We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,300

Open access books available

172,000

International authors and editors

190M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities

WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com

Depression, Suicidal Tendencies, Hopelessness, and Stress among Patients with Learning Disabilities

Fahad Hassan Shah, Song Ja Kim, Laiba Zakir, Aqsa Ehsan, Sohail Riaz, Muhammad Sulaiman and Saad Salman

Abstract

Self-harm and suicide are most commonly observed in adolescents specially females in Asian countries and in western. The psychosocial predictors, along with hopelessness and non-suicidal injury (NSSI), have not been studied properly before. Therefore, there is a need to address these issues. The objective of the study was to ascertain the psychosocial and clinical features predicting suicide and NSSI in adolescents with major depression. Increased number of suicidality and impaired family function at entry is autonomously connected with a suicidal attempt. NSSI are connected at base line and apply additive effect on likelihood, one keeping on through treatment period. Poor family functions, as well as family problems and social problems, were the causative agents for adolescent's high suicidality and NSSI. A history of NSSI treatment is a clinical marker for suicidality. The previous suicidal attempts should be evaluated in depressed juvenile patients as indicators of future suicidal intent and behavior. Both suicidal and NSSI adolescents during the therapy and after treatment endure to be depressed when they are engaged in study. Major causes of suicide among our study participants were lost friend(s), drug abuse, living alone, disturbed parental marriage, sexual abuse, and other domestic problems.

Keywords: suicide, non-suicidal self-harm, adolescents, predictors

1. Introduction

Suicide is one of the foremost health concerns of numerous countries and it is responsible for the deaths of 800,000 around the globe annually [1]. Suicidal behavior disproportionately affects adolescents and one-third of all adolescent deaths in the USA were attributed to suicide. The research was done to determine the effect of venlafaxine [2]. Asian countries account for 60% of the global suicide rate, directly affecting 60 million people annually [3]; here, 60 million people are affected not only by loss of their loved ones but also because of hopelessness, sexual abuse, family disturbances drug abuse, living alone or not living with the family, disturbed parental marriage, sexual abuse, and other domestic problems. Self-harm is an attempt of harming self, with or without suicidal intent [4]. This behavior has been identified in recent researches as a predictive tool for suicide in 40% of cases [5] and is taken as a means of signaling emotional and psychological needs for family members. Non-suicidal NSSI (NSSI) among adolescents, on the other hand,

is self-inflicted harm to one's self that lacks proof for suicidal intent. The risk of an adolescent's suicide is 60 times greater when he/she has attempted suicide in the past [6]. Furthermore, fearlessness and a general lack of concern about the consequences of risky behavior can also contribute to the potential for NSSI and suicide in adolescents [7].

The risk factors for adolescent suicidality have previously been identified through factorial analysis of neglect and abuse of a child, family's conception, and social consolidation. These factors have been recognized as influences that might serve as predictors of suicidal behavior and a basis for preventive measures [8]. Adolescent depression leads to a significant proportion of mortality and disability, contributing to an increased risk for suicidal behaviors if remain untreated. Moreover, as established by Weishaar and Beck, "According to Beck the hopelessness is 1.3 times more important in causing suicidal ideation as compared to depression" [9]. There is a correlation between suicidal attempts and psychiatric disorders such as depression, anxiety, substance use disorders (drug misuse and abuse), conduct, and eating disorders. According to our knowledge, we are the first to track down these known predictors of suicidality, NSSI, and hopelessness, combined. The study was carried out in adolescents ($n = 121$), taking venlafaxine, for 28 weeks. We subsequently assessed that how these factors were associated with suicidal attempts at baseline (admission time), throughout the treatment and follow-ups. The role of venlafaxine is to inhibit the uptake of norepinephrine and serotonin and lacks muscarinic-cholinergic or alpha-adrenergic effect. It can be administered twice or thrice daily. It has equal effect in patients older than 60 and the patients younger than 60 and in those having psychomotor retardation or agitation. It is used to treat major depressive disorders, anxiety disorders, and specifically generalized anxiety disorder.

2. Materials and methods

We carefully selected 15 clinical trials after careful consideration. We did a meta-analysis of a pool of 1211 participants with the Diagnostic and Statistical Manual of Mental Disorders-IV and the major depressive conditions were diagnosed that is integrated with the study. The gender and age of every candidate were also considered in our study.

3. Psychiatry tools

Beck hopelessness was used for family assessment but the patients were assessed by the McMaster Family Assessment Device in which the family bonding understanding and behavior were assessed as well.

The McMaster Family Assessment Device-12-Item [10] and GAF Scale [11] were used to rate the functioning of a family of adolescents participants. Parents of participants completed a Brief Health Questionnaire [12]. Hopelessness scale [9] and K-SADS-PL¹ information were collected as well as Children's Depression Rating Scale [13] and for symptom severity, Hamilton Depression Rating Scale (HAM-D) [14] was used to evaluate patient's health.

4. Statistical analysis

Age, gender, and depression severity were included in the univariate analysis. By using variance inflation factors (VIFs), collinearity of independent variable was

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Suicide attempt pre-baseline	1										
2. Suicidality item from the Children's Depression Rating Scale	0.51 [*]	1									
3. NSSI at baseline	0.28 [*]	0.49 [*]	1								
4. Non-suicidality items from the Children's Depression Rating Scale	0.04	0.23 [*]	0.21 [*]	1							
5. Family functioning	0.05	0.22 [*]	0.22 [*]	0.07	1						
6. Maternal General Health Questionnaire Score	0.17	0.08	0.02	0.21 [*]	0.03	1					
7. Paternal General Health Questionnaire Score	-0.12	0.18	0.12	0.17	0.06	0.01	1				
8. Hopelessness	0.13	0.23 [*]	0.16	0.31 [*]	0.12	-0.01	0.05	1			
9. Anxiety disorder	0.12	0.20 [*]	0.01	0.17 [*]	0.00	0.02	0.08	0.00	1		
10. Gender	-0.11	-0.04	0.05	0.18	0.10	-0.01	0.02	-0.12	0.14	1	
11. Age	0.04	0.05	0.13	0.10	0.11 [*]	-0.13	-0.12	0.21 [*]	0.07	0.01	1

^aP-value used for the association of continuous-continuous measures; for dichotomous-continuous point-biserial correlation was used; dichotomous-dichotomous-tetrachoric correlations were used.
^{*}p<0.05.

Table 1.
Relevant predictor variables' correlation coefficients in depressed subjects.^a

checked and it was found that above 10 high or multi-collinearity was indicated. Calculation of pair-wise correlations between predictor variables to specify sources of multi-collinearity. By using categorical-categorical pairs and Pearson biserial and point correlations, tetrachoric calculations were made. In **Table 1**, ^aP-value was used for the association of continuous-continuous measures; for dichotomous-continuous, point-biserial correlation was used; dichotomous-dichotomous-tetrachronic correlations were used and were calculated for continuous-categorical pairs. Two-tailed test was exploited for analysis of entire data through SPSS 20 statistical software.

5. Results

By studying, it was found that all the participants at baseline had to face the depressing conditions. The data that are applicable are available for everyone but 11 attempt suicides at baseline and NSSI, and 48 on NSSI and 61 attempt suicides

during the following period. **Table 2** sums up the baseline demographics and clinical data in the history of suicide in the past and those with the following data for both NSSI and suicidal attempts. There were no major variations between those with follow-up data and those who have not. There was a considerable association month before baseline between suicidality and NSSI (NSSI present: suicidal attempt in 14/68 (male/female) [36%]; NSSI absent: suicidal attempt in 13/107 (male/female) [13%]; odds ratio = 2.7, $\chi^2 = 4.6$, $df = 1$, $p = 0.016$).

A pre-baseline suicidal attempt was performed by almost 28 children (17%), whereas one attempt was committed by almost 56 children (34%) during the follow-up period. Much lower were the suicidal attempts and baseline NSSI than the subsequent month attempts. It was seen as follows: 7.8%; 5-week post- and pre-assessment, 7%; 10-week preceding assessment, 8% in 24-week assessment. Predictor variables over the follow-up period of NSSI and suicide risk are shown in **Table 2**. By checking, it was found that an increased risk of suicidal attempt is associated with severe depression, suicidality and hopelessness, the existence of a suicidal attempt or NSSI in the month earlier to baseline, and family compromised operation, but not associates with care providers, friendship problems, or parental mental health.

Several logistic regressions specify that only ill family operation (odds ratio = 2.27, $p < 0.0005$) and increased suicidal attempt at entry (odds ratio = 1.59, $p = 0.026$) were the basic predictors of subsequent suicidal attempts.

Table 2 shows significantly higher symptoms of depression were seen at follow-up period of 28 weeks ($p = 0.001$) that was connected to self-harm, where the manifestation of one type of self-injury was related to other type (odds ratio = 2.5, $p = 0.007$).

Sixty-one adolescents (51%) had a minimum one attempt of NSSI during the month prior to baseline. During the 28-week follow-up, 60 (37%) had at least one activity of NSSI. The rate of NSSI was lower through all the studying months compared to the month prior to baseline (a month earlier than the 6-week judgment,

Characteristic	Baseline data	Follow-up data
	N = 12	N = 13
	Mean ± SD	Mean ± SD
Age (years)	13.2 ± 1.2	14.3 ± 1.2
Duration of depression (weeks)	57.7 ± 8.3	71.1 ± 7.9
Children's Depression Rating Scale, total score	49.9 ± 8.7	50.0 ± 8.4
Children's Depression Rating Scale, T score	65.8 ± 5.4	75.9 ± 6.2
Number of comorbid disorders	1.2 ± 0.2	1.3 ± 0.5
	N	N
Male	42 ± 2.6	48 ± 2.5
Suicidal attempt in the past month	32 ± 1.7	27 ± 1.4
Non-suicidal self-injury in the past month	65 ± 3.5	34 ± 2.9
	Median (IQR)	Median (IQR)
Children's Depression Rating Scale, suicidality item score	3 [1–5]	3 [1–5]

^aIQR = interquartile range [18].
^{*} $p < 0.05$ [18].

Table 2.
Clinical features and demographic of depressed adolescents committing suicide and NSSI.

28%; month prior to the 12-week evaluation; 19%; month prior to the 28-week assessment, 18%). **Table 3** mentions that NSSI in the cycle earlier at baseline there is an increase in depression level, anxiety, hopelessness, and the suicidal attempt, and during follow-up, females were extensively linked with a higher risk of minimal one NSSI case. In the chain effect, the treatment, group, and suicidal attempt were not in the previous month with NSSI.

Data on self-harm are shown in **Table 3**. Analysis indicated that the appropriate predictor for a suicidal attempt was pre-baseline NSSI (univariate RR = 2.95). The greater subgroup without NSSI, the cutoff of the best predictor for a suicidal attempt was a family function, all this will result without the pre-baseline, analyzed by the McMaster Family Assessment Device, the cutoff values that have a suicidal attempt are 25/26, 15/45 (31%) with scoring>25 and 3/56 (6%) with scores<26.

Variable	Risk of suicide attempt		
	Odds ratio	95% CI	p
Suicidality items from Children's Depression Rating Scale	1.34	0.92–2.25	0.11
Baseline NSSI	4.23	1.30–7.43	0.005
Non-suicidality items from the Children's Depression Rating Scale	0.83	0.52–1.46	0.8
Hopelessness	1.88	0.59–3.90	0.2
Family functioning	2.23	1.43–3.24	0.003
Age	0.94	0.58–1.23	0.7
Female	1.38	0.54–2.66	0.6

^aLikelihood ratio $\chi^2 = 38$, $df = 7$, $p < 0.00005$. Pseudo $R^2 = 0.20$. Maximum variance inflation factor = 1.25. Hosmer-Lemeshow $\chi^2 = 2$, $df = 8$, $p = 0.99$. The family functioning measures are z-transformed scores. Each item in the table represents the odds ratio as well as the p-value for the difference between the level of depression and the incident of NSSI at baseline.

Table 3.
Attempt of suicide multivariate predictor's risk analysis among depressed adolescents.^a

Variable	Risk of non-suicidal NSSI		
	OR	95% CI	p
Suicidality item from the Children's Depression Rating Scale-Revised	0.80	0.55–1.49	0.65
Pre-baseline non-suicidal NSSI	30.2	5.87–60.1	<0.0004
Non-suicidality items from the Children's Depression Rating Scale	0.55	0.37–1.23	0.056
Hopelessness	3.54	1.49–8.71	0.007
Family functioning	1.05	0.42–1.68	0.5
Anxiety disorder	5.41	1.38–10.65	0.014
Age	0.59	0.49–0.75	0.004
Female	8.80	1.64–16.0	0.012

^aLikelihood ratio $\chi^2 = 65$, $df = 9$, $p < 0.00005$. Pseudo $R^2 = 0.32$. Maximum variance inflation factor = 1.30. Hosmer-Lemeshow $\chi^2 = 5$, $df = 8$, $p = 0.8$. The family functioning measures are z-transformed scores. Each item in the table represents the odds ratio as well as the p-value for the difference between the level of depression and the incident of NSSI at baseline.

Table 4.
NSSI multivariate risk predictors in depressed subjects.^a

The improvements were seen with model fit among the young adolescents ($\chi^2 = 6.6$, $df = 1$, $p < 0.01$). Suicidal attempts were markedly linked with family function and NSSI, but not baseline suicidality. Similar outcomes were seen the month before baseline (yes/no), with the presence of a suicidal attempt was utilized in the model rather than suicidality item: For family function, NSSI and pre-baseline suicide attempt (odds ratio = 2.4, $p = 0.068$) were not related to a suicide attempt.

The values predicted from the data analysis were subjected toward pairwise relationships are summarized in **Table 1**. All pair-wise correlation coefficients were less than 0.5 except the pre-baseline effort of suicide and suicidality. The maximum variance inflation factor was low at 1.25.

Table 4 demonstrates the follow-up period where NSSI in the previous month was the strongest known independent predictor of consequent NSSI. Other noteworthy predictors that were independent were hopelessness, younger age, sexual abuse, and female gender.

6. Discussion

In our previous studies [5, 15], we had analyzed suicidal tendencies and NSSIs among adolescents as well as adults with or without comorbidities. But, in this research, we have focused entirely on adolescents with no other comorbidity. Our major findings were that the participants showed a higher risk of both NSSI (39% compared with 8%) and suicidality (36% compared with 8%). Self-harm was directly associated with poor social functioning in the depressed adolescents, despite of comparable scores of depression similar to other studies [16, 17]. For several reasons, adolescents were seen to be inclined toward NSSI and one study showed that its prevalence varies between 12 and 23% for adolescents and 7.5–8% for pre-adolescents.

So far as we know, our research was the first to present that hopelessness, suicidal ideation, and NSSI are interrelated and are the predictors of forthcoming suicide attempts. Our findings also demonstrate the importance of earlier assessment of hopelessness at the time of admission. Non-responsiveness of the patients toward therapy was also associated with hopelessness, suicidal ideation, family conflicts, depression, and functional impairment. Our results determined that during treatment, depressed adolescents with pre-baseline NSSI (risk = 51%) had a greater risk of attempt than those with no NSSI (risk = 7%). This study also confirmed that poor family functioning was connected to NSSI, which is in divergence to ADAPT (Adolescent Depression Antidepressants and Psychotherapy Trial) [18, 19]. Either due to continued depression or unresponsiveness to the treatment, the risk of NSSI was greater when the scores on HAM-D were high. Later suicidal attempts were associated with problems in friendships, arguments with any of the family members, estrangement from a family member or a friend, and other such emotional traumas. None of the participants actually died, according to May and Klonsky's 2016 meta-analysis, specifically, depression, alcohol use disorders, hopelessness, gender, race, marital status, and education all were similar for attempters and ideators ($d = -0.05$ to 0.31). Anxiety disorders, PTSD, drug use disorders, and sexual abuse history were moderately elevated in attempters compared to ideators ($d = 0.48$ – 0.52). So the hopelessness scale is only used to measure the severity but cannot predict the suicidal attempts among depressive patients.

Those adolescents having attempted suicide and NSSI history have a greater extent of isolation or solitude, annoyance, risk-taking, carelessness, desperation, alcohol, and drug addiction as compared to solitary suicide attempts. Comparatively, the youngsters who attempted suicide and are also suffering from

NSSI are likely to evaluate themselves more negatively and self-judgmental, lacking self-confidence and self-assurance, and make decisions without thinking.

Children suffering from mental illness and distress are not very much different from the teenagers having NSSI and who attempted suicides [20, 21]. Patten and colleagues found that youngsters having NSSI or with a history of attempted suicide and NSSI only have every type of childhood exploitations, actual physical harm, emotional brutality, and negligence indicating that childhood abuse and negligence may be a major risk for NSSI [22, 23]. However, responsibility and support of parents alter in youngsters with NSSI and attempted suicide history from those suffering from NSSI only. It is reported that comparatively youngsters who attempted suicide having NSSI have less support from their parents than the patients of NSSI alone, but the groups were not different in reported peer support. It is suggested through research that teenagers with a history of both NSSI and suicidal attempts show more severe psychological symptoms. They are involved in much threatening and risky attitude than teenagers with NSSI only. It is thus highlighting the significance in clinical practice for the analysis of both NSSI and suicide among the intervention groups.

Youngsters who attempted suicide are also involved in physical violence, drug, and alcohol consumption, and they are reported with limited social circle and family relationships [24]. However, it is proposed from research and studies that suicidal attempts may result from higher levels of physiological conditions than NSSI. There are mixed findings as a result of research in youngsters but future research should make efforts to explain that suicidal thoughts functioning held with no suicidal intention or acts.

According to the findings of Wilkinson and his coworkers during treatment and monitoring a person's health, suicidal attempts were independently forecasted by poor family operations and NSSI history, while NSSI history, anxiety attacks, feeling of despair, younger age, and female gender predicted the engagement in NSSI independently. Previous NSSI history/record is the major predictor of NSSI and suicidality during the period of monitoring and treatment.

The probability of suicidal attempts seemed to be lesser in the later stages of our study as compared to the beginning. A month before the baseline, almost about weeks ago, the risk of suicide was very high than the baseline (8%). The interesting part is that due to therapy the risk of suicide declines over time after 12 weeks (7%) followed by 28 weeks of analysis (7%). Variables predicted from patients' suicidal behavior and NSSI during evaluation are listed in **Table 2**. During the period of monitoring and treatment, there is a great risk of suicidal attempts coupled with severe depression, suicidal ideation and acts, lack of hope and self-esteem, extant of NSSI, or previously attempted suicide history and compromised family operation, but not with care providers, friendship problems, or parental mental health. Numerous logistic regressions indicated that successive suicides result from an elevated suicidal attempt at entry (odds ratio = 1.59, $p = 0.026$) and ill family operation (odds ratio = 2.27, $p < 0.0005$).

Sixty-one adolescents (51%) had a minimum one attempt of NSSI during the month prior to baseline. During the 28-week follow-up, 60 (37%) had at least one activity of NSSI. The rate of NSSI was lower through all the studying months compared to the month prior to baseline (month earlier than the 6-week judgment, 28%; month prior to the 12-week evaluation, 19%; month prior to the 28-week assessment, 18%). **Table 3** mentions that NSSI a month before the baseline, higher level of suicidal ideation and thoughts, elevation in depression and sadness, increased anxious behavior and pessimism during follow-up females are drastically linked with a minimum one NSSI case. A month prior before the baseline, during the monitoring period treatment, suicidal attempts and group are not with NSSI. Data on self-harm are shown in **Table 3**. It is demonstrated through analysis that

suicidal attempts are predicted by pre-baseline NSSI. As assessed by the McMaster Family Assessment Device, the family function was the best possible predictor cutoff for a suicidal attempt among the larger subgroup with no pre-baseline NSSI., with a cutoff of 25/26; 15/45 (31%) with scores >25 and 3/56 (6%) with scores less than 26 had a suicidal attempt.

Model fit significantly improved ($\chi^2 = 6.6$, $df = 1$, $p < 0.01$). NSSI and Family function were the root causes of suicidal attempts, whereas the future suicide attempt was not linked to baseline suicidality. In the case of youngsters who had attempted suicide a month before the baseline suicidal attempt, the results were similar. It has been concluded that by using various models of NSSI and family function again the pre-baseline suicidal attempt was not linked to future completed suicide (OR = 2.4, $p = 0.066$). In **Table 1**, pair-wise relationship of predictor variables is summarized. Variance inflation factor was low at 1.25. All the pair-wise relationship coefficients were < 0.5 except the suicidal ideations and suicidal attempts and previous suicidal attempt history. To further confirm the present findings and the relationship of NSSI, hopelessness, and complete suicide, a thorough cohort study or clinical trial is needed. Although the recent findings indicate clearly the relationship, the relationship mechanism underlying this phenomenon could be merely speculated.

7. Conclusion

The conclusion of the study is suicide and NSSI that are both significant risks for depressed adolescents. In the future, it would reveal to us that a higher tendency of a person to commit suicide, family conflict and rude behavior, and current self-abuse would increase the chance of suicidal attempts. The future NSSI is strongly predicted by the presence of the current NSSI. The encouraging outcomes belong to the trials of treatment of NSSI designated for the improvement of treatment process and treatment trials and new methods of treatments are required. The Hopelessness Scale can help clinicians determine those at the highest risk of completing a suicide attempt in the future and we believe that attention to this scale will save many lives. Depressive adolescents are at high risk to attempt suicide and NSSI. Different scales are designed to measure the risks, which help in the treatment and lowering the increasing risks. Most of the youngsters suffering from depression and having suicidal thoughts generally do not attempt suicide. Joiner's interpersonal psychological theory proposed that people who have wish to die have the ability to act on their wish attempt suicide. It is also stated by him that the people who repeatedly undergo self-injury and self-abuse have higher forbearance of pain and they are not afraid of death. Therefore, those having higher suicidal thoughts can attempt suicide.

IntechOpen

Author details

Fahad Hassan Shah¹, Song Ja Kim^{1*}, Laiba Zakir², Aqsa Ehsan², Sohail Riaz³,
Muhammad Sulaiman³ and Saad Salman^{3*}

¹ Department of Biological Sciences, College of Natural Sciences, Kongju National University, Gongju, Republic of Korea

² Ibadat International University, Islamabad, Pakistan

³ Faculty of Pharmacy, Capital University of Science and Technology, Islamabad, Pakistan

*Address all correspondence to: ksj85@kongju.ac.kr and saad.salman@cust.edu.pk

IntechOpen

© 2022 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

References

- [1] World Health Organization. Preventing Suicide: A Global Imperative. Geneva: World Health Organization; 2014
- [2] Hishinuma ES, Smith MD, McCarthy K, Lee M, Goebert DA, Sugimoto-Matsuda JJ, et al. Longitudinal prediction of suicide attempts for a diverse adolescent sample of native Hawaiians, Pacific peoples, and Asian Americans. *Archives of Suicide Research*. 2018;22:67-90
- [3] Choo CC, Harris KM, Chew PKH, Ho RC. What predicts medical lethality of suicide attempts in Asian youths? *Asian Journal of Psychiatry*. 2017;29:136-141
- [4] Glenn CR, Lanzillo EC, Esposito EC, Santee AC, Nock MK, Auerbach RP. Examining the course of suicidal and nonsuicidal self-injurious thoughts and behaviors in outpatient and inpatient adolescents. *Journal of Abnormal Child Psychology*. 2017;45:971-983
- [5] Salman S, Idrees J, Hassan F, Idrees F, Arifullah M, Badshah S. Predictive factors of suicide attempt and non-suicidal self-harm in emergency department. *Emergency*. 2014;2:166
- [6] Olfson M, Wall M, Wang S, Crystal S, Bridge JA, Liu S-M, et al. Suicide after deliberate self-harm in adolescents and young adults. *Pediatrics*. 2018;141:1-12
- [7] Poon JA, Thompson JC, Forbes EE, Chaplin TM. Adolescents' reward-related neural activation: Links to thoughts of nonsuicidal self-injury. *Suicide & Life-Threatening Behavior*. 2018;49:76-89
- [8] Okolie C, Dennis M, Thomas ES, John A. A systematic review of interventions to prevent suicidal behaviors and reduce suicidal ideation in older people. *International Psychogeriatrics*. 2017;29:1801-1824
- [9] Weishaar ME, Beck AT. Hopelessness and suicide. *International Review of Psychiatry*. 1992;4:177-184. DOI: 10.3109/09540269209066315
- [10] Epstein NB, Baldwin LM, Bishop DS. The McMaster family assessment device. *Journal of Marital and Family Therapy*. 1983;9:171-180
- [11] Golderberg D, Williams P. A User's Guide to the General Health Questionnaire. NFER-Nelson: Windsor, UK; 1988
- [12] Löwe B, Wahl I, Rose M, Spitzer C, Glaesmer H, Wingenfeld K, et al. A 4-item measure of depression and anxiety: Validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *Journal of Affective Disorders*. 2010;122:86-95. DOI: 10.1016/j.jad.2009.06.019
- [13] Keller F, Grieb J, Ernst M, Spröber N, Fegert JM, Kölch M. Children's Depression Rating Scale – Revised (CDRS-R). *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*. 2011;39:179-185. DOI: 10.1024/1422-4917/a000090
- [14] Hamilton M. A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry*. 1960;23:56
- [15] Salman S, Asghar S, Anees M, Idrees J, Usman M, Shah FH, et al. Suicide attempts and non-suicidal self-injury among depressed COPD and lung cancer patients: A nationwide longitudinal study in Pakistan and Afghanistan. *Respiratory Medicine*. 2017;132:279
- [16] Hilton RC, Rengasamy M, Mansoor B, He J, Mayes T, Emslie GJ, et al. Impact of treatments for depression on comorbid anxiety, attentional, and

behavioral symptoms in adolescents with selective serotonin reuptake inhibitor-resistant depression. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2013;**52**:482-492

[17] Wardenaar KJ, Monden R, Conradi HJ, de Jonge P. Symptom-specific course trajectories and their determinants in primary care patients with major depressive disorder: Evidence for two etiologically distinct prototypes. *Journal of Affective Disorders*. 2015;**179**:38-46

[18] Wilkinson P, Kelvin R, Roberts C, Dubicka B, Goodyer I. Clinical and psychosocial predictors of suicide attempts and nonsuicidal self-injury in the Adolescent Depression Antidepressants and Psychotherapy Trial (ADAPT). *The American Journal of Psychiatry*. 2011;**168**:495-501

[19] Zhang Y, Zhou X, Pu J, Zhang H, Yang L, Liu L, et al. Antidepressants for depressive disorder in children and adolescents: A database of randomised controlled trials. *BMC Psychiatry*. 2018;**18**:162. DOI: 10.1186/s12888-018-1749-0

[20] Chamberlain SR, Cavanagh J, de Boer P, Mondelli V, Jones DNC, Drevets WC, et al. Treatment-resistant depression and peripheral C-reactive protein. *The British Journal of Psychiatry*. 2018;**214**:1-9. DOI: 10.1192/bjp.2018.66

[21] O'Connor RC, Wetherall K, Cleare S, Eschle S, Drummond J, Ferguson E, et al. Suicide attempts and non-suicidal self-harm: National prevalence study of young adults. *BJPsych Open*. 2018;**4**:142-148

[22] Patten SB, Wang JL, Williams JVA, Lavorato DH, Khaled SM, Bulloch AGM. Predictors of the longitudinal course of major depression in a Canadian population sample. *Canadian Journal of Psychiatry*. 2010;**55**:669-676

[23] Walsh CG, Ribeiro JD, Franklin JC. Predicting suicide attempts in adolescents with longitudinal clinical data and machine learning. *Journal of Child Psychology and Psychiatry*. 2018;**59**:1261-1270

[24] Chang S-S, Gunnell D. Natural environments and suicide. *The Lancet Planetary Health*. 2018;**2**:e109-e110. DOI: 10.1016/S2542-5196(18)30024-X