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Expressive writing as an anxiety-reduction intervention on test anxiety and the mediating role of first language and self-criticism in a Bulgarian sample

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Abstract

The role of expressive writing (EW) in Bulgarian as native language and self-criticism for reducing test anxiety was examined among 151 university students divided into two experimental groups (writing about test anxiety or their life goals) and one control group. Results reveal that reducing test anxiety was more related to low self-criticism and some sociodemographic peculiarities than to EW. Gender and mode of study moderated the reducing effects of EW activities on test anxiety. The result from this study will generate additional insights on the efficacy of EW and whether this could be utilised as an anxiety-reduction intervention to reduce test anxiety among students. This will also act as a pioneer in exploring the role of Bulgarian as the first language on the efficacy of EW.

Keywords: expressive writing; self-criticism; test anxiety

1. Introduction

Most students aspire to perform their best on their exams – an academic goal that could be attributed to the fact that poor performance may result to a host of negative consequences ranging from unfavourable evaluations by teachers, parents and peers, to missed scholarships, to lost educational opportunities. However, some students, in spite of their motivation, perform below their ability due to test anxiety.

The role of test anxiety on academic performance has been extensively explored over the past decades (e.g., Cassady & Johnson; Culler & Hollahan, 1980; Hunsley, 1985), and it has now been well-established that test anxiety could result in poor academic performance

Educational psychologists are aware on how test anxiety prevents potentially qualified students from performing their best, hence a number of intervention programmes have been designed to address this issue. Among these interventions are: acceptance-based behaviour therapy (Brown et al., 2011); biofeedback-assisted relaxation training (Prato & Yucha, 2013); and, music intervention (Goldberg, Floyd, & Moyer, 2013). Also, recently, expressive writing as an intervention has been found to boost exam performance (Ramirez & Beilock, 2011).

Expressive writing (EW) is a form of therapy introduced by Pennebaker and Beall in the late 1980s. Their pioneering work (Pennebaker & Beall, 1986) involved requesting participants to write about a 'past trauma', as a way to convey their deepest feelings and thoughts. In contrast, control groups were instructed to write on neutral topics (e.g., What are their plans for the day?), without revealing their emotions or opinions. Both groups were requested to do this for 15 minutes for four consecutive days. Participants were further advised that if they run out of things to write, they

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should go back from the start and simply repeat themselves and try to write a little differently.

Since the introduction of EW, it has been increasingly implemented in a variety of ways to improve psychological well-being, ranging from improving the self-concept of adolescents (Facchin, Margola, Molgora, & Revenson, 2013) to helping people with traumatic brain injury (Wheeler, Nickerson, Long, & Silver, 2013). Although it has been observed that EW may help improve psychological well-being among healthy population, there is a dearth of systematic studies that investigated the effects of EW on test anxiety.

Moreover, the impact of first language on the efficacy of EW has never been investigated. This study, therefore, aspires to explicate this relationship. This would be an interesting area to explore as most of the previous works on EW has been conducted in English.

One study (Relojo, 2015) has revealed that self-criticism has a moderating role on the efficacy of EW. On this basis, the study aimed to explore whether people could benefit more in reducing their test anxiety through EW, according to their levels of self-criticism.

Based on the literatures, the following research questions were sought to be addressed: (1) Can EW significantly decrease test anxiety; and, (2) How does first language and self-criticism moderate the effects of EW on reducing test anxiety?

The present study aimed to investigate the efficacy of EW as an anxiety-reduction intervention. Another aim was to identify the roles of first language and self-criticism in the efficacy of EW.

It was supposed that EW in Bulgarian language, delivered for a three-day period, would reduce test anxiety both in the cases of writing about test anxiety or writing about life goals, because of the cathartic effect of writing. It was also anticipated that EW in Bulgarian for a three-day period would reduce test anxiety among individuals with low self-criticism.

2. Methodology

2.1. Participants

A total of 151 university students ageing 19–55 years old were recruited. Participation was voluntary and no credits or tokens were given. Informed consent was obtained from all participants. There were 26 (17.2%) male students and 125 (82.8%) female students. Their mean age was 26.78 (SD = 7.73). The number of students in their first year of study was 32 (21.2%). The number of students in their second year of study was 65 (43%). The number of students in their second year of study was 54 (35.8%). Information regarding their family status was collected: 61 (40.4%) were single; 25 (16.6%) were married; 32 (21.2%) cohabitated; 27 (17.9%) had boyfriends/girlfriends; and, 6 (4%) were divorced or single parents. About half of them were full-time students, N = 71 (47%) while 80 (53%) were part-time students.

The participants were equally divided into three groups: two experimental groups and one control group. Table 1 presents the distribution of the sociodemographic characteristics of the three groups.

Table 1. *Sociodemographic Characteristics of the Experimental Groups and the Control Group*

Groups	Gender		Year of study			Mode of study	
	Male	Female	1st	2nd	3rd	FT	PT
Test anxiety	7	44	0	39	12	41	10
Life goals	11	39	32	0	18	18	32
Control group	8	42	0	26	24	12	38

The three groups did not differ significantly in their gender distribution ($\chi_{(2)}^2$ = 1.000; p = .607 for the distribution of the male participants in the three groups; $\chi_{(2)}^2$ = 0.304; p = .859 for the distribution of the female participants in the three groups).

The three groups did not differ significantly in their distribution of third year students ($\chi_{(2)}^2$ = 4.000; p = .135), but they differed regarding the distributions of the first year students (only participating in the experimental group writing about their life goal) and the second year students (not participating in the experimental group writing about their life goals).

The three groups differed significantly in their distribution of the students' mode of study ($\chi_{(2)}^2$ = 19.803; p < .005 for the distribution of the full-time students in the three groups, Phi = 2.350, i.e., a large effect size; $\chi_{(2)}^2$ = 16.300; p < .005 for the distribution of the part-time students in the three groups, Phi = 1.822, i.e. a large effect size). Regarding the full-time students, their expected frequency was 23.7 in each of the three groups, so the observed number of full-time students in the experimental group writing about test anxiety was more than expected (+17.3), while the observed number of full-time students in the experimental group writing about their life goals was less than expected (–5.7), and the observed number of full-time students in the control group was less than expected (–11.7).

As with the part-time students, their expected frequency was 26.7 in each of the three groups, so the observed number of full-time students in the experimental group writing about test anxiety was less than expected (–16.7), while the observed number of full-time students in the experimental group writing about their life goals was more than expected (+5.3), and the observed number of full-time students in the control group was more than expected (+11.3).

It was not possible to equalise the composite of the groups on many variables. Only gender belonging was equalised between the groups, because of the reported findings that women were more anxious than men (McLean, Asnaani, Litz, & Hofmann, 2011), including women expressing more test anxiety than men (Eman, Dogar, Khalid, & Haider, 2012; Nuñez-Peña, Suarez-Pellicioni, & Bono, 2016; Putwain & Daly, 2014; Rezazadeh, & Tavakoli, 2009).

Finally, the three groups were equalised according to their family status: ($\chi_{(8)}^2$ = 14.433; p = .071; see Table 2 for more details regarding the family status of the students in the three groups.

Table 2. *Family status of the participants in the experimental groups and the control group*

Marital status	Test anxiety	Life goals	Control group
Single	28	17	16
Married	5	7	13
Cohabiting	7	13	12
With boyfriend/girlfriend	9	9	9
Divorced/single parent	2	4	0

2.2. Procedure and instruments

Upon securing approval to conduct this study, the experiments were conducted in the classroom. The experiments were conducted within a month before the students' exams.

To identify the participants' level of test anxiety (pre-test), they were requested to fill out Westside Test Anxiety Scale (WTAS, Driscoll, 2004). The Westside Test Anxiety Scale is a brief, 10-item instrument designed to identify students with anxiety impairments who could benefit from an anxiety reduction intervention. The scale items cover self-assessed anxiety impairment and cognitions which can impair performance. This scale has not been adapted for Bulgarian population. The results

from our study in Bulgaria indicated that its Cronbach's alpha was .834, and the mean inter-item correlation coefficient was 0.340. Its Guttman split-half reliability coefficient was 0.880 (from odd and even items in each half).

Participants also filled out the Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS: Gilbert et al., 2004) which is a 22-item scale in which respondents answer to a probe statement ('When things go wrong for me…') a series of questions tapping two types of self-criticism (hated-self and inadequate-self) and self-reassurance. The answers are given on a 5-point Likert scale ranging from 0 = not at all like me, to 4 = extremely like me. A number of studies (e.g., Relojo, 2016; Gilbert et al., 2008) have found that hated-self and inadequate-self subscales correlate highly (r values between .68 and .80) and also in a number of other studies (e.g. Troop, Chilcot, Hutchings, & Varnaite, 2013), these two subscales have been combined to form a single self-criticism subscale. Similarly, this scale has not been adapted for Bulgarian population. The results from our study in Bulgaria indicated that Cronbach's alpha for the scale Inadequate self was .791; and its mean inter- item correlation coefficient was 0.298. Cronbach's alpha for the scale Reassured self was .804; and its mean inter - item correlation coefficient was 0.342. Cronbach's alpha for the scale Hated self was .777; and its mean inter-item correlation coefficient was 0.405.

The participants were randomly assigned to one of three conditions and wrote either about test anxiety (n = 51), life goals (n = 50), or a control group (n = 50) that did not do any writing task. Their social and demographic characteristics are presented in Table 1. The participants in the experimental groups proceeded with the writing tasks in Bulgarian. These participants were given the following written instructions:

'For the next 15 minutes, I would like you to write about your very deepest thoughts and feelings about test anxiety (or life goals). In your writing, I'd like you to really let go and explore your deepest emotions and thoughts. You might tie your topic to your relationships with others, including parents, lovers, friends or relatives; to your past, your present or your future; or to whom you have been, who you would like to be or who you are now. You may write about the same general issues or experiences on all days of writing or about different topics each day. All your writing will be completely confidential. Don't worry about spelling, grammar or sentence structure. The only rule is that once you begin writing, you continue until the time is up.'

The participants in the control group did not do this writing task, as well as they were not presented in the room together with the experimental groups during the writing task. Participants in the writing groups were invited to do the writing task for three days. After three days, all the participants (in the experimental groups and in the control group) were requested to complete again WTAS and FSCRS (post-test). They filled out also Cognitive Test Anxiety (CTA) scale by Cassady and Johnson (2002) which is a 27-item scale measuring the cognitive component of test anxiety to establish validity of both instruments that have not been adapted for Bulgarian population. Correlations between the scores on different scales were used as the validation criteria. The items 3, 5, 8, 9, 10, 13, 17, 18, and 21 from Cognitive Test anxiety scale were reverse scored. The mean score on this scale in the Bulgarian sample was 62.81; SD = 9.11. The results from our study in Bulgaria indicated that Cronbach's alpha of CTA was .635, and its mean inter - item correlation coefficient was 0.056. Its Guttman split-half reliability coefficient was 0.801 (from odd and even items in each half).

2.3. Data analysis

Data were processed statistically by means of SPSS 20. Descriptive statistics described the main tendencies in each group. Pearson correlation coefficients were computed between the scores on the different scales used in this study. Factor analysis of the structure of the questionnaires was performed and Cronbach's alphas were computed, as well as split-half reliability coefficients.

Chi-square analysis was used to establish the equivalency of groups in terms of their social-demographic characteristics. ANOVA was used to compare the mean differences among the three groups: writing in Bulgarian about test anxiety or life goals, and the control group. Nonparametric tests (Mann-Whitney U) were used to compare gender differences in anxiety and self-criticism before and after writing in the participants' first (native) language i.e., Bulgarian, because of less than 30 male participants. Nonparametric tests (Kruskal-Wallis test) were used to compare family status differences in anxiety and self-criticism before and after writing in the participants' native language, because of the small number of participants in some categories of family status. Paired-samples T-test was used for comparisons before and after the writing tasks on the same measures while independent samples T-test was used for comparisons between full-time and part-time students.

3. Results

Table 3 presents a frequency distribution of test anxiety measured with WTAS before and after the writing tasks. High test anxiety was rare before and especially after writing activity.

Table 3. *Frequencies of the levels of test anxiety of all the participants before and after the writing tasks*

	Pre		Post	
	f	%	*f*	%
Comfortably low test anxiety	24	15.9	30	19.9
Normal or average test anxiety	44	29.1	61	40.4
High normal test anxiety	45	29.8	33	21.9
Moderately high	21	13.9	27	17.9
High test anxiety	8	5.3	0	0
Extremely high anxiety	9	6.0	0	0

In the whole sample, retest revealed a shortage of high and extremely high test anxiety (see Table 3). Another study reported that 16.4% of the students were highly test anxious (Putwain, & Daly, 2014) that corresponded to our results regarding the frequency of moderately high test anxiety (see Table 3).

All the participants' test anxiety before the writing tasks (M = 2.61; SD = 0.68) was significantly higher, $t(150) = 2.862$; $p = .005$; effect size $d = –0.215$, i.e., small effect size) than after the writing tasks (M = 2.40; SD = 0.54). Effect size d was computed using the recommendations by Becker (2000) and Lenhard & Lenhard (2016).

The female students (Mean rank = 79.70) reported higher test anxiety than the male students (Mean rank = 58.19) before the writing tasks (Mann-Whitney U = 1162.000; $p = .022$; Z = -2.286; the effect size $r = –0.186$, i.e., small effect size). There were not any significant gender differences in test anxiety after the writing tasks (Mann-Whitney U = 1364.500; $p = .198$), neither in cognitive test anxiety measured after the writing tasks (Mann-Whitney U = 1368.000; $p = .205$). It seems that the writing activity may have reduced female test anxiety. The number of the male participants was small, and any gender comparisons were not made among the three groups.

Test anxiety of the experimental group writing about test anxiety before the writing tasks (M = 2.71; SD = 0.78) was significantly higher, $t(50) = 2.140$; $p = .037$; effect size $d = –0.257$, i.e. small effect size) than after the writing tasks (M = 2.41; SD = 0.55). Writing about test anxiety seemed to have some cathartic effects.

Test anxiety of the experimental group writing about life goals before the writing tasks (M = 2.48; SD = 0.64) was not reduced significantly, $t(49) = 0.584$; $p = .562$) than after the writing tasks (M = 2.42; SD = 0.54). Life goals should be attractive for the participants and writing about them did not have any cathartic effect.

Test anxiety of the control group that did not do any writing activity and that was tested before the other groups' writing tasks (M = 2.62; SD = 0.59) was significantly higher, $t(50) = 2.136$; $p = .038$; effect size $d = –0.283$, i.e. small effect size) than after

the other groups' writing tasks (M = 2.38; SD = 0.52). Hawthorne effect may be related to such results. The control group may feel as being specially observed by the scientists, because of not being informed about any special interventions occurring within this group. Besides, this result may be due to the composite of the control group that did not included any first year students who may be more anxious about their exams, because of not taking yet any exam in the university and their mysterious expectations regarding their future exams. ANOVA revealed that the year of study did not differentiated significantly the students in regards to their test anxiety during first testing $F(2, 148) = 1.696$; $p = .187$), nor their test anxiety during second testing, F (2, 148) = 0.016; p = .984), neither their cognitive test anxiety $F(2, 148 = 0.909$; p = .405).

Another possible explanation for the change of text anxiety in the control group from the first testing to the second testing might be the fact that the control group included the smallest number of full-time students and the biggest number of part-time students who (the latter) may be calmer than the full-time students, because of posing more impact on their work than on their study. The results revealed that the full-time students (M = 2.74; SD = 0.69) were significantly more anxious, $t(149)$ = 2.387; p = .018; Cohen's d = 0.781, i.e. medium effect size) than the part-time students (M = 2.48; SD = 0.64) before the writing activity. There were not any significant differences in test anxiety between the full-time students and the part-time students after the writing activity, $t(149) = 0.185$; p = .853), neither in their cognitive test anxiety measured after the writing activity, $t(149) = 0.110$; p = .913).

The part -time students in the sample (M = 31.28; SD = 7.83 years) were significantly older, $t(106.2) = 10.051$; $p < .001$; Levene's test = 56.110; p Levene < .001; effect size g Hedges = –1.569, i.e., large effect size) than the full-time students (M = 21.72; SD = 3.14 years), so the older students might be less anxious than younger students that could explain the reduced anxiety in the control group. Some research findings (Brenes, 2006; Flint et al., 2010) revealed that older adults were less anxious than younger adults. Another study did not report any significant test anxiety differences between two age groups of university students in Africa – from 18 to 25 years old and from 26 to 35 years old (Mwamwenda, 1993). Some other studies found that age was not related to test anxiety among students in Africa (Chukwuorji, & Nwonyi, 2015; Oladipo, Ogungbamila, & Idemudia, 2015). Our results for the whole sample also indicated that students' age did not predict test anxiety during first testing (r = 0.102; r^2 = .010; $F(1, 149) = 1.564$; p = .213; b = –0.009; t = -1.251; p = .213), neither during retest (r = 0.011; $r^2 < .001$; F (1, 149) = 0.019; p = .891; $b < –0.001$; t = –0.138; p = .891), nor cognitive test anxiety (r = 0.003; $r^2 < .001$; $F(1, 149) = 0.001$; p = .973; b = 0.003; t = 0.035; p = .973).

Table 4 presents a frequency distribution of cognitive test anxiety measured after the writing tasks. High cognitive test anxiety was rare after writing activity.

Table 4. *Frequencies of the Levels of Cognitive Test Anxiety of All the Participants After the Writing Task*

	f	%
low cognitive anxiety	24	15.9
average cognitive anxiety	105	69.5
high cognitive anxiety	22	14.6

In the experimental group writing about test anxiety, 4 individuals had high cognitive test anxiety after the writing task. In the experimental group writing about life goals, 10 individuals had high cognitive test anxiety after the writing task. In the control group that did not do any writing activity, 8 individuals had high cognitive test anxiety after the writing task of the other groups. The students' average cognitive test anxiety was 62.81, SD = 9.11.

There were not any significant differences between the three groups – two experimental groups and one control group in their test anxiety before the writing

activity ($F_{(2, 148)} = 1.517$; $p = .223$), neither after the writing tasks ($F_{(2, 148)} = 0.067$; $p = .936$). There were not any significant differences between the three groups – two experimental groups and one control group in their cognitive test anxiety after the writing activity ($F_{(2, 148)} = 0.775$; $p = .463$).

Table 5 presents the students' mean scores on the scales of self-criticism and self-assurance before and after the writing tasks. There were not any significant differences among the three groups in their scores on the scale Inadequate self before the writing activity ($F_{(2, 148)} = 2.66$; $p = .073$), neither after the writing tasks ($F_{(2, 148)} = 1.443$; $p = .239$). There were not any significant differences between the three groups – two experimental groups and one control group in their score on the scale Hated self before the writing activity ($F_{(2, 148)} = 2.167$; $p = .118$), neither after the writing tasks ($F_{(2, 148)} = 2.387$; $p = .095$). There were not any significant differences among the three groups in their scores on the scale Reassured self before the writing activity ($F_{(2, 148)} = 0.695$; $p = .501$), but there were some significant differences among the three groups in their scores on the scale Reassured self after the writing tasks ($F_{(2, 148)} = 3.282$; $p = .040$; Effect size $f = 0.206$, i. e. small to medium effect size). Games-Howell post-hoc test indicated that the experimental group writing about life goals ($M = 23.9$; $SD = 4.16$) differed significantly ($p = .039$) from the control group that did not do any writing activity ($M = 21.44$; $SD = 5.64$) in their scores on the scale Reassured self after the writing tasks, but both groups did not differ significantly ($p > .05$) from the experimental group writing about test anxiety ($M = 22.76$; $SD = 4.49$) in their scores on the scale Reassured self after the writing tasks. The experimental group writing about life goals was more reassured after the writing task than the control group that did not do any writing activity.

Table 5. *Average Scores of All Participants on the Scales of Self-criticism and Self-Assurance Before and After the Writing Tasks*

	ISB	ISA	RSB	RSA	HSB	HSA
$\bar{x}$	14.874	14.126	22.344	22.702	2.272	2.503
σ	6.330	5.568	5.143	4.878	3.210	2.535

ISB: Inadequate self before; ISA: Inadequate self after; RSB: Reassured self before; RSA: Reassured self after; HSB: Hated self before; HAS: Hated self after

Age did not predict the scores on the scale Inadequate Self ($r = 0.116$; $r2 = .013$; $F(1, 149) = 2.017$; $p = .158$; $b = -0.095$; $t = –1.420$; $p = .158$), neither the scores on the scale Hated Self ($r = 0.008$; $r^2 < .001$; $F(1, 149) = 0.009$; $p = .924$; $b = -0.003$; $t = -0.095$; $p = .924$), nor the scores on the scale Reassured Self ($r = 0.120$; $r2 = .014$; $F(1, 149) = 2.176$; $p = .142$; $b = 0.080$; $t = 1.475$; $p = .142$).

There were some significant differences between the students in different years of study in their Inadequate Self, $F(2, 148) = 3.288$; $p = .040$; effect size $f = 0.180$, i.e., small effect size) and Hated Self, $F(2, 148) = 3.721$; $p = .027$; effect size $f = 0.188$, i.e., small effect size). Games-Howell post-hoc test indicated that the second year students ($M = 16.35$; $SD = 6.71$) had more Inadequate Self ($p = .022$) than the third year students ($M = 13.56$; $SD = 4.52$). Games-Howell post-hoc test indicated that the second year students ($M = 2.78$; $SD = 3.20$) had more Hated Self ($p = .005$) than the third year students ($M = 1.33$; $SD = 1.57$).

There were not any significant differences in Inadequate Self, $t(149) = 1.948$; $p = .053$) between the full-time students and the part-time students, neither in their Hated Self, $t(149) = 0.138$; $p = .891$), neither in their Reassured Self, $t(149) = 0.711$; $p = .478$).

The participants' family status did not differentiate their test anxiety before the writing tasks (Kruskal Wallis test coefficient = 1.258; $df = 4$; $p = .869$), after the writing tasks (Kruskal Wallis test coefficient = 3.907; $df = 4$; $p = .419$), neither cognitive test anxiety (Kruskal Wallis test coefficient = 8.289; $df = 4$; $p = .082$), nor their Inadequate Self (Kruskal Wallis test coefficient = 1.939; $df = 4$; $p = .747$), Hated Self (Kruskal Wallis test coefficient = 2.831; $df = 4$; $p = .587$), and Reassured Self (Kruskal Wallis test coefficient = 2.473; $df = 4$; $p = .649$).

There were not any significant gender differences in Inadequate Self (Mann-Whitney U = 1439.000; p = .358), neither in Hated Self (Mann-Whitney U = 1620.000; p = .978), neither in Reassured Self (Mann-Whitney U = 1343.000; p = .164).

Higher score on test anxiety before writing activity correlated with higher score on the scale Inadequate self before writing activity, r (149) = .508; p < .001), higher score on the scale Hated Self before writing activity, r (149) = .421; p < .001), and lower score on the scale Reassured Self before writing activity, r (149) = –.394; p < .001). Higher score on the scale Reassured Self before writing activity correlated with lower score on the scale Inadequate Self, r (149) = -.485; p < .001), and lower score on the scale Hated Self before writing activity, r (149) = -.527; p < .001). Higher score on the scale Reassured Self after writing activity correlated with lower score on the scale Hated Self after writing activity, r (149) = –.611; p < .001). Higher score on Inadequate Self before writing activity correlated with higher score on Hated self before writing activity, r (149) = .641; p < .001). Higher score on the scale Inadequate Self after writing activity correlated with higher score on the scale Hated Self after writing activity, r (149) = .435; p < .001). All these Pearson correlation coefficients could be considered as an evidence for the construct validity of these scales. However, the scores on test anxiety and cognitive test anxiety scale correlated significantly, but weakly, r (149) = .195; p = .016).

4. Discussions

A certain amount of test anxiety can make a student motivated and focused. However, too much anxiety can potentially interfere with exam performance. Researchers have been trying to identify the causes of test anxiety. More recently, one study (Cleveland, 2017) investigated the relationship between physical activity and test anxiety among university students. It was revealed that the results were inconclusive regarding the relationship between physical activity and test anxiety. Although this relationship was not deemed to be significant, it is considered to be meaningful and interventions are needed to be implemented to address test anxiety.

Similar to other studies, our findings revealed that students were significantly anxious prior to taking their test. It has been previously observed that test anxiety was negatively related to a range of educational performance outcomes and that test anxiety effects were most pronounced at the middle grades level (von der Embse, Jester, Roy, & Post, 2018). Our work further expanded this finding as we have observed that female students are likely to experience higher test anxiety than males, and we have observed this among university students.

In light of the quest for potential interventions to combat test anxiety, this work assessed the efficacy of expressive writing as a potential intervention. Our findings reveal that among the three groups (experimental groups and control group), there were no significant difference after the writing task. Hence, we further dissected our data and observed that those who wrote about life goals differentiated significantly from the control group in their scores related to a feeling of self-reassurance i.e., the experimental group felt more reassured after the writing task than the control group. We also observed that a higher score on test anxiety before the writing task correlated with feelings of self-inadequacy. Moreover, high scores of self-inadequacy were linked with feelings of self-hatred.

This study reveals no beneficial effects of EW (whether writing about life goals or writing about test anxiety) on test anxiety among university students. This is a novel finding as it indicates that the positive effects of EW may, initially at least, be achieved depending on how it has been delivered and considering the nature of the sample (e.g., are they predisposed to be influenced by writing tasks?). This is not the first study however to have observed that EW may not produce beneficial effects. For instance, O'Connor and colleagues (2011) reported absence of beneficial effects of EW, specifically writing about success stories on the self-reported measures of body image, self-esteem and psychological well-being. Relojo (2016) also observed that

expressive writing did not produce any beneficial effects on dietary restraint and self-compassion among university students.

In hindsight, taking into account that participants were not selected on the basis of their levels of test anxiety and their levels of self-criticism, the absence of significant effect may then be attributable to the sample being relatively 'healthy'. Drawing from the baseline scores on WTAS, self-criticism, and self-assurance – it should be considered though that the participants' levels of self-criticism and self-assurance were not dramatically low to begin with, i.e., it could be postulated that there were no factors about which EW have to protect against. Furthermore, it could also be assumed that the effect of exposure to test anxiety might have been weaker.

5. Implications

The result from this study will generate additional insights on the efficacy of EW and whether this could be utilised as an anxiety-reduction intervention to reduce test anxiety among students. This will also act as a pioneer in exploring the role of Bulgarian as the first language on the efficacy of EW. Some studies have been conducted through English language, and the participants were not native English speakers, but these studies have been focused on building writing skills and positive attitude towards writing (Namouz, Misher-Tal, & Sela, 2017), not on studying the role of expressive writing in native or foreign language for reducing test anxiety. Another study has revealed the role of 30-days expressive writing about positive emotions in Chinese for reducing test anxiety among senior-high-school students (Shen, Yang, Zhang, & Zhang, 2018), but its focus was rather writing content than writing in native language. Such studies will also elucidate principles for guiding effective teacher use of EW strategies to mitigate test anxiety among students.

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