

University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Uniformed Services University of the Health
Sciences

U.S. Department of Defense

2017

Motor impulsivity differentiates between psychiatric inpatients with multiple versus single lifetime suicide attempts

Victoria A. Colborn

Uniformed Services University of the Health Sciences

Jessica M. LaCroix

Uniformed Services University of the Health Sciences

Laura L. Neely

Uniformed Services University of the Health Sciences

Fennifer Tucker

Uniformed Services University of the Health Sciences

Kanchana Perera

Uniformed Services University of the Health Sciences

See next page for additional authors

Follow this and additional works at: <http://digitalcommons.unl.edu/usuhs>

Colborn, Victoria A.; LaCroix, Jessica M.; Neely, Laura L.; Tucker, Fennifer; Perera, Kanchana; Daruwala, Samantha E.; Grammer, Geoffrey; Weaver, Jennifer; and Marjan Ghahramanlou-Holloway, Marjan, "Motor impulsivity differentiates between psychiatric inpatients with multiple versus single lifetime suicide attempts" (2017). *Uniformed Services University of the Health Sciences*. 187. <http://digitalcommons.unl.edu/usuhs/187>

This Article is brought to you for free and open access by the U.S. Department of Defense at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Uniformed Services University of the Health Sciences by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Authors

Victoria A. Colborn, Jessica M. LaCroix, Laura L. Neely, Fennifer Tucker, Kanchana Perera, Samantha E. Daruwala, Geoffrey Grammer, Jennifer Weaver, and Marjan Marjan Ghahramanlou- Holloway



Motor impulsivity differentiates between psychiatric inpatients with multiple versus single lifetime suicide attempts



Victoria A. Colborn^a, Jessica M. LaCroix^a, Laura L. Neely^a, Jennifer Tucker^a, Kanchana Perera^a, Samantha E. Daruwala^a, Geoffrey Grammer^b, Jennifer Weaver^c, Marjan Ghahramanlou-Holloway^{a,*}

^a Department of Medical and Clinical Psychology, Uniformed Services University of the Health Sciences (USUHS), Bethesda, MD, USA

^b Walter Reed National Military Medical Center, National Intrepid Center of Excellence, Bethesda, MD, USA

^c Fort Belvoir Community Hospital, Fort Belvoir, VA, USA

ARTICLE INFO

Keywords:

Impulsivity
Suicide attempts
Inpatient
Military
Military dependents

ABSTRACT

A history of multiple suicide attempts conveys greater risk for suicide than a single attempt. Impulsivity may partially explain the association between multiple attempts and increased risk. We examined trait impulsivity, ability to engage in goal-directed behaviors, and impulse control among psychiatrically hospitalized United States military personnel and their dependents. Individuals with a history of multiple versus single attempts had significantly higher motor impulsivity, indicating spur of the moment action. Providers are encouraged to directly assess and treat motor impulsivity among suicidal individuals. Further research should explore whether motor impulsivity is a mechanism of change in psychosocial suicide prevention interventions.

1. Introduction

In the United States (U.S.), suicide is the second leading cause of death among persons aged 10–34 years (CDC, 2013), and the leading cause of death among service members (AFHSC, 2014). While epidemiological research has identified attempted suicide as one of the strongest predictors of eventual suicide death (Brown et al., 2000), risk profiles for individuals with multiple versus single suicide attempts require further examination. Comparatively, individuals with multiple suicide attempts are at an elevated risk for suicide, partially due to more severe psychopathology (Forman et al., 2004); however, impulsivity has been postulated as a transdiagnostic risk indicator for suicide above and beyond psychopathology (Mann et al., 1999).

Impulsivity is defined as “a predisposition toward rapid unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions” (Moeller et al., 2001, p. 1784) and may indirectly contribute to suicide risk via association with multiple psychiatric diagnoses including borderline personality (American Psychiatric Association, 2013), bipolar (Chen and Dilsaver, 1996), and substance-related (Miranda et al., 2008) disorders. A notable body of research has found evidence of a direct impulsivity-suicide attempt link (e.g., Brodsky et al., 2001; Doihara et al., 2012), while other studies have found no such evidence (e.g., Carli et al., 2010;

Grunebaum et al., 2005; Oquendo et al., 2000). Most recently, a meta-analysis (Anestis et al., 2014) comparing individuals with and without histories of suicide attempts indicated that the relationship between impulsivity and suicide attempt history was small (Hedges $g = .34$). Findings on impulsivity among individuals with multiple versus single attempts is also mixed with some evidence for higher impulsivity among those with multiple attempts (e.g., Bulik et al., 2008; Dougherty et al., 2004a; Maloney et al., 2009), and other research finding no impulsivity differences between these groups (e.g., Brodsky et al., 2001; Iancu et al., 2010). Given that impulsivity is an important construct and a modifiable risk indicator in many evidence-based suicide prevention treatments, additional research is needed to determine how multiple dimensions of impulsivity may be associated with suicidal behaviors.

Few researchers have investigated the impulsivity-suicide attempt link among military personnel. Results of one study indicated that basic training recruits with a history of suicide ideation or attempts scored higher on impulsivity than those without such a history, although impulsivity did not differentiate those with ideation versus attempts (Klonsky and May, 2010). Additional studies have not measured impulsivity directly, but classified service members as low-, moderate-, or high-risk takers. High-risk takers were approximately twice as likely as low- and moderate-risk takers to report seriously

* Correspondence to: Department of Medical and Clinical Psychology, Uniformed Services University of the Health Sciences (USUHS), 4301 Jones Bridge Road, Room 3050, Bethesda, MD 20814-4799, USA.

E-mail address: marjan.holloway@usuhs.edu (M. Ghahramanlou-Holloway).

<http://dx.doi.org/10.1016/j.psychres.2017.03.026>

Received 23 August 2016; Received in revised form 1 March 2017; Accepted 13 March 2017

Available online 15 March 2017

0165-1781/© 2017 Published by Elsevier Ireland Ltd.

considering suicide in the prior year (Barlas et al., 2013; Bray et al., 2009). Finally, two published studies examined differences between service members with multiple versus single attempts, but neither explored the link between impulsivity and attempt status (Kochanski-Ruscio et al., 2014; Rudd et al., 1996).

The present study examined the association between multiple dimensions of impulsivity and suicide attempts among a sample of service members and beneficiaries receiving inpatient psychiatric care at a military treatment facility. Individuals with multiple lifetime suicide attempts were expected to report consistently higher levels of impulsivity.

2. Methods

2.1. Participants

The sample consisted of 152 military service members and adult dependents enrolled in a randomized controlled trial testing the efficacy of Post Admission Cognitive Therapy (PACT; Ghahramanlou-Holloway et al., 2012), a treatment program for psychiatrically hospitalized suicidal individuals. Data for the current study were collected during baseline assessments, generally conducted within the first 72 h of psychiatric admission.

2.2. Measures

2.2.1. Impulsivity

Impulsivity was measured using the 30-item Barratt Impulsiveness Scale (BIS-11; Patton et al., 1995). For the BIS-11, individuals report how often they experience impulsivity along three subscales: *attentional impulsiveness* – inability to concentrate, *non-planning impulsiveness* – lack of forethought, and *motor impulsiveness* – tendency to act on the spur of the moment. Chronbach's alphas for the subscales are as follows: attentional $\alpha=.74$, non-planning $\alpha=.76$, and motor $\alpha=.64$. Impulsivity was also measured using the 36-item Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer, 2004). For the DERS, individuals indicate how often statements related to emotional dysregulation apply to themselves. Subscales used in the present study included: *impulse* – inability to control behavioral impulses, and *goals* – inability to engage in goal-directed behaviors. Chronbach's alphas was .89 for both the impulse and goals subscales.

2.2.2. Suicide attempts

The Columbia Suicide Severity Rating Scale (CSSRS; Posner et al., 2011) measures the frequency and severity of suicidal ideation and behavior. For this study, the frequencies of lifetime actual (i.e., a potentially self-injurious behavior with at least some wish to die), interrupted (i.e., the person makes steps toward attempting suicide but is stopped by another person or outside circumstances before he or she can engage in the potentially self-injurious behavior), and aborted (i.e., the person makes steps towards attempting suicide but stops short of engaging in the potentially self-injurious behavior), suicide attempts were used to categorize the single attempt and multiple attempt groups (Posner et al., 2011).

2.3. Statistical analyses

The single and multiple attempt groups were compared on demographic characteristics and impulsivity measures using *t*-tests and Pearson's χ^2 tests. Multivariate logistic regression analyses were conducted to explore significant group differences.

Table 1

Demographics and descriptive statistics for impulsivity scales by single versus multiple suicide attempt status.

	Single attempts (N =45) No. (%) ^a	Multiple attempts (N =107) No. (%) ^a	<i>p</i> ^b
Demographic characteristics			
Age, mean (SD)	31.71 (9.60)	28.39 (8.10)	.031
Gender			
Female	17 (37.8)	35 (32.7)	.548
Male	28 (62.2)	72 (67.3)	
Race/ethnicity			
Black or African-American	13 (28.9)	18 (16.8)	.232
White or Caucasian	27 (60.0)	77 (72.0)	
Other	5 (11.1)	12 (11.2)	
Marital status			
Never married	9 (20.0)	46 (43.0)	.013
Married	28 (62.2)	41 (38.3)	
Separated/divorced/widowed	8 (17.8)	20 (18.7)	
Education			
High school diploma or equivalent	12 (26.7)	27 (25.2)	.897
Some college, no degree	19 (42.2)	50 (46.7)	
Associate's degree	3 (6.7)	8 (7.5)	
Bachelor's degree	6 (13.3)	15 (14.0)	
Graduate or professional degree	5 (11.1)	7 (6.5)	
Military characteristics^c			
Branch			
Army	20 (44.4)	36 (39.6)	.529
Air force	4 (8.9)	6 (6.6)	
Navy	10 (25.0)	26 (28.6)	
Marine corps	5 (12.5)	21 (23.1)	
Coast guard	1 (2.5)	2 (2.2)	
Rank			
Junior enlisted	13 (32.5)	43 (76.8)	.132
Senior enlisted	22 (55.0)	32 (59.3)	
Officer	5 (12.5)	12 (13.2)	
Midshipmen/cadet	0 (.0)	4 (4.4)	
Impulsivity, mean (SD)			
BIS-11 Attentional	18.76 (5.03)	19.50 (4.51)	.374
BIS-11 Nonplanning	25.31 (5.81)	26.60 (6.18)	.235
BIS-11 Motor	22.44 (4.85)	24.24 (4.87)	.039
DERS ^d Impulse	15.45 (5.18)	16.69 (5.46)	.210
DERS ^d Goals	15.36 (6.15)	16.64 (5.90)	.241
Lifetime suicide attempts, mean (SD)	1.00 (.00)	6.48 (14.36)	

Note: BIS-11= Barratt Impulsivity Scale, DERS = Difficulties in Emotion Regulation Scale.

^a Percentages may not sum to 100 due to unreported data

^b *P*-values are the result of *t*-tests for continuous variables and χ^2 for categorical variables. Fisher's exact test was used in cases where cell counts were less than or equal to 5.

^c Limited to Active Duty service members (n =131), excludes military dependents (n =10), veterans (n =10) and one participant for whom branch and rank were unknown

^d Sample sizes for the DERS were 42 in the Single Attempt group and 104 in the Multiple Attempt group.

3. Results

3.1. Demographic characteristics

The average lifetime number of suicide attempts overall was 4.86 (SD =12.29). The majority of participants reported a history of multiple suicide attempts (70%). Participants were largely Caucasian (68%), male (66%), with at least some college (74%). Nearly half were married (45%). The majority of participants were active duty military (87%).

Active duty military, veteran (n =10), and civilian (n =10) participants did not significantly differ based on suicide attempt status, Fisher's exact test $p=.311$) or any measure of impulsivity, all $ps > .05$, so analyses were conducted including all participants. Participants with multiple attempts were younger than those with a single attempt, $t(150) = 2.18, p = .031$, and were less likely to be married, $\chi^2(2, N = 152) = 8.63, p = .013$ (see Table 1).

3.2. Impulsivity

Participants with a history of multiple attempts scored higher on BIS-11 motor impulsiveness, $t(150) = 2.08, p = .039$ (see Table 1). No significant between-group differences were found for BIS-11 attentional or non-planning impulsivity or the DERS impulse or goals subscales. Results of multivariate analyses controlling for age did not change the pattern of results, so the simpler results are presented. Age was not significantly correlated with any measure of impulsivity.

4. Discussion

Our most notable finding is that within a primarily military inpatient psychiatric sample, individuals with multiple versus single lifetime suicide attempts reported significantly higher levels of motor impulsivity. The two groups did not differ on attentional or non-planning impulsivity or on the impulse and goals dimensions of the DERS, adding to the mixed literature on those particular dimensions (e.g., Miranda et al., 2013; Rajappa et al., 2012).

Results are consistent with previous research indicating that motor impulsivity in particular, but not attentional or non-planning impulsivity, may be associated with greater suicide risk (Dougherty et al., 2004a). Other research suggests that suicide requires forethought (Anestis et al., 2014a), and attentional or non-planning impulsivity may interfere with planning; thus, an individual may make a very detailed suicide plan but *only* act on that plan in the spur of the moment. This spur of the moment type of action reflects motor impulsivity. For instance, one participant reported, "It's like the thoughts of—well, how am I going to do this when I get out of the behavioral health unit. What am I going to do to really make this work? Do I have to go out and buy, say, a firearm? Is that what it really needs to take, or am I going to go hang myself or...what's going to be the best way to do this so there's no amount of pain and it's just a quick execution." This example suggests that thoughts pertaining to suicide may not develop in an impulsive manner, but the act of engaging in the suicidal behavior itself may be impulsive. For instance, another participant reported: "I opened up her bottle of [medication] put it in the paper cup with mine and I remember taking that and not even thinking just putting it back grabbing the water and finishing the glass of water and not even thinking about it. Not even hesitating."

Additional studies using prospective designs, biological and laboratory-based assessments (e.g., Dougherty et al., 2004b), and multi-dimensional measures of trait and state impulsivity are needed. Cross-sectional research limits causal inference, and self-report measures are subjective, require accurate participant recall, and are insensitive to temporal fluctuations in impulsivity (Dougherty et al., 2003; Horesh et al., 2001). In some instances, laboratory behavioral methods of measuring impulsivity may better differentiate between levels of suicide risk than self-report measures (Dougherty et al., 2004a). Future research may also explore other dimensions of impulsivity including negative urgency, lack of premeditation, and lack of perseverance (Valderrama et al., 2016). We concur with suggestions that measures of episodic impulsivity be developed (Anestis et al., 2014), and further, that the interaction between trait impulsivity and specific contexts be considered (Mischel and Shoda, 1995). For instance, it would be useful to incorporate an analysis of the effects of specific psychological states during the time of assessment when examining performance on trait impulsivity measures (Glicksohn et al., 2016).

Our results have clinical implications. Mental health providers working with suicidal individuals may explicitly target motor impulsivity by teaching delay tactics (Lam et al., 1999) including distraction and urge surfing, a mindfulness technique typically used to address relapse prevention for substance abuse (Copeland et al., 2001). Urge surfing encourages the individual to visualize the urge to act as a wave that is cresting and falling, instead of seeing it as a continually rising wave that must be stopped (Marlatt and Gordon, 1985). Cognitive behavior therapy for suicide prevention (e.g., Brown et al., 2005) focuses on teaching suicidal individuals the technique of procrastinating suicide – thus postponing action on any specific plans. Additional delay tactics include limiting access to lethal means, for instance, using blister packaging for medication (Turvill et al., 2000) and restricting access to firearms. For military service members in particular, clinicians should assess firearm access and create a collaborative plan for weapon control. A recent study of military veterans cited an increased focus on means restriction counseling as a possible reason for the observed lower prevalence of suicidal ideation among firearm owners compared to non-owners in their sample (Heinz et al., 2016). Indeed, means restriction counseling is known to be an effective suicide prevention strategy for suicidal individuals (Bryan et al., 2011).

Overall, our findings highlight the multifaceted nature of impulsivity and identify motor impulsivity as a distinguishing factor among individuals with a history of multiple suicide attempts. Results have important implications for research and clinical practice. Future research examining the mechanisms of change within psychosocial interventions for suicide prevention should consider the role of motor impulsivity.

Funding source

Support for this research has been provided to the corresponding author by the Department of Defense, Congressionally Directed Medical Research Program (W81XWH-08-2-0172), the United States Army Medical Research and Materiel Command (W81XWH-11-2-0106), and the National Alliance for Research on Schizophrenia and Depression (15219).

Disclaimer

The views expressed in this article are those of the authors and do not reflect the official policy of the Department of Defense (DoD), the Department of Veterans Affairs (VA), and/or the United States Government.

References

- American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders: DSM-5. American Psychiatric Association, Washington, D.C.
- Anestis, M.D., Soberay, K.A., Gutierrez, P.M., Hernández, T.D., Joiner, T.E., 2014. Reconsidering the link between impulsivity and suicidal behavior. *Pers. Soc. Psychol. Rev.* 18 (4), 366–386.
- Armed Forces Health Surveillance Center (AFHSC), 2014. Surveillance snapshot: Manner and cause of death, active component, U.S. Armed Forces, 1998–2013. *MSMR* 21 (10), 21.
- Barlas, F.M., Higgins, W.B., Pflieger, J.C., Diecker, K., 2013. 2011 Department of Defense Health Related Behaviors Survey of Active Duty Military Personnel. ICF International, Inc., Fairfax, VA.
- Bray, R.M., Pemberton, M.R., Hourani, L.L., Witt, M., Rae Olmsted, K.L., Brown, J.M., et al., 2009. 2008 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel. Research Triangle Institute, Research Triangle Park, NC.
- Brodsky, B., Oquendo, M., Ellis, S., Haas, G., Malone, K., Mann, J., 2001. The relationship of childhood abuse to impulsivity and suicidal behavior in adults with major depression. *Am. J. Psychiatry* 158 (11), 1871–1877.
- Brown, G.K., Beck, A.T., Steer, R.A., Grisham, J.R., 2000. Risk factors for suicide in psychiatric outpatients: a 20-year prospective study. *J. Consult. Clin. Psychol.* 68 (3), 371–377.
- Brown, G.K., Ten Have, T., Henriques, G.R., Xie, S.X., Hollander, J.E., Beck, A.T., 2005. Cognitive therapy for the prevention of suicide attempts: a randomized controlled trial. *JAMA* 294 (5), 563–570.

- Bryan, C.J., Stone, S.L., Rudd, M.D., 2011. A practical, evidence-based approach for means-restriction counseling with suicidal patients. *Prof. Psychol. Res. Pract.* 42 (5), 339.
- Bulik, C.M., Thornton, L., Pinheiro, A.P., Plotnicov, K., Klump, K.L., Brandt, H., Kaye, W.H., 2008. Suicide attempts in anorexia nervosa. *Psychosom. Med.* 70, 378–383.
- Carli, V., Jovanović, N., Podlešek, A., Roy, A., Rihmer, Z., Maggi, S., et al., 2010. The role of impulsivity in self-mutilators, suicide ideators and suicide attempters—A study of 1265 male incarcerated individuals. *J. Affect. Disord.* 123 (1–3), 116–122.
- Centers for Disease Control and Prevention (CDC), 2013. Web-based injury statistics query and reporting System (WISQARS) [online]. *Natl. Cent. Inj. Prev. Control, CDC (Prod.)*. (<http://www.cdc.gov/injury/wisqars/index.html>), (Accessed 28 July 16).
- Chen, Y., Dilsaver, S.C., 1996. Lifetime rates of suicide attempts among subjects with bipolar and unipolar disorders relative to subjects with other axis I disorders. *Biol. Psychiatry* 39 (10), 896–899.
- Copeland, J., Swift, W., Roffman, R., Stephens, R., 2001. A randomized controlled trial of brief cognitive-behavioral interventions for cannabis use disorder. *J. Subst. Abuse Treat.* 21 (2), 55–64.
- Doihara, C., Kawanishi, C., Ohshima, N., Yamada, T., Nakagawa, M., Iwamoto, Y., Hirayasu, Y., 2012. Trait impulsivity in suicide attempters: preliminary study. *Psychiatry Clin. Neurosci.* 66 (6), 529–532.
- Dougherty, D.M., Mathias, C.W., Marsh, D.M., 2003. Laboratory measures of impulsivity. In: Coccaro, E.F. (Ed.), *Aggression: Psychiatric Assessment and Treatment*. Medical Psychiatric Series No. 22. Marcel Dekker Publishers, New York, 247–265.
- Dougherty, D.M., Mathias, C.W., Marsh, D.M., Papageorgiou, T.D., Swann, A.C., Moeller, F.G., 2004a. Laboratory measured behavioral impulsivity relates to suicide attempt history. *Suicid. Life-Threat. Behav.* 34 (4), 374–385.
- Dougherty, D., Mathias, C., Marsh, D., Moeller, F., Swann, A., 2004b. Suicidal behaviors and drug abuse: impulsivity and its assessment. *Drug Alcohol Depend.* 76, S93–S105.
- Forman, E., Berk, M., Henriques, G., Brown, G., Beck, A., 2004. History of multiple suicide attempts as a behavioral marker of severe psychopathology. *Am. J. Psychiatry* 161 (3), 437–443.
- Ghahramanlou-Holloway, M., Cox, D., Greene, F., 2012. Post-admission cognitive therapy: a brief intervention for psychiatric inpatients admitted after a suicide attempt. *Cogn. Behav. Pract.* 19, 233–244.
- Glicksohn, J., Hadad, Y., Ben-Yaacov, T., 2016. Now you see me, now you don't: the assessment of impulsivity. *Cogent Psychology* 3 (1), 1242682.
- Gratz, K.L., Roemer, L., 2004. Multidimensional assessment of emotion regulation and dysregulation: development, factor structure, and initial validation of the difficulties in emotion regulation scale. *J. Psychopathol. Behav.* 26, 41–54.
- Grunebaum, M.F., Keilp, J., Li, S., Ellis, S.P., Burke, A.K., Oquendo, M.A., Mann, J.J., 2005. Symptom components of standard depression scales and past suicidal behavior. *J. Affect. Disord.* 87 (1), 73–82.
- Heinz, A.J., Cohen, N.L., Holleran, L., Alvarez, J.A., Bonn-Miller, M.O., 2016. Firearm ownership among military veterans with PTSD: a profile of demographic and psychosocial correlates. *Mil. Med.* 181 (10), 1207–1211.
- Horesh, N., 2001. Self-report vs. computerized measures of impulsivity as a correlate of suicidal behavior. *Crisis* 22 (1), 27–31.
- Iancu, I., Bodner, E., Roitman, S., Piccone Sapir, A., Poreh, A., Kotler, M., 2010. Impulsivity, aggression and suicide risk among male schizophrenia patients. *Psychopathology* 43 (4), 223–229.
- Klonsky, E.D., May, A., 2010. Rethinking impulsivity in suicide. *Suicid. Life-Threat. Behav.* 40 (6), 612–619.
- Kochanski-Ruscio, K., Carreno-Ponce, J., Deyoung, K., Grammer, G., Ghahramanlou-Holloway, M., 2014. Diagnostic and psychosocial differences in psychiatrically hospitalized military service members with single versus multiple suicide attempts. *Compr. Psychiatry* 55 (3), 450–456.
- Lam, D., Jones S., Hayward P., Bright J., 1999. *Cognitive therapy for bipolar disorder: a therapist's guide to concepts, methods, and practice*. New York, New York.
- Maloney, E., Degenhardt, L., Darke, S., Nelson, E.C., 2009. Impulsivity and borderline personality as risk factors for suicide attempts among opioid-dependent individuals. *Psychiatry Res.* 169, 16–21.
- Mann, J., Waternaux, C., Haas, G., Malone, K., 1999. Toward a clinical model of suicidal behavior in psychiatric patients. *Am. J. Psychiatry* 156 (2), 181–189.
- Marlatt, G.A., Gordon, J.R., 1985. *Relapse Prevention: Maintenance Strategies in the Treatment of Addictive Behaviors*. Guilford Press, New York.
- Miranda, R., Scott, M., Hicks, R., Wilcox, H.C., Munfakh, J.L.H., Shaffer, D., 2008. Suicide attempt characteristics, diagnoses, and future attempts: comparing multiple attempters to single attempters and ideators. *J. Am. Acad. Child Adolesc. Psychiatry* 47 (1), 32.
- Miranda, R., Tsypes, A., Gallagher, M., Rajappa, K., 2013. Rumination and hopelessness as mediators of the relation between perceived emotion dysregulation and suicidal ideation. *Cogn. Ther.* 37, 786–795.
- Mischel, W., Shoda, Y., 1995. A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychol. Rev.* 102 (2), 246–268.
- Moeller, F.G., Barratt, E.S., Dougherty, D.M., Schmitz, J.M., Swann, A.C., 2001. Psychiatric aspects of impulsivity. *Am. J. Psychiatry* 158 (11), 1783–1793.
- Oquendo, M.A., Waternaux, C., Brodsky, B., Parsons, B., Haas, G.L., Malone, K.M., et al., 2000. Suicidal behavior in bipolar mood disorder: clinical characteristics of attempters and nonattempters. *J. Affect. Disord.* 59 (2), 107–117.
- Patton, J.H., Stanford, M.S., Barratt, E.S., 1995. Factor structure of the barratt impulsiveness scale. *J. Clin. Psychol.* 51, 768–774.
- Posner, K., Brown, G.K., Stanley, B., Brent, D.A., Yershova, K.V., Oquendo, M.A., Mann, J.J., 2011. The Columbia suicide severity Rating scale: Initial validity and internal consistency findings from three multisite studies with adolescents and adults. *Am. J. Psychiatry* 168 (12), 1266–1277.
- Rajappa, K., Gallagher, M., Miranda, R., 2012. Emotion dysregulation and vulnerability to suicidal ideation and attempts. *Cogn. Ther. Res.* 36 (6), 833–839.
- Rudd, M.D., Joiner, T., Rajad, M.H., 1996. Relationships among suicide ideators, attempters, and multiple attempters in a young-adult sample. *J. Abnorm. Psychol.* 105 (4), 541–550.
- Turvill, J.L., Burroughs, A.K., Moore, K.P., 2000. Change in occurrence of paracetamol overdose in UK after introduction of blister packs. *Lancet* 355 (9220), 2048–2049.
- Valderrama, J., Miranda, R., Jeglic, E., 2016. Ruminative subtypes and impulsivity in risk for suicidal behavior. *Psychiatry Res.* 236, 15–21.