

THE ASSOCIATION OF INTRAPERSONAL TRAIT EMOTIONAL INTELLIGENCE AND RESILIENCE WITH SUICIDAL IDEATION IN UNIVERSITY STUDENTS

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received: 30.3.2021;

revised: 31.8.2021;

accepted: 5.9.2021

SUMMARY

Background: Suicidal ideation is not restricted to psychiatric patients. To the contrary, it is not uncommon in the general population and constitutes a precursor for suicide attempts and completed suicides. While risk factors for suicidality have extensively been described, much less attention has been devoted to the investigation of protective factors. In the current study we investigated two of such potential protective factors in combination, namely trait emotional intelligence (EI) and resilience in a sample of university students.

Subjects and methods: We recruited 277 university students without an active physical or mental disorder requiring medical attention via an online questionnaire and assessed lifetime and four-week suicidal ideation. Resilience was measured with the Connor-Davidson Resilience Scale, EI with the Self-report Emotional Ability Scale and stressful life events with the Social Readjustment Rating Scale. Logistic regression was used to investigate the effect of EI and resilience on lifetime and four-week suicidal ideation.

Results: Resilience as well as intrapersonal trait EI factors were significantly lower in individuals who reported lifetime suicidal ideation. The regression analysis revealed the EI facet "Regulation of one's own emotions" and the resilience factor "Control" to be significant predictors of lifetime and/or four-week suicidal ideation. Neither trait EI nor resilience had a moderating effect on the relationship between life events and suicidality.

Conclusions: Low intrapersonal EI and low resilience are associated with lifetime and, in part, four-week suicidal ideation.

Key words: trait emotional intelligence – resilience - suicidal ideation - life events

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INTRODUCTION

Suicidal ideation is a phenomenon seen frequently in psychiatric, in particular depressive disorders. However, its occurrence is not restricted to psychiatric illness. It is an important precursor of suicide attempts and completed suicides and varies widely with respect to stability, intensity and concreteness. The lifetime prevalence of suicidal ideation in the general population ranges from 3.1% to 43% (Lee et al. 2007, Nock et al. 2008, Tyssen et al. 2001) and the one-year prevalence is reported between 2.8% and 14% (Crosby et al. 2011, Kessler et al. 2005, Tyssen et al. 2001). Studies including other forms of suicidality such as weariness of life or death wishes show an even higher one-year prevalence of up to 34% (Renberg 2001). In adolescents and young adults the lifetime prevalence of suicidal ideation is reported 12.1-33% (Nock et al. 2013). According to the 2014 WHO report (WHO 2014) suicide was responsible for 8.5% of all causes of death and it is the second most common cause of death in individuals from the age of 10 up to 24 years (Heron 2016).

Therefore, identifying individuals at risk in this population is of great importance but also a major challenge in general medicine, psychiatry/psychotherapy

and public health. If individuals at risk are identified early, appropriate preventive interventions can be offered. Suicidal ideation has mostly been investigated in individuals living with a psychiatric disease (Fagiolini et al. 2004, Harris & Barraclough 1997, Stip et al. 2017) but there is much less known about suicide ideation in young individuals who are currently not in treatment for any disease.

Several studies found an association between stressful life events or psychological distress and suicidality (Adams et al. 1994, Cooper et al. 2002, Palmu et al. 2020). Protective factors such as emotional intelligence (EI) and resilience have attracted much less attention in this context. Specifically, the combined effect of resilience and EI on suicidal ideation has not been investigated so far.

EI primarily focuses on individual differences in perceiving and managing emotions in oneself (intrapersonal EI) and others (interpersonal EI) (Freudenthaler & Neubauer 2005). Of the two major approaches to EI (i.e., ability EI vs. trait EI) which currently exist in the literature, the former conceives EI as a form of intelligence and refers to maximum performance. In contrast, trait EI refers to typical performance and encompasses affect-related behavioural tendencies and self-

perceived abilities. Whereas maximum performance tests are capturing what individuals are theoretically capable of doing, self-report trait EI measures aim to capture how much of this capacity typically translates into practice (herewith assessing individuals' typical functioning in everyday life more directly (Freudenthaler et al. 2008, Mikolajczak et al. 2008, Pérez et al. 2005). Trait EI facets have been found to be negatively associated with suicide risk (Obeid et al. 2021, Dominguez-Garcia et al. 2018).

There are two ways to characterize resilience. On the one hand it is defined as "recovery from stressful events", on the other hand it is considered as "the ability to sustain pursuit of the positive in the face of adversity" (Hughes et al. 2012). According to Luthar, psychological resilience is a dynamic process of positive adaptation in the context of significant adversity (Luthar et al. 2000). Several studies have investigated the potential association between resilience and suicidality. Liu et al. (2014) showed an association between low resilience and higher risk for suicidality. This goes in line with Kim et al. (2020) who reported a high level of resilience to be associated with a low incidence of suicidal ideation among Korean workers. In contrast, an investigation in adolescents found that suicide attempters were less resilient than non-attempters (Nrugham et al. 2010). Recently, resilience has been suggested as a focus of suicide research and prevention (Cheung et al. 2019, Kachadourian et al. 2019, Sher 2019).

There are different theories on the relationship between EI and resilience. Ciarrochi et al. (2002) suggested that EI may foster resilience. Armstrong et al. (2011) hypothesized that EI functions via its composite dimensions to facilitate resilience. Previous work indicated correlations between ability EI and resilience (Frajo-Apor et al. 2016). Both EI and resilience may moderate the influence of negative life events and childhood trauma on suicide risk (Peng et al. 2012, Roy et al. 2011, Wingo et al. 2010).

This cross-sectional study investigated the combined effect of intra- and interpersonal trait EI as well as resilience on recent and lifetime suicidal ideation in a sample of university students.

Additionally, we explored the moderating influence of trait EI and resilience on the relationship between life events and suicidal ideation.

SUBJECTS AND METHODS

Study participants were male and female students of the Leopold Franzens University of Innsbruck. They were invited to participate if they were at least 18 years old and were currently enrolled at a branch of study of the university. The Leopold Franzens University of Innsbruck runs study courses in all major academic disciplines except for medicine, which is provided by a separate Medical University. The only exclusion criterion was a self-reported current instable physical or psychiatric disease requiring treatment.

Participants were recruited using an e-mail distribution list provided by the university. Study procedures were explained in the contact mail providing access to an internet questionnaire specially generated for this study. Informed consent was given by clicking on a button on the introduction page. The students completed the questionnaire online and principally remained anonymous. However, there was the possibility to contact the study team via email for any questions. Participants were also advised to fill in the questionnaire only when being alone. Completing the questionnaire took about 20 minutes.

The study was approved by the Ethics Committee of the Medical University of Innsbruck.

Sociodemographic and suicidality related variables

Data were collected on age, gender, field of study, marital and relationship status. Subjects were asked whether they had experienced suicidal ideation during the past four weeks as well as during lifetime ("Have you ever experienced suicidal thoughts?" and "If yes, have you experienced suicidal thoughts during the past four weeks?"). Further, lifetime history of suicide attempts was assessed.

Trait Emotional Intelligence

The Self-report Emotional Ability Scale (SEAS) (Freudenthaler & Neubauer 2005) encompasses four subscales for the measurement of self-assessed intrapersonal emotion-related skills: "Perception of one's own emotions" (9 items, e.g., "It often takes a while for me to recognize my true feelings"), "Regulation of one's own emotions" (6 items, e.g., "When I am scared of something I can barely do anything against it"), "Control over the expression of one's own emotions" (7 items, e.g., "In certain situations I cannot suppress my feelings even though I try"), "Masking of emotions" (8 items, e.g., "If I want I can simulate almost all kinds of feelings") and two subscales for interpersonal emotion-related skills: "Perception of the emotions of others" (11 items, e.g., "I can tell immediately if a friend is worried about something") and "Regulation of the emotions of others" (8 items, e.g., "I can influence the mood of others very well"). It comprises 49 items, which are rated on a 6-point-Likert scale, ranging from "not true" to "very true". Higher scores indicate higher levels of self-assessed skills. The scale has been successfully used in several other studies (Papousek et al. 2008, 2009, 2011, Weiss et al. 2012).

Psychological resilience

The Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson 2003) was applied because of its frequent use in numerous studies, its good psychometric properties and the different constituents of resilience it

comprises. The scale is divided into five broadly defined factors including "Personal competence and tenacity" (e.g., "You work to attain your goals"), "Trust in one's instincts and tolerance of negative affect" (e.g., "Can handle unpleasant feelings"), "Acceptance of changes" (e.g., "Able to adapt to change"), "Control" (e.g., "In control of your life") and "Spiritual influence" (e.g., "Things happen for a reason").

The German version we used in this investigation was validated by Sarubin et al. (2015). It is a 5-point Likert scale with 25 items. The total score ranges from 0-100 and refers to feelings and attitudes during the past month. Connor & Davidson (2003) showed good psychometric properties of their scale, in particular favourable internal consistency (Cronbach's alpha of 0.89) and good test-retest reliability (intra-class correlation coefficient of 0.87).

Stressful life events

The Social Readjustment Rating Scale (SRRS) (Holmes & Rahe 1967) assesses negative as well as positive life events which represent a potential risk with regard to the development of stress related illnesses. In this study, we assessed such life events during the past four weeks. The scale consists of a list with 43 life events (e.g., "Death of spouse", "Personal illness", "Marriage", "Fired at work") which may cause stress and require readjustment abilities. A total score between 150 and 299 indicates a 50% chance for developing a stress related disease. According to Blasco-Fontecilla et al. (2012) the SRRS may be useful to identify suicide risk.

Statistical Methods

Prior to the analysis, the psychological scales used (SEAS, CD-RISC, and SRRS) were scrutinized for deviations from a normal distribution by means of the Shapiro-Wilk test.

Variables showing significant deviations from normality were subjected to an appropriate transformation (e.g., square-root) to approximate their distribution to normality. Associations between suicidal ideation and socio-demographic variables were tested by means of the usual two-sample tests, i.e., the t-test for continuous variables, e.g. age, and the Chi-square test for categorical variables, e.g. partnership. The t-test was also used to compare participants with suicidal ideation or a history of suicide attempts and those without, with regard to the measures of interest, i.e., EI (SEAS), resilience (CD-RISC) and life events (SRRS). In these analyses, both lifetime suicidal ideation and suicidal ideas in the past four weeks were taken into account.

Moreover, logistic regression was used to investigate the effect of EI (SEAS subscales) and resilience (CD-RISC subscales) on lifetime suicidality and, similarly, the effect of EI, resilience and life events (SRRS total score) in the past four weeks on suicidality in the last four weeks. Both main effects and interactions were

tested in the logistic regression analyses. Significant predictors were identified using the forward selection method. Only those trait EI and resilience components were considered as independent variables which had shown a significant relationship with suicidal ideation (lifetime or past four weeks, depending on the outcome variable) in the two-group comparison. All statistical tests were performed at a 0.05 level of significance.

Power considerations

The following power analysis was performed with GPower, version 3.1 (Faul et al. 2007), assuming a type-one error of $\alpha=0.05$ and a power of $1-\beta=0.8$ throughout. A total of $N=277$ students were included in the study. For comparing persons with life-time suicidality (42.6% of the sample) and those without (57.4%) the sample size is sufficiently large to detect, by Student's t-test, mean differences exceeding an effect size of $d=0.342$. This is a small to medium effect size according to Cohen's classification (Cohen 1992). Moreover, in a logistic regression analysis to investigate predictors of life-time suicidality, the sample size allows detection of odds ratios (OR) ≥ 1.53 for normally distributed continuous covariates when testing the effect of an increase in the covariate by one standard deviation. This is a small effect according to Cohen.

For comparison of persons with four-week suicidality (6.5% of the sample) and those without (93.5%) the sample size of $N=277$ allows detection of mean differences with an effect size of $d \geq 0.686$ by Student's t-test. This is a medium to large effect size according to (Cohen 1992). Considerations for logistic regression analyses as above for the prediction of four-week suicidality result in medium effect sizes of continuous covariates that can be detected (OR ≥ 2.18).

RESULTS

Sociodemographic and suicidality related data

A total of 302 students participated in the online survey. 25 subjects were excluded because of implausible answers (e.g., multiple deaths of the partner or multiple marriages within the past weeks), thus 277 participants were included into the final analysis. Table 1 presents descriptive data of the sample. A considerable percentage (42.6%) reported a lifetime history of suicidal thoughts. Suicidal ideation during the past four weeks was reported by 6.5%. 3.2% had already attempted suicide during their life course.

There were no significant associations between suicidal ideation and age or gender. However, lifetime suicidal ideation was significantly associated with partnership, showing a lower prevalence in persons with a stable relationship than in those without (35.9% vs. 48.6%, respectively, $\chi^2 = 4.59$, $p=0.032$). No significant association between partnership and four-week suicidal ideation was seen.

Table 1. Sample characteristics

Variable	N (%) or Mean ± SD
Age (years)	24.3±6.3
Gender (male / female)	75 (27.1%)/202 (72.9%)
Degree of study	
Bachelor	151 (54.5%)
Master	119 (43.0%)
Doctoral program	7 (2.5%)
Marital status	
Single	260 (93.9%)
Married	12 (4.3%)
Divorced	3 (1.1%)
Widowed	2 (0.7%)
Current partnership	131 (47.3%)
Suicidal thoughts lifetime	118 (42.6%)
Suicidal thoughts past 4 weeks	18 (6.5%)
Suicide attempts lifetime	9 (3.2%)

Comparison of trait EI and resilience in individuals with and without lifetime suicidality

Students with a lifetime history of suicidal ideation scored significantly lower on the CD-RISC as well as on the subscales "Personal competence and tenacity", "Acceptance of changes" and "Control" (Table 2).

For trait EI as measured by SEAS there was no difference for the overall score between participants with a lifetime history of suicidal ideation and those without. Nevertheless, participants with a history of suicidal ideation scored significantly lower in intrapersonal EI and two of its facets, namely "Perception" and "Regulation of one's own emotions".

Table 2. EI and resilience by lifetime suicidal ideation

Variable	Suicidal ideation (lifetime)				Statistics	
	Yes (n=118)		No (n=159)		Student's t-test t	p-value
	Mean	SD	Mean	SD		
SEAS						
Perception of one's own emotions	3.92↓	0.77	4.18	0.73	-2.905	0.004
Perception of the emotions of others	4.28	0.79	4.31	0.66	-0.340	0.734
Control over the expression of one's own emotions	3.45	0.87	3.45	0.83	-0.012	0.990
Masking of emotions	3.86	0.83	3.67	0.86	1.470	0.143
Regulation of one's own emotions	3.47↓	0.73	3.83	0.72	-4.038	<0.001
Regulation of the emotions of others	3.94	0.70	3.94	0.71	-0.056	0.956
Intrapersonal emotional abilities	3.45↓	0.62	3.68	0.62	-3.029	0.003
Interpersonal emotional abilities	4.18	0.74	4.20	0.63	-0.189	0.850
Total score	189.91	22.84	193.61	21.97	-1.360	0.175
CD-RISC						
Personal competence and tenacity ^a	2.68↓	0.65	2.88	0.49	-2.614	0.010
Trust in one's instincts and tolerance of negative affect	2.44	0.60	2.54	0.54	-1.436	0.152
Acceptance of change and secure relationships	2.89↓	0.55	3.11	0.44	-3.632	<0.001
Control	2.49↓	0.78	2.89	0.57	-4.748	<0.001
Spiritual influence	2.00	0.95	1.91	0.91	0.778	0.437
Total score	64.49↓	12.96	68.97	10.35	-3.094	0.002

^a A square-root transformation was required to achieve approximate normality for the CD-RISC subscale "Personal competence and tenacity" ($x \rightarrow \sqrt{\{\text{maximal possible score} - x\}}$)

Comparison of trait EI, resilience, and stressful life events in individuals with four-week suicidality

The subgroup of students who had experienced suicidal ideation in the past four weeks (n=18) displayed significantly lower scores in the CD-RISC subscale "Control" than those whose suicidal ideation dated back a longer time (2.09±0.82 vs. 5 2.56 ± 0.76; t=2.26, d.f. = 116, p=0.034). Apart from that the two groups did not show any significant differences.

When comparing the recent suicidal ideation group to those without (n=259) a significant difference with regard to stressful life events measure by SRRS (assessed for the past four weeks) was found (200.8±133.9 vs. 134.7 ± 117.8; t=2.25, d.f. = 275, p=0.025).

Results of logistic regression analyses

In addition to the bivariate analyses we investigated the combined effects of EI and resilience on lifetime suicidal ideation and four-week suicidal ideation by logistic regression. Regarding *lifetime* suicidal ideation, only one subscale of the SEAS emerged as a significant predictor, namely the trait EI facet "Regulation of one's own emotions" (Table 3). Among the resilience measures, the CD-RISC subscale "Control" was found to be a significant predictor (Table 3). High values in both of these factors went along with a lower risk of lifetime suicidal ideation (odds ratios <1). No further significant predictor of lifetime suicidal ideation was observed once these two variables were included in the model. Moreover, no significant moderating effect of any of the SEAS or CD-RISC subscales was seen.

Table 3. Results of logistic regression analysis for suicidal ideation lifetime – final model ^a

Predictors	Wald	df	p	Odds ratio ^b	95% CI of OR	
					Lower	Upper
SEAS: Regulation of one's own emotions	7.612	1	0.006	0.599	0.416	0.862
CD-RISC: Control	13.195	1	0.000	0.484	0.328	0.716
Constant	20.495	1	0.000	34.506		

^a Independent variables tested: all factors of SEAS and all factors of CD-RISC, provided they had attained significance in the two-group comparison (see Table 2); ^b Odds ratios were calculated per unit increase of the corresponding variable; Abbreviations: df= degrees of freedom; CI = confidence interval; OR = odds ratio

Table 4. Results of logistic regression analysis for suicidal ideation in the past 4 weeks - final model ^a

Predictors	Wald	df	p	Odds ratio ^b	95% CI of OR	
					Lower	Upper
SEAS: Regulation of one's own emotions	14.521	1	0.000	0.268	0.136	0.528
CD-RISC: Control	5.846	1	0.016	1.005	1.001	1.008
Constant	0.049	1	0.825	0.831		

^a Independent variables tested: all factors of SEAS, all factors of CD-RISC and SRRS total score. As only CD-RISC Control and SRRS total score had reached significance in the two-group comparison, merely these two variables were used in the logistic regression analysis; ^b Odds ratios were calculated per unit increase of the corresponding variable; Abbreviations: df= degrees of freedom; CI = confidence interval; OR = odds ratio

When investigating the effects of EI, resilience and life events on *four-weeks* suicidal ideation by logistic regression, two variables arose as significant predictors, namely the CD-RISC factor "Control" and the SRRS total score (Table 4). Higher values in CD-RISC "Control" went along with a reduced risk, whereas higher SRRS total scores were associated with a higher risk of suicidal ideation in the past 4 weeks (odds ratio >1).

No moderating effects of trait EI or resilience (CD-RISC) on the relationship between life events experienced in the past four weeks (SRRS) and suicidal ideation in the same period of time were found. This held true for the intra- and interpersonal trait EI facets as well as for the total score and sub scores of the CD-RISC.

DISCUSSION

In this study we investigated the relationship of trait EI facets and resilience components with suicidal ideation in healthy university students simultaneously. Overall resilience and three of eight trait EI subscale scores were lower in individuals with lifetime suicidal ideation compared to those without. Furthermore, recent stressful life events were positively related to the occurrence of suicidal thoughts during that time period. The two variables "Control" (CD-RISC) and "Regulation of one's own emotions" (SEAS) emerged as significant predictors of lifetime suicidal ideation in the logistic regression analysis. Further, the SRRS total score and the resilience factor "Control" were found to predict four-week suicidal ideation. No moderating effects of trait EI facets or resilience components on the relationship between stressful life events and suicidal ideation were found.

Trait EI and lifetime suicidal ideation

The results for trait EI suggest that suicidal ideation is related to deficits in the perception and regulation of one's own emotions. Our findings are in line as well with research in the same field (Dominguez-Garcia et al. 2018) as with findings on alexithymia, mindfulness-based cognitive therapy (MBCT) and emotional clarity (Hargus et al. 2010, Obeid et al. 2021, Williams et al. 2006).

We found a negative association between "Regulation of one's own emotions" and lifetime suicidal ideation. Previous research has found a strong correlation between difficulties in self- emotion regulation and suicidal behavior in young adults (Ong & Thompson 2019; Pisani et al. 2013).

In contrast, we did not find an association of lower scores in the perception and regulation of the emotions of others with recent or life-time suicidal ideation. Some studies actually reported impairments in social emotion recognition and restricted social networks in older suicide attempters and depressed women (Szanto et al. 2012, Lee et al. 2005). This does not seem to be true for the considerably younger subjects in our study. In sum, our results indicate that the reduced ability to deal with one's own feelings may be more critical with regard to suicidal ideation than interpersonal emotion related skills.

Resilience and lifetime suicidal ideation

We found a negative relationship between the total and three subscale scores and lifetime suicidal ideation. An association of lower resilience with suicide attempts has already been reported in previous studies (Nrugham et al. 2010, Roy et al. 2011). Our findings also concur with Liu et al. (2014) and Izadinia et al. (2010) who also showed a negative correlation between resilience and suicidal ideation.

Of the five CD-RISC subscales we found that "Control" (defined as the belief in one's ability to influence the course of events; Averill 1973), "Acceptance of change and secure relationships" and "Personal competence and tenacity" were negatively associated with lifetime suicidal ideation. These abilities seem to be particularly important when it comes to considerations how to strengthen psychological resilience, e.g., in psychotherapeutic interventions (Gallagher & Miller 2018, Williams et al. 2006).

Combined effects of trait EI and resilience on lifetime and four-week suicidality

Since we assessed trait EI facets and resilience at once, the possibility to analyze combined effects of these variables on lifetime and recent suicidal ideation is an important novel aspect of this study. Only the EI facet "Regulation of one's own emotions" and the factor "Control" of the CD-RISC emerged as significant predictors of lifetime suicidal ideation, suggesting a link between those two variables. A strong belief in one's own emotion regulation skills which is quite meaningful in case of suicidality (Aradilla-Herro et al. 2014, Bateman & Fonagy 2009, Pisani et al. 2013) may contribute to a greater sense of control over situations and one's life. This explanation would implicate that intrapersonal emotion regulation skills work through the resilience factor "Control" and therefore have an indirect impact on suicidality.

Suicidal ideation during the past four weeks

Besides the resilience factor "Control", a higher SRRS total score was associated with four-week suicidal ideation. This is in concordance with findings on the relationship between stress, traumatic experience and life events with suicidality (Cha & Nock 2009, Ciarrochi et al. 2002, Izadinia et al. 2010).

Against our assumptions, we did not find a moderating effect of trait EI facets or resilience on the association between stressful life events and suicidal ideation within the past four weeks. However, this finding is in line with results from a previous study (Liu et al. 2014).

Limitations

Given the cross-sectional design of the study, differences do not necessarily indicate causal relationships. Assessments through self-report might be biased by social desirability of participants, in addition, potentially not yet diagnosed psychiatric disorders cannot be ruled out. Generalizability to the general population is limited. Nevertheless, both cross-sectional design as well as self-report assessment are common methods and preserve the anonymity of participants. Because of the highly selected nature and the recruitment of the sample it was not possible to establish an appropriate control group.

Finally, the SRRS does not capture life events during the whole life, thus analyses regarding the moderating effect of EI and resilience on lifetime suicidal ideation were not possible. The SRRS is one of the most widely used scales to assess life-events and we decided to use this scale because it captures typical stressful events in the general population, in contrast to other life event scales which rather collect data on traumatic events.

CONCLUSION

The present study confirms the psychodynamic concept of Bateman and Fonagy. According to them the development of mentalization is linked to the development of self-regulation and they assumed that dysfunctions of mentalization lead to subjective distress which can result in self-harm and suicidality. This theory has already been transferred into clinical praxis in that they found a significant improvement in suicidal behavior in borderline patients after 18 months of mentalization based therapy (MBT).

The results also underline the usefulness of mindfulness-based cognitive therapy (MBCT) and its practical relevance. Being sensitive to emotional and cognitive experiences in oneself to identify warning signals for potential relapse of depression with an attitude of nonjudgment and acceptance is one element of MBCT which is an established intervention for patients with a history of recurrent depression and suicidal ideation.

In conclusion, integrating these aspects into the individual therapeutic process by strengthening EI abilities and resilience, as it is already part of mindfulness-based cognitive therapy and mentalization based therapy, may be beneficial.

Acknowledgements: None.

Conflict of interest: None to declare.

Contribution of individual authors:

Patricia Sojer wrote the manuscript.

Susanne Kainbacher performed the ratings of study participants.

Katharina Hüfner & Heribert Freudenthaler critically read previous versions of the manuscript and added important input based on their specific expertise.

Georg Kemmler performed the statistical analyses and designed the tables.

Eberhard A. Deisenhammer planned and designed the study in collaboration with all other authors.

References

1. Adams DM, Overholser JC & Spirito A: Stressful life events associated with adolescent suicide attempts. *Can J Psychiatry* 1994; 39:43-48

2. Aradilla-Herrero A, Tomás-Sábado J & Gómez-Benito J: Associations between emotional intelligence, depression and suicide risk in nursing students. *Nurse Educ Today* 2014; 34:520-525
3. Armstrong AR, Galligan RF & Critchley CR: Emotional intelligence and psychological resilience to negative life events. *Pers Individ Differ* 2011; 5:331-336
4. Averill JR: Personal control over aversive stimuli and its relationship to stress. *Psychol Bull* 1973; 80:286
5. Bateman A & Fonagy P. Randomized controlled trial of outpatient mentalization-based treatment versus structured clinical management for borderline personality disorder. *Am J Psychiatry* 2009; 166:1355-1364
6. Blasco-Fontecilla H, Delgado-Gomez D, Legido-Gil T, De Leon J, Perez-Rodriguez MM, Baca-Garcia E: Can the Holmes-Rahe Social Readjustment Rating Scale (SRRS) be used as a suicide risk scale? An exploratory study. *Arch Suicide Res* 2012; 16:13-28
7. Cha CB & Nock MK: Emotional intelligence is a protective factor for suicidal behavior. *J Am Acad Child Adolesc Psychiatry* 2009; 48:422-430.
8. Cheung VH, Chan CY & Au RK: The influence of resilience and coping strategies on suicidal ideation among Chinese undergraduate freshmen in Hong Kong. *Asia Pac Psychiatry* 2019; 11:12339
9. Ciarrochi J, Deane FP & Anderson S: Emotional intelligence moderates the relationship between stress and mental health. *Pers Individ Differ* 2002; 32:197-209
10. Cohen JA power primer. *Psychol Bull* 1992; 112:155
11. Connor KM & Davidson JR: Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depress Anxiety* 2003; 18:76-82
12. Cooper J, Appleby L & Amos T: Life events preceding suicide by young people. *Soc Psychiatry Psychiatr Epidemiol* 2002; 37:271-275
13. Crosby A, Gfroerer J, Han B, Ortega L, Parks SE: Suicidal thoughts and behaviors among adults aged>18--Years--United States, 2008-2009. US Department of Health and Human Services, Centers for Disease Control and Prevention, 2011
14. Domínguez-García E & Fernández-Berrocal P: The association between emotional intelligence and suicidal behavior: A systematic review. *Front Psychol* 2018; 9:2380
15. Fagiolini A, Kupfer DJ, Rucci P, Scott JA, Novick DM, Frank E: Suicide attempts and ideation in patients with bipolar I disorder. *J Clin Psychiatry* 2004; 65: 509-514
16. Faul F, Erdfelder E, Lang AG & Buchner A: G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Res Methods* 2007; 39: 175-191
17. Frajo-Apor B, Pardeller S, Kemmler G, Hofer A: Emotional Intelligence and resilience in mental health professionals caring for patients with serious mental illness. *Psychol Health Med* 2016; 21:755-761
18. Freudenthaler HH & Neubauer AC: Emotional intelligence: The convergent and discriminant validities of intra-and interpersonal emotional abilities. *Pers Individ Differ* 2005; 39:569-579
19. Freudenthaler HH, Neubauer AC & Haller U: Emotional intelligence: Instruction effects and sex differences in emotional management abilities. *J Individ Differ* 2008; 29:105
20. Gallagher ML & Miller AB: Suicidal thoughts and behavior in children and adolescents: an ecological model of resilience. *Adolesc Res Rev* 2018; 3:123-154
21. Hargus E, Crane C, Barnhofer T, Williams JMG: Effects of mindfulness on meta-awareness and specificity of describing prodromal symptoms in suicidal depression. *Emotion* 2010; 10:34
22. Harris EC & Barraclough B: Suicide as an outcome for mental disorders. A meta-analysis. *Br J Psychiatry* 1997; 170:205-228
23. Heron M: Deaths: Leading causes for 2013. *National Vital Statistics Reports* 2016; 65:2
24. Holmes TH & Rahe RH: The social readjustment rating scale. *J Psychosom Res* 1967; 11:213-218
25. Hughes BM, Lee EM, McDonagh LK, O'Leary ED, Higgins NM: Handbook of adult resilience, edited by John W. Reich, Alex J. Zautra, and John Stuart Hall 2012; 1:4-7
26. Izadinia N, Amiri M, Ghorban Jahromi R, Hamidi S: A study of relationship between suicidal ideas, depression, anxiety, resiliency, daily stresses and mental health among Tehran university students. *Procedia Soc Behav Sci* 2010; 5: 1615-1619
27. Kachadourian LK, Tsai J, Harpaz-Rotem I, Southwick SM, Pietrzak RH: Protective correlates of suicidality among veterans with histories of posttraumatic stress disorder and major depressive disorder: results from the National Health and Resilience in Veterans Study. *J Affect Disord* 2019; 246:731-737
28. Kessler RC, Berglund P, Borges G, Nock M, Wang PS: Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990-1992 to 2001-2003. *JAMA* 2005; 293: 2487-2495
29. Kim SM, Kim HR, Min KJ, Yoo S-K, Shin Y-C, Kim E-J et al.: Resilience as a protective factor for suicidal ideation among Korean workers. *Psychiatry Investig* 2020; 17:147-156
30. Lee S, Fung SC, Tsang A, Liu ZR, Huang YQ, He YL et al.: Lifetime prevalence of suicide ideation, plan, and attempt in metropolitan China. *Acta Psychiatr Scand* 2007; 116: 429-437
31. Lee L, Harkness KL, Sabbagh MA, Jacobson JA: Mental state decoding abilities in clinical depression. *J Affect Disord* 2005; 86: 247-258
32. Liu DWY, Fairweather-Schmidt AK, Roberts RM, Burns R, Anstey KJ: Does resilience predict suicidality? A lifespan analysis. *Arch Suicide Res* 2014; 18:453-464
33. Luthar SS, Cicchetti D & Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Dev* 2000; 71: 543-562
34. Mikolajczak M, Nelis D, Hansenne M, Quoidbach J: If you can regulate sadness, you can probably regulate shame: Associations between trait emotional intelligence, emotion regulation and coping efficiency across discrete emotions. *Pers Individ Differ* 2008; 44: 1356-1368
35. Nock MK, Borges G, Bromet EJ, Alonso J, Angermeyer M, Beautrais A et al.: Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *Br J Psychiatry* 2008; 192: 98-105
36. Nock MK, Green JG, Hwang I, McLaughlin KA, Sampson NA, Zaslavsky AM et al.: Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents: results from the National Comorbidity Survey Replication Adolescent Supplement. *JAMA Psychiatry* 2013; 70:300-310

37. Nrugham L, Holen A & Sund AM: Associations between attempted suicide, violent life events, depressive symptoms, and resilience in adolescents and young adults. *J Nerv Ment Dis* 2010; 198: 131-136
38. Obeid S, Haddad C, Fares K, Malaeb D, Sacre H, Akel M et al.: Correlates of emotional intelligence among Lebanese adults: the role of depression, anxiety, suicidal ideation, alcohol use disorder, alexithymia and work fatigue. *BMC psychology* 2021; 9:1-12
39. Ong E & Thompson C: The importance of coping and emotion regulation in the occurrence of suicidal behavior. *Psychol Rep* 2019; 122:1192-1210
40. Palmu R, Koskinen S & Partonen T: Suicidality and psychological distress in adults aged 18 to 29 years in a population-based study in Finland. *Psychiatry Res* 2020; 290:113073
41. Papousek I, Freudenthaler HH & Schuler G: The interplay of perceiving and regulating emotions in becoming infected with positive and negative moods. *Pers Individ Differ* 2008; 45:463-467
42. Papousek I, Freudenthaler HH & Schuler G: Typical performance measures of emotion regulation and emotion perception and frontal EEG asymmetry in an emotional contagion paradigm. *Pers Individ Differ* 2011; 51: 1018-1022
43. Papousek I, Ruch W, Freudenthaler HH, Kogler E, Lang B, Schuler G: Gelotophobia, emotion-related skills and responses to the affective states of others. *Pers Individ Differ* 2009; 47: 58-63.
44. Peng L, Zhang J, Li M, Li P, Zhang Y, Zuo X et al.: Negative life events and mental health of Chinese medical students: the effect of resilience, personality and social support. *Psychiatry Res* 2012; 196:138-141
45. Pérez JC, Petrides KV & Furnham A: Measuring trait emotional intelligence. *Emotional intelligence: An international handbook*. Cambridge, MA: Hogrefe and Huber, 2005, 181-201
46. Pisani AR, Wyman PA, Petrova M, Schmeelk-Cone K, Goldston DB, Xia Y et al.: Emotion regulation difficulties, youth-adult relationships, and suicide attempts among high school students in underserved communities. *J Youth Adolesc* 2013; 42:807-820
47. Renberg ES: Self-reported life-weariness, death-wishes, suicidal ideation, suicidal plans and suicide attempts in general population surveys in the north of Sweden 1986 and 1996. *Soc Psychiatry Psychiatr Epidemiol* 2001; 36:429-436
48. Roy A, Carli V & Sarchiapone M: Resilience mitigates the suicide risk associated with childhood trauma. *J Affect Disord* 2011; 133: 591-594
49. Sarubin N, Gutt D, Giegling I, Buehner M, Hilbert S, Kraehenmann O. et al.: First Analysis of the 10-and 25-Item German Version of the Connor-Davidson Resilience Scale (CD-RISC) Regarding Psychometric Properties and Components. *Z Gesundheitspsychol* 2015; 23: 112-122
50. Sher L: Resilience as a focus of suicide research and prevention. *Acta Psychiatr Scand* 2019; 140: 169-180
51. Stip E, Caron J, Tousignant M, Lecomte Y: Suicidal ideation and schizophrenia: contribution of appraisal, stigmatization, and cognition. *Can J Psychiatry* 2017; 62: 726-734
52. Szanto K, Dombrowski AY, Sahakian BJ, Mulsant BH, Houck PR et al.: Social emotion recognition, social functioning, and attempted suicide in late-life depression. *Am J Geriatr Psychiatry* 2012; 20:257-265
53. Tyssen R, Vaglum P, Grønbold NT, Ekeberg Ø: Suicidal ideation among medical students and young physicians: a nationwide and prospective study of prevalence and predictors. *J Affect Disord* 2001; 64:69-79
54. Weiss EM, Schuler G, Freudenthaler HH, Hofer E, Pichler N, Papousek I: Potential markers of aggressive behavior: the fear of other persons' laughter and its overlaps with mental disorders. *PLoS one* 2012; 7: e38088
55. Williams JMG, Duggan DS, Crane C, Fennell MJ: Mindfulness-Based cognitive therapy for prevention of recurrence of suicidal behavior. *J Clin Psychol* 2006; 62: 201-210
56. Wingo AP, Wrenn G, Pelletier T, Gutman AR, Bradley B, Ressler KJ: Moderating effects of resilience on depression in individuals with a history of childhood abuse or trauma exposure. *J Affect Disord* 2010; 126:411-414
57. World Health Organization et al.: Preventing suicide: A global imperative. 2014
58. Yen S, Pagano ME, Shea MT, Grilo CM, Gunderson JG, Skodol AE et al.: Recent life events preceding suicide attempts in a personality disorder sample: findings from the collaborative longitudinal personality disorders study. *J Consult Clin Psychol* 2005; 73:99

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