experienced but suppressed (anger-in), and (3) control of angry feelings (anger-control).[36]

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

Prim Care Companion CNS Disord
2014;16(4):doi:10.4088/PCC.14m01633

Table 1. Sociodemographic Characteristics in Major Repeaters Versus Non–Major Repeaters

Variable	No. of Suicide Attempts: <5 (n = 335)	No. of Suicide Attempts: ≥5 (n = 37)	Odds Ratio (95% CI)	*P* Value
Age terciles, n (%)				
<33.79, y	112 (33.4)	12 (32.4)	1	.79
33.79–47.38, y	109 (32.6)	14 (37.9)	1.20 (0.53–2.71)	
>47.38, y	114 (34.0)	11 (29.7)	0.90 (0.38–2.13)	
Gender, n (%)				
Male	105 (31.3)	3 (8.1)	1	.007
Female	230 (68.7)	34 (91.9)	5.17 (1.55–17.2)	
Marital status, n (%)				
Single	111 (33.1)	15 (40.6)	1	.65
Separated/widowed	97 (29.0)	9 (24.3)	0.69 (0.29–1.64)	
Married/cohabiting	127 (37.9)	13 (35.1)	0.76 (0.35–1.66)	
Education, n (%)				
≤12, y	178 (53.1)	28 (75.7)	1	.01
>12, y	157 (46.9)	9 (24.3)	0.36 (0.17–0.80)	
No. of children (range)	1 (0–7)	1 (0–3)	0.85 (0.64–1.13)	.25

Table 2. Personal and Familial Risk History in Major Repeaters Versus Non–Major Repeaters[a]

Variable	No. of Suicide Attempts: <5 (n = 335)	No. of Suicide Attempts: ≥5 (n = 37)	Odds Ratio (95% CI)	*P* Value
Prematurity[b]				
No	318 (94.9)	36 (97.3)	1	.53
Yes	17 (5.1)	1 (2.7)	0.52 (0.07–4.02)	
Childhood Trauma Questionnaire				
Physical abuse				
None/low	259 (77.3)	22 (59.5)	1	.02
Moderate/severe	76 (22.7)	15 (40.5)	2.32 (1.15–4.70)	
Emotional neglect				
None/low	189 (56.4)	13 (35.1)	1	.02
Moderate/severe	146 (43.6)	24 (64.9)	2.39 (1.18–4.85)	
Physical neglect				
None/low	248 (74.0)	22 (59.5)	1	.06
Moderate/severe	87 (26.0)	15 (40.5)	1.94 (0.96–3.91)	
Sexual abuse				
None/low	255 (76.1)	22 (59.5)	1	.03
Moderate/severe	80 (23.9)	15 (40.5)	2.17 (1.08–4.39)	
Emotional abuse				
None/low	210 (62.7)	13 (35.1)	1	.002
Moderate/severe	125 (37.3)	24 (64.9)	3.10 (1.52–6.31)	
No. of abuse incidents				
0	167 (49.8)	10 (27.1)	1	.009
1	83 (24.8)	8 (21.6)	1.61 (0.61–4.23)	
2	57 (17.0)	11 (29.7)	3.22 (1.30–7.99)	
3	28 (8.4)	8 (21.6)	4.77 (1.73–13.1)	
No. of neglect incidents				
0	165 (49.3)	11 (29.8)	1	.03
1	107 (31.9)	13 (35.1)	1.82 (0.79–4.22)	
2	63 (18.8)	13 (35.1)	3.10 (1.32–7.27)	
Familial history of suicidal behavior				
No	221 (66.0)	21 (56.8)	1	.27
Yes	114 (34.0)	16 (43.2)	1.48 (0.74–2.94)	

[a]All values are presented as n (%).
[b]Born before 31 weeks of pregnancy.

Finally, a series of questionnaires was used to explore the severity of suicidal behavior. The Risk-Rescue Rating Scale (RRRS) is a 10-item, interviewer-administered scale designed to evaluate lethality of a suicide attempt, measuring the risk of death derived from the attempt and the likelihood of a rescue intervention at the time of the attempt.[37] The Suicidal Intent Scale is a semistructured 15-item rating scale that measures the severity of suicidal intent.[38] We used the global score and the "planning factor" score derived from a factor analysis of the Suicidal Intent Scale.[39] The Scale for Suicidal Ideation is a 19-item interviewer-rated questionnaire[40] with items rated on a 3-point scale. The total score can range between 0 and 38.[41]

Age at first suicide attempt was classified as <26 years versus ≥26 years; 26 years of age was the best cutoff point to separate between early onset and late-onset first suicide attempt subgroups.[42] According to the categories of Asberg et al,[43] hanging, jumping from heights, use of firearms or knives, and throwing oneself under a train were considered violent suicide attempts, while drug overdose and superficial wrist cutting were classified as nonviolent.

Statistical Analyses

As the hypothesis of a normal distribution was rejected (Shapiro-Wilk test), the number of suicide attempts was categorized as follows. Patients were divided into those with total lifetime suicide attempts ≥5 (major repeaters) and those with total suicide attempts <5 (non–major repeaters). Five suicide attempts correspond approximately to the lowest decile of our distribution. Univariate analyses of the associations between major repeaters and patient characteristics (sociodemographic characteristics, personal and familial history, MINI psychiatric diagnoses, and personality traits) were quantified with odds ratios (ORs) and their 95% confidence intervals (CIs) using regression logistic models. Explored continuous variables such as personality traits were divided into terciles with the lowest or highest tercile compared to the remaining 2, the linearity assumption being rejected for most variables. Variables associated with being a major suicide repeater ($P<.10$) were then introduced into a multivariable logistic regression model. Significance level was set at $P<.05$. Another set of univariate analyses of the associations between major repeaters with suicide severity was calculated. SAS statistical software, version 9.2 (SAS, Inc, Cary, North Carolina) was used for the statistical analyses.

RESULTS

The frequency of major repeaters was 10% (37/372) in the total sample, 2.8% (3/108) in men, and 12.8% (34/264) in women. When compared with non–major suicide attempters, major repeaters displayed significant differences in (1) sociodemographic characteristics including preponderance of women (92%; OR = 5.17; 95% CI, 1.55–17.2) and lower frequency of higher education (OR = 0.36; 95% CI, 0.17–0.80) (Table 1) and (2) personal variables including almost all CTQ dimensions (Table 2). No significant association was found between familial history of suicidal behavior and major repeaters.

When compared with non–major suicide attempters, major repeaters displayed significant differences in (1) psychiatric diagnoses, including significantly higher frequency of anorexia nervosa (OR = 2.90; 95% CI,

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

Table 3. Psychiatric Diagnoses in Major Repeaters Versus Non–Major Repeaters[a]

Variable	No. of Suicide Attempts: <5 (n = 335)	No. of Suicide Attempts: ≥5 (n = 37)	Odds Ratio (95% CI)	*P* Value
Major depressive episode				
No	91 (27.2)	12 (32.4)	1	.50
Yes	244 (72.8)	25 (67.6)	0.78 (0.37–1.61)	
Bipolar disorder				
No	253 (75.5)	25 (67.6)	1	.29
Yes	82 (24.5)	12 (32.4)	1.48 (0.71–3.08)	
Anxiety disorder				
No	110 (32.8)	8 (21.6)	1	.17
Yes	225 (67.2)	29 (78.4)	1.77 (0.78–4.00)	
Schizophrenia				
No	332 (99.1)	37 (100.0)		NA
Yes	3 (0.9)	0 (0.0)		
Anorexia nervosa				
No	314 (93.7)	31 (83.8)	1	.03
Yes	21 (6.3)	6 (16.2)	2.90 (1.09–7.71)	
Bulimia nervosa				
No	307 (91.6)	29 (78.4)	1	.01
Yes	28 (8.4)	8 (21.6)	3.03 (1.26–7.24)	
Smoking				
No	106 (31.6)	12 (32.4)	1	.92
Yes (past or present)	229 (68.4)	25 (67.6)	0.96 (0.47–1.99)	
Alcohol dependence				
No	293 (87.5)	32 (86.5)	1	.87
Yes	42 (12.5)	5 (13.5)	1.09 (0.40–2.95)	
Substance dependence				
No	317 (94.6)	32 (86.5)	1	.06
Yes	18 (5.4)	5 (13.5)	2.75 (0.96–7.91)	

[a]All values are presented as n (%).
Abbreviation: NA = not applicable.

Table 4. Personality Traits in Major Repeaters Versus Non–Major Repeaters[a]

Variable	No. of Suicide Attempts: <5 (n = 335)	No. of Suicide Attempts: ≥5 (n = 37)	Odds Ratio (95% CI)	*P* Value
Tridimensional Personality Questionnaire				
Novelty seeking				
<18	211 (62.99)	28 (75.68)	1	.13
≥18[b]	124 (37.01)	9 (24.32)	0.55 (0.25–1.20)	
Harm avoidance				
<24	223 (66.60)	19 (51.30)	1	.07
≥24	112 (33.40)	18 (48.70)	1.89 (0.95–3.74)	
Reward dependence				
<19	190 (56.72)	24 (64.86)	1	.34
≥19[b]	145 (43.28)	13 (35.14)	0.71 (0.35–1.44)	
Barratt Impulsiveness Scale Version 10				
Total score				
<68	222 (66.30)	25 (67.60)	1	.87
≥68	113 (33.70)	12 (32.40)	0.94 (0.46–1.95)	
Planning difficulty				
<22	217 (64.78)	23 (62.16)	1	.75
≥22[b]	118 (35.22)	14 (37.84)	1.12 (0.56–2.26)	
Motor impulsivity				
<23	209 (62.39)	24 (64.86)	1	.77
≥23[b]	126 (37.61)	13 (35.14)	0.90 (0.44–1.83)	
Cognitive impulsivity				
<24	205 (61.19)	20 (54.05)	1	.40
≥24[b]	130 (38.81)	17 (45.95)	1.34 (0.68–2.65)	
State-Trait Anger Expression Inventory				
Anger control				
<23	212 (63.28)	23 (62.16)	1	.89
≥23[b]	123 (36.72)	14 (37.84)	1.05 (0.52–2.11)	
Anger-out				
<19	217 (64.78)	29 (78.38)	1	.10
≥19	118 (35.22)	8 (21.62)	0.51 (0.22–1.15)	
Anger-in				
<19	90 (26.87)	12 (32.43)	1	.47
≥19	245 (73.13)	25 (67.57)	0.77 (0.37–1.59)	
Trait anger				
<27	206 (61.49)	16 (43.24)	1	.03
≥27	129 (38.51)	21 (56.76)	2.10 (1.05–4.16)	
State anger				
<16	112 (33.43)	8 (21.62)	1	.15
≥16	223 (66.57)	29 (78.38)	1.82 (0.81–4.11)	

[a]All values are presented as n (%).
[b]Highest tercile.

1.09–7.71), bulimia nervosa (OR = 3.03; 95% CI, 1.26–7.24), and substance dependence (OR = 2.75; 95% CI, 0.96–7.91; borderline significance) (Table 3) and (2) personality traits, including higher frequency of trait anger (OR = 2.10; 95% CI, 1.05–4.16) (Table 4).

We carried out a logistic regression including all significant univariate sociodemographic, personal and familial history, and psychiatric diagnosis variables with $P \leq .10$ (Table 5). In this model, female gender, low education level, anorexia nervosa, substance dependence, high trait anger, and low level of anger expressed outward remained significant and were independently associated with major repeaters.

We also explored in another set of univariate analyses whether major repeaters were a particular subgroup of suicide attempters characterized by a more severe suicide profile. Major repeaters had significantly higher frequency of earlier onset at first suicide attempt (OR = 2.23; 95% CI, 1.12–4.45; $P = .02$) and of being in the highest tercile of the RRRS risk score (OR = 2.14; 95% CI, 1.08–4.23; $P = .03$). There was also a borderline significance for rescue RRRS (OR = 1.88; 95% CI, 0.94–3.74; $P = .07$), violent suicide attempts (OR = 2.06; 95% CI, 0.96–4.41; $P = .06$), and expectancy of lethality (OR = 1.88; 95% CI, 0.94–3.72; $P = .07$) (Table 6).

DISCUSSION

Here, we have further refined the concept of repetition of suicidal behavior by suggesting that major repeaters may represent a distinctive suicidal phenotype of individuals characterized by female gender, a lower level of education, childhood maltreatment, higher trait anger and lower level of anger expressed outward, and the presence of anorexia nervosa and substance dependence. Moreover, major repeaters had an older age at onset of suicidal behavior than the remaining suicide attempters. Furthermore, major repetition of suicidal behavior was not related to major depression, bipolar disorder, anxiety disorders, or a family history of suicidal behavior. Our results demonstrate, importantly, some risk factors characteristic of female major repeaters. However, in order to give a more reliable characterization of major repeaters, future studies should combine neurobiological (eg, genetic, epigenetic, neuroimaging) and clinical information.

The prevalence of major repeaters in our study (10%) was consistent with available literature (4.5%–16%).[18,44,45] Furthermore, major repeaters were almost exclusively women (91.9%). The literature agrees that women attempt suicide 2 to 3 times more frequently than men.[46] Less clear

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

Prim Care Companion CNS Disord
2014;16(4):doi:10.4088/PCC.14m01633

Table 5. Multivariate Logistic Regression in Major Repeaters Versus Non–Major Repeaters

Variable	Odds Ratio (95% CI)	*P* Value
Gender		
Male	1	.01
Female	5.54 (1.41–21.81)	
Education, y		
≤ 12	1	.008
> 12	0.30 (0.12–0.73)	
Bulimia nervosa		
No	1	.24
Yes	1.84 (0.66–5.11)	
Anorexia nervosa		
No	1	.03
Yes	3.45 (1.10–10.84)	
Substance dependence		
No	1	.01
Yes	5.00 (1.37–18.27)	
Childhood Trauma Questionnaire		
No. of abuse incidents		
0	1	.22
1	1.02 (0.33–3.15)	
2	2.08 (0.65–6.65)	
3	3.38 (0.90–12.70)	
No. of neglect incidents		
0	1	.61
1	1.57 (0.57–4.32)	
2	1.07 (0.33–3.47)	
Tridimensional Personality Questionnaire		
Harm avoidance		
< 24	1	.12
≥ 24	1.89 (0.85–4.19)	
State-Trait Anger Expression Inventory		
Anger-Out		
< 19	1	.0006
≥ 19	0.17 (0.06–0.47)	
Trait anger		
< 27	1	.02
≥ 27	2.82 (1.18–6.75)	

Table 6. Suicide Attempt Severity in Major Repeaters Versus Non–Major Repeaters[a]

Variable	No. of Suicide Attempts <5 (n=335)	No. of Suicide Attempts ≥5 (n=37)	Odds Ratio (95% CI)	*P* Value
Age at first suicide attempt, y				
≥26	202 (60.3)	15 (40.5)	1	.02
<26	133 (39.7)	22 (59.5)	2.23 (1.12–4.45)	
Violent suicide attempt				
No	278 (83.0)	26 (70.3)	1	.06
Yes	57 (17.0)	11 (29.7)	2.06 (0.96–4.41)	
Risk-Rescue Rating Scale				
Risk score				
<9	216 (64.48)	17 (45.95)	1	.03
≥9[b]	119 (35.52)	20 (54.05)	2.14 (1.08–4.23)	
Rescue score				
<13	188 (56.12)	15 (40.54)	1	.07
≥13[b]	147 (43.88)	22 (59.46)	1.88 (0.94–3.74)	
Suicidal Intent Scale				
Planning score				
<7	182 (54.33)	24 (64.86)	1	.22
≥7[b]	153 (45.67)	13 (35.14)	0.64 (0.32–1.31)	
Expectancy of lethality score				
<12	206 (61.49)	17 (45.95)	1	.07
≥12[b]	129 (38.51)	20 (54.05)	1.88 (0.95–3.72)	
Total score				
<19	215 (64.18)	23 (62.16)	1	.81
≥19[b]	120 (35.82)	14 (37.84)	1.09 (0.54–2.20)	
Scale for Suicidal Ideation				
<26	218 (65.07)	21 (56.76)	1	.32
≥26[b]	117 (34.93)	16 (43.24)	1.42 (0.71–2.83)	

[a]All values are presented as n (%).
[b]Highest tercile.

is to what extent female gender poses increased risk for major suicide repetition.[18] Furthermore, major repeaters were more likely to be diagnosed with any type of childhood maltreatment in the univariate analyses. Childhood or adolescence victimization has been associated with several addictions,[47] substance use disorders in adolescents,[48] and suicidal behavior,[49] including repetition of suicide attempts.[11] Interestingly, the greater the number of different types of CTQ-measured abuse or neglect, the higher the likelihood of being diagnosed as a major repeater.

After correcting for confounders, anorexia nervosa, substance dependence, and trait anger were independently associated with major repeater status. Individuals diagnosed with anorexia nervosa, particularly purging, are more likely to attempt suicide.[50–52] In suicide attempters diagnosed with eating disorders, suicide attempts are not only frequent, but also more serious and related to a higher expectation that they will die from the attempt compared to other suicide attempters.[53] As for the relationship between substance dependence and major repetition, individuals with substance-related disorders are at increased risk for suicidal behavior, including repetition of suicidal behavior.[16,54–57] With regard to personality traits, major repeaters were more likely to manifest higher scores of trait anger, but were not able to express this anger outward. Anger can be expressed toward other persons/objects ("externalized"), suppressed/directed inward ("internalized"), or controlled.[58] Our study suggests that major repeaters appear to direct inward the excess of anger. High anger has traditionally been suggested to contribute to suicide risk.[59] Our results are in keeping with a recent study with 748 inpatients aged 18–40 years.[60] In this study, the authors reported that facets of anger predicted suicide attempts following hospital discharge for patients with a history of childhood sexual abuse.[60] Our intuition that major repeaters had more severe suicide attempts was also confirmed. Indeed, repetition of deliberate self-harming has previously been associated with continuing suicide risk.[61] Finally, another fact that further supports the theory that major repeaters are a characteristic suicidal phenotype is our finding that they had an older age at onset of suicidal behavior. This is in contradiction with most of the studies published so far, which report an association between repetition of suicidal behavior[61,62] and either a younger age or an earlier onset of suicidal behavior.[42] Our results displaying that major repeaters had an older age at onset of suicidal behavior represent a new finding and might help emergency room personnel in evaluating suicide attempters.

Our results could also be interpreted as bringing some support to the addictive hypothesis of suicidal behavior.[63] Goodman[64] suggested that addictive disorders may include not only substance use disorders, but also behavioral addictions. In this context, Tullis[65] proposed that suicidal

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

individuals showing childhood abuse/neglect, affective disorders, and multiple addictions could get addicted to suicidal behavior. We recently refined the theory of addiction to suicidal behavior by proposing that major repeaters may be the individuals addicted to suicidal behavior.[63] Suicidal behavior produces relief from negative emotions, reduces mental pain, and raises social support. Therefore, we suggested that the likely release of endogenous opioids might underlie the addiction to suicidal behavior. Literature compatible with this hypothesis includes the cathartic effect of suicidal behavior,[66] defined as a sudden decrease in the symptoms associated with suicidal behavior following a suicidal crisis,[67] and Beck's "sensitizing" suicidal behavior hypothesis.[68] Beck suggested that previous suicidal behavior sensitizes suicidal thoughts and behaviors, such that they become more autonomous and easily precipitated.[68] In any case, currently, there is no direct evidence for the addictive hypothesis of suicidal behavior.

Another putative interpretation is that major repeaters in our sample are female patients diagnosed with borderline personality disorder. Patients with borderline personality disorder are frequently diagnosed with substance use disorders, eating disorders,[69] and multiple suicide attempter status.[70] Our study had no tool to diagnose borderline personality disorder, so we cannot rule out this possibility. However, research showed that multiple suicide attempters display greater psychopathology than single suicide attempters even after controlling for borderline personality disorder diagnosis.[16] Furthermore, major repeaters in our sample were not characterized by higher levels of impulsivity, a frequent criterion of borderline personality disorder.

Finally, major repetition of suicidal behavior was not related to bipolar disorder, major depression, anxiety disorders, or a family history of suicidal behavior. However, the prevalence of these disorders and familial history of suicidal behavior was frequent in either major repeaters or the remaining suicide attempters. In keeping with the literature, our results support that all of these factors—bipolar disorder, major depression, and anxiety—are risk factors for suicidal behavior, but they are not specific to major repetition of suicidal behavior.[71–74]

Strengths and Limitations

The major strengths of the current study are its large sample size and the unbiased representativeness of our sample of suicide attempters. Unfortunately, the sample size was not big enough to discuss differences in men (n = 3). Thus, our results might only be valid or important for female major repeaters. Furthermore, as all retrospective studies, this study provided only statistical associations, which cannot be interpreted as providing causal connections.[57] However, retrospective analyses are useful for pointing out potential characteristics of major repeaters. Another limitation is that we collapsed single attempters and "minor repeaters" into one category to gain statistical power. Some authors have stressed that the differentiation between single and multiple suicide attempters at a single point in a given time might not be the best way to correctly identify major suicide attempters, since a significant proportion of single attempters will become major repeaters.[16,17] It is possible that by refining the categorization of multiple suicide attempters we gain some insight into the mechanisms underlying suicidal behavior.[16] Furthermore, our study relies on an inpatient sample, thus limiting the generalizability of our findings to larger community samples of people who may not seek treatment and/or hospitalization following a suicide attempt.

CONCLUSIONS

The present study suggests that major repeaters represent a subgroup of multiple suicide attempters who present a unique profile characterized by female gender; lower educational level; elevated trait anger, which is not expressed outward; and the presence of eating disorders and substance dependence. Our results demonstrate some risk factors characteristic of major repeaters of female gender. If our results are replicated, major repeaters may benefit from specific therapeutic strategies traditionally used for substance addictions. By implementing specific prevention plans tailored to those suicide attempters showing the clinical profile of major repeaters during their first suicide attempts, we might contribute to reducing the rates of suicidal behavior.

Author affiliations: Department of Psychiatry, IDIPHIM-Puerta de Hierro University Hospital, Majadahonda, Madrid, Spain (Drs Blasco-Fontecilla and Artieda-Urrutia); CIBERSAM (Dr Blasco-Fontecilla), Madrid, Spain; Inserm, U1061 and Université Montpellier I (Drs Jaussent, Olié, Guillaume, and Courtet and Ms Béziat), Montpellier, France; Psychiatric Emergency and Post Emergency Department, Centre Hospitalier Regional Universitaire Montpellier, Hôpital Lapeyronie, Montpellier, France (Drs Guillaume, Olié, and Courtet); Department of Psychiatry, IIS-FJD, CIBERSAM, Madrid, Spain (Dr Baca-Garcia); and Mental Health Research Center, Eastern State Hospital, Lexington, Kentucky (Dr de Leon).

Potential conflicts of interest: **Dr Blasco-Fontecilla** has served on the speakers' or advisory boards of AB-Biotics, Eli Lilly, and Shire. **Dr Guillaume** has received grant/research support from Servier Laboratory and served on the speakers' or advisory boards of Bristol-Myers Squibb, Janssen, Lundbeck, and Servier. **Drs Jaussent**, **Olié**, **Artieda-Urrutia**, **Baca-Garcia**, **de Leon**, and **Courtet** and **Ms Béziat** report no conflicts of interest related to the subject of this article.

Funding/support: This research was supported by grants from CHU Montpellier (PHRC UF 7653) and Agence Nationale de la Recherche (NEURO 2007—GENESIS). Dr Guillaume received a grant from l'Institut Servier. Dr Blasco-Fontecilla acknowledges the Spanish Ministry of Health (Rio Hortega CM08/00170), Alicia Koplowitz Foundation, and Conchita Rabago Foundation for funding his post-doctoral stage at Centre Hospitalier Regional Universitaire, Montpellier, France.

Role of the sponsors: Sponsorship allowed for the collection and management of data and the preparation of the manuscript.

Previous presentation: An oral presentation of this article titled "On Pain, Suicide, and Addiction: the Addictive Hypothesis of Suicidal Behavior" was given at The International Academy of Suicide Research 2013 World Congress on Suicide; June 10–13 2013; Montreal, Canada.

Acknowledgments: The authors acknowledge Lorraine Maw, MA (Mental Health Research Center, Eastern State Hospital, Lexington, Kentucky), who helped in editing this article. Ms Maw reports no conflicts of interest related to the subject of this study.

REFERENCES

1. WHO. *Figures and Facts About Suicide*. Geneva, Switzerland: World Health Organization; 1999.

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

Prim Care Companion CNS Disord
2014;16(4):doi:10.4088/PCC.14m01633

2. Platt S, Bille-Brahe U, Kerkhof A, et al. Parasuicide in Europe: the WHO/EURO multicentre study on parasuicide, I: introduction and preliminary analysis for 1989. *Acta Psychiatr Scand*. 1992;85(2):97–104.
3. Oquendo MA, Galfalvy H, Russo S, et al. Prospective study of clinical predictors of suicidal acts after a major depressive episode in patients with major depressive disorder or bipolar disorder. *Am J Psychiatry*. 2004;161(8):1433–1441.
4. Brauns ML, Berzewski H. Follow-up study of patients with attempted suicide. *Int J Soc Psychiatry*. 1988;34(4):285–291.
5. Johnsson Fridell E, Ojehagen A, Träskman-Bendz L. A 5-year follow-up study of suicide attempts. *Acta Psychiatr Scand*. 1996;93(3):151–157.
6. Rygnestad T. A prospective 5-year follow-up study of self-poisoned patients. *Acta Psychiatr Scand*. 1988;77(3):328–331.
7. Czernin S, Vogel M, Flückiger M, et al. Cost of attempted suicide: a retrospective study of extent and associated factors. *Swiss Med Wkly*. 2012;142:w13648.
8. Christiansen E, Jensen BF. Risk of repetition of suicide attempt, suicide or all deaths after an episode of attempted suicide: a register-based survival analysis. *Aust N Z J Psychiatry*. 2007;41(3):257–265.
9. Tejedor MC, Díaz A, Castillón JJ, et al. Attempted suicide: repetition and survival—findings of a follow-up study. *Acta Psychiatr Scand*. 1999;100(3):205–211.
10. Kreitman N, Foster J. The construction and selection of predictive scales, with special reference to parasuicide. *Br J Psychiatry*. 1991;159(2):185–192.
11. Ystgaard M, Hestetun I, Loeb M, et al. Is there a specific relationship between childhood sexual and physical abuse and repeated suicidal behavior? *Child Abuse Negl*. 2004;28(8):863–875.
12. Blasco-Fontecilla H, Baca-Garcia E, Dervic K, et al. Severity of personality disorders and suicide attempt. *Acta Psychiatr Scand*. 2009;119(2):149–155.
13. Lopez-Castroman J, Perez-Rodriguez ML, Jaussent I, et al; European Research Consortium for Suicide (EURECA). Distinguishing the relevant features of frequent suicide attempters. *J Psychiatr Res*. 2011;45(5):619–625.
14. Monnin J, Thiemard E, Vandel P, et al. Sociodemographic and psychopathological risk factors in repeated suicide attempts: gender differences in a prospective study. *J Affect Disord*. 2012;136(1–2):35–43.
15. Pettit JW, Joiner TE Jr, Rudd MD. Kindling and behavioral sensitization: are they relevant to recurrent suicide attempts? *J Affect Disord*. 2004;83(2–3):249–252.
16. Forman EM, Berk MS, Henriques GR, et al. History of multiple suicide attempts as a behavioral marker of severe psychopathology. *Am J Psychiatry*. 2004;161(3):437–443.
17. Rudd MD, Joiner T, Rajab MH. Relationships among suicide ideators, attempters, and multiple attempters in a young-adult sample. *J Abnorm Psychol*. 1996;105(4):541–550.
18. Kreitman N, Casey P. Repetition of parasuicide: an epidemiological and clinical study. *Br J Psychiatry*. 1988;153(6):792–800.
19. Bille-Brahe U, Kerkhof A, De Leo D, et al. A repetition-prediction study on European parasuicide populations: part II of the WHO/Euro Multicentre Study on Parasuicide in cooperation with the EC Concerted Action on Attempted Suicide. *Crisis*. 1996;17(1):22–31.
20. Barnes RA. The recurrent self-harm patient. *Suicide Life Threat Behav*. 1986;16(4):399–408.
21. King CA, Segal H, Kaminski K, et al. A prospective study of adolescent suicidal behavior following hospitalization. *Suicide Life Threat Behav*. 1995;25(3):327–338.
22. Lewinsohn PM, Rohde P, Seeley JR. Psychosocial risk factors for future adolescent suicide attempts. *J Consult Clin Psychol*. 1994;62(2):297–305.
23. Baca-García E, Oquendo MA, Saiz-Ruiz J, et al. A pilot study on differences in aggression in New York City and Madrid, Spain, and their possible impact on suicidal behavior. *J Clin Psychiatry*. 2006;67(3):375–380.
24. O'Carroll PW, Berman AL, Maris RW, et al. Beyond the Tower of Babel: a nomenclature for suicidology. *Suicide Life Threat Behav*. 1996;26(3):237–252.
25. Silverman MM, Berman AL, Sanddal ND, et al. Rebuilding the tower of Babel: a revised nomenclature for the study of suicide and suicidal behaviors, part 2: suicide-related ideations, communications, and behaviors. *Suicide Life Threat Behav*. 2007;37(3):264–277.
26. Courtet P, Baud P, Abbar M, et al. Association between violent suicidal behavior and the low activity allele of the serotonin transporter gene. *Mol Psychiatry*. 2001;6(3):338–341.
27. Sheehan DV, Lecrubier Y, Sheehan KH, et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for *DSM-IV* and *ICD-10*. *J Clin Psychiatry*. 1998;59(suppl 20):22–33, quiz 34–57.
28. Bernstein DP, Fink L. *Childhood Trauma Questionnaire: A Restrospective Self-Report Manual*. San Antonio, TX: The Psychological Corporation; 1998.
29. Paquette D, Laporte L, Bigras M, et al. Validation of the French version of the CTQ and prevalence of the history of maltreatment [French]. *Sante Ment Que*. 2004;29(1):201–220.
30. Bernstein DP, Stein JA, Newcomb MD, et al. Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse Negl*. 2003;27(2):169–190.
31. Bernstein DP, Fink L, Handelsman L, et al. Initial reliability and validity of a new retrospective measure of child abuse and neglect. *Am J Psychiatry*. 1994;151(8):1132–1136.
32. Lépine JP, Pelissolo A, Téodorescu R, et al. Evaluation of the psychometric properties of the French version of the Tridimensional Personality Questionnaire (TPQ). *Encephale*. 1994;20(6):747–753.
33. Baylé FJ, Bourdel MC, Caci H, et al. Factor analysis of French translation of the Barratt Impulsivity Scale (BIS-10). *Can J Psychiatry*. 2000;45(2):156–165.
34. Patton JH, Stanford MS, Barratt ES. Factor structure of the Barratt Impulsiveness Scale. *J Clin Psychol*. 1995;51(6):768–774.
35. Laughrea KBC, Wright J. The inventory of the experience of anger in social and marital status: validation with the province's adult population [French]. *Sci Comport*. 1996;25(1):71–95.
36. Forgays DG, Forgays DK, Spielberger CD. Factor structure of the State-Trait Anger Expression Inventory. *J Pers Assess*. 1997;69(3):497–507.
37. Weisman AD, Worden JW. Risk-rescue rating in suicide assessment. *Arch Gen Psychiatry*. 1972;26(6):553–560.
38. Beck AT, Resnik HLP, Lettieri DJ. *The Prediction of Suicide*. Charles Press Publishers; 1974.
39. Diaz FJ, Baca-Garcia E, Diaz-Sastre C, et al. Dimensions of suicidal behavior according to patient reports. *Eur Arch Psychiatry Clin Neurosci*. 2003;253(4):197–202.
40. Beck AT, Kovacs M. Assessment of suicidal intention: the Scale for Suicide Ideation. *J Consult Clin Psychol*. 1979;47(2):343–352.
41. Witte TK, Joiner TE Jr, Brown GK, et al. Factors of suicide ideation and their relation to clinical and other indicators in older adults. *J Affect Disord*. 2006;94(1–3):165–172.
42. Slama F, Courtet P, Golmard JL, et al. Admixture analysis of age at first suicide attempt. *J Psychiatr Res*. 2009;43(10):895–900.
43. Asberg M, Träskman L, Thorén P. 5-HIAA in the cerebrospinal fluid: a biochemical suicide predictor? *Arch Gen Psychiatry*. 1976;33(10):1193–1197.
44. Haw C, Bergen H, Casey D, et al. Repetition of deliberate self-harm: a study of the characteristics and subsequent deaths in patients presenting to a general hospital according to extent of repetition. *Suicide Life Threat Behav*. 2007;37(4):379–396.
45. Parra Uribe I, Blasco-Fontecilla H, García-Parés G, et al. Attempted and completed suicide: not what we expected? *J Affect Disord*. 2013;150(3):840–846.
46. Hultén A, Jiang GX, Wasserman D, et al. Repetition of attempted suicide among teenagers in Europe: frequency, timing and risk factors. *Eur Child Adolesc Psychiatry*. 2001;10(3):161–169.
47. Mason SM, Flint AJ, Field AE, et al. Abuse victimization in childhood or adolescence and risk of food addiction in adult women. *Obesity (Silver Spring)*. 2013;21(12):E775–E781.
48. Sartor CE, Waldron M, Duncan AE, et al. Childhood sexual abuse and early substance use in adolescent girls: the role of familial influences. *Addiction*. 2013;108(5):993–1000.
49. Brezo J, Paris J, Vitaro F, et al. Predicting suicide attempts in young adults with histories of childhood abuse. *Br J Psychiatry*. 2008;193(2):134–139.
50. Franko DL, Keel PK, Dorer DJ, et al. What predicts suicide attempts in women with eating disorders? *Psychol Med*. 2004;34(5):843–853.
51. Pompili M, Tatarelli R. Eating disorders, especially anorexia nervosa, are associated with an increased risk of attempted suicide in young women. *Evid Based Ment Health*. 2005;8(1):20.
52. Forcano L, Alvarez E, Santamaría JJ, et al. Suicide attempts in anorexia nervosa subtypes. *Compr Psychiatry*. 2011;52(4):352–358.
53. Guillaume S, Jaussent I, Olié E, et al. Characteristics of suicide attempts in anorexia and bulimia nervosa: a case-control study. *PLoS ONE*. 2011;6(8):e23578.
54. Britton PC, Conner KR. Suicide attempts within 12 months of treatment for substance use disorders. *Suicide Life Threat Behav*. 2010;40(1):14–21.
55. Kokkevi A, Richardson C, Olszewski D, et al. Multiple substance use and self-reported suicide attempts by adolescents in 16 European countries. *Eur Child Adolesc Psychiatry*. 2012;21(8):443–450.
56. Pompili M, Innamorati M, Lester D, et al. Suicide attempts in acute psychiatric referrals with substance use disorders. *Riv Psichiatr*. 2012;47(4):313–318.
57. Hjelmeland H. Repetition of parasuicide: a predictive study. *Suicide Life Threat Behav*. 1996;26(4):395–404.
58. De Mojá CA, Spielberger CD. Anger and drug addiction. *Psychol Rep*. 1997;81(1):152–154.

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.

59. Horesh N, Rolnick T, Iancu I, et al. Anger, impulsivity and suicide risk. *Psychother Psychosom*. 1997;66(2):92–96.
60. Sadeh N, McNiel DE. Facets of anger, childhood sexual victimization, and gender as predictors of suicide attempts by psychiatric patients after hospital discharge. *J Abnorm Psychol*. 2013;122(3):879–890.
61. Zahl DL, Hawton K. Repetition of deliberate self-harm and subsequent suicide risk: long-term follow-up study of 11,583 patients. *Br J Psychiatry*. 2004;185(1):70–75.
62. Osváth P, Kelemen G, Erdös MB, et al. The main factors of repetition: review of some results of the Pecs Center in the WHO/EURO Multicentre Study on Suicidal Behaviour. *Crisis*. 2003;24(4):151–154.
63. Blasco-Fontecilla H. The addictive hypothesis of suicidal behavior. *Med Hypotheses*. 2012;78(2):350.
64. Goodman A. Addiction: definition and implications. *Br J Addict*. 1990;85(11):1403–1408.
65. Tullis K. A theory of suicide addiction. *Sex Addict Compulsivity*. 1998;5(4):311–324.
66. Farberow NL. Personality patterns of suicidal mental hospital patients. *Genet Psychol Monogr*. 1950;42(1):3–79.
67. Walker RL, Joiner TE Jr, Rudd MD. The course of post-crisis suicidal symptoms: how and for whom is suicide "cathartic"? *Suicide Life Threat Behav*. 2001;31(2):144–152.
68. Beck AT. Beyond belief: a theory of modes, personality, and psychopathology. In: Salkovskis PM, ed. *Frontiers of Cognitive Therapy*. New York, NY: Guildford Press; 1996:1–25.
69. McGirr A, Paris J, Lesage A, et al. Risk factors for suicide completion in borderline personality disorder: a case-control study of cluster B comorbidity and impulsive aggression. *J Clin Psychiatry*. 2007;68(5):721–729.
70. Gunderson JG, Ridolfi ME. Borderline personality disorder: suicidality and self-mutilation. *Ann N Y Acad Sci*. 2001;932(1):61–73, discussion 73–77.
71. Ferrari AJ, Norman RE, Freedman G, et al. The burden attributable to mental and substance use disorders as risk factors for suicide: findings from the Global Burden of Disease Study 2010. *PLoS ONE*. 2014;9(4):e91936.
72. Pompili M, Innamorati M, Gonda X, et al. Affective temperaments and hopelessness as predictors of health and social functioning in mood disorder patients: a prospective follow-up study. *J Affect Disord*. 2013;150(2):216–222.
73. Serafini G, Pompili M, Innamorati M, et al. Affective temperamental profiles are associated with white matter hyperintensity and suicidal risk in patients with mood disorders. *J Affect Disord*. 2011;129(1-3):47–55.
74. Pompili M, Rihmer Z, Akiskal H, et al. Temperaments mediate suicide risk and psychopathology among patients with bipolar disorders. *Compr Psychiatry*. 2012;53(3):280–285.

Posttest

To obtain credit, go to http://www.cmeinstitute.com/activities/journal.asp to complete the Posttest and Evaluation.

1. **Ms A, who is 45 years old, is a new outpatient. You learn that she has been taken to the emergency department 5 times in her life following suicide attempts. According to the results of this study, is Ms A significantly more likely to have major depressive disorder than Ms B, who has made 2 suicide attempts?**
   a. Yes
   b. No
2. **Ms A is about 3 times more likely to have ___ than Ms B.**
   a. Alcohol dependence
   b. Bipolar disorder
   c. An eating disorder
   d. An anxiety disorder
3. **Ms A may need referral for counseling for childhood trauma. In this sample, 65% of those with ≥ 5 suicide attempts had experienced moderate to severe ___.**
   a. Emotional abuse or neglect
   b. Physical abuse
   c. Sexual abuse
   d. Physical neglect
4. **After correcting for confounders, the researchers found that substance dependence was independently associated with major suicide attempt repeater status. Additionally, the researchers hypothesized that major suicide attempt repeaters could be addicted to suicidal behavior.**
   a. True
   b. False

© 2014 COPYRIGHT PHYSICIANS POSTGRADUATE PRESS, INC. NOT FOR DISTRIBUTION, DISPLAY, OR COMMERCIAL PURPOSES.