

Emily Kruger BSc(Hons); MSc; MBPsS is an Assistant Psychologist with the Humber Teaching NHS Foundation Trust.

For communication, please email: emilykrugerxo@hotmail.com

Emily Kruger

Mental toughness is a predictor of suicidality in university students

In recent years, a large body of literature has highlighted numerous health concerns in regards to students of the higher education population, with a large focus on people's experiences of mental health problems. As such, research has found large numbers of university students to have experienced mental health problems, with the numbers said to be progressively increasing (Castillo & Schwartz, 2013). Research has also found mental health problems within this sample to be increasing in severity, this being additionally reflected in the considerable number of students who seek help from counselling services within these institutions (Hunt & Eisenberg, 2010). In particular, university students are significantly at risk from developing mental health issues, argued to be partly due to the distress of moving away from home, the extensive studying which is a part of university living (Sarokhani *et al.*, 2013), as well as academic stress which students experience (Agolla & Ongori, 2009). Whilst university can be pleasurable for some, it can also be perceived as a stressful life event for students (Wong, Brower, & Zucker, 2011), whereby maintaining good grades, forming social bonds, living away from home, as well as having to contemplate about the future can precipitate feelings of anxiety (Buchanan, 2012), depression (Adewuya, Ola, Aloba, Mapayi, & Oginni, 2006), and suicidality (Duane, Stewart, & Bridgeland, 2003). As part of this, students who suffer from symptoms of depression are more likely to be classed as at risk from suicidality (Izadinia, Amiri, Jahromi, & Hamidi, 2010).

The umbrella term of 'suicidality' can be defined as any form of suicide-related ideations,

behaviours and intent, which each increase the risk of death by suicidal circumstances (O'Dea, Wan, Batterham, Calear, Paris & Christensen, 2015). The word 'suicidality' encompasses the main aspects of what is involved within a suicidal death (Meyer *et al.*, 2010). Firstly, suicidal ideation, also more commonly known as suicidal feelings, can be defined as thoughts regarding the ending of one's life. Differing from this, suicidal behaviours involve acts of self-harm, with the view of ending one's life (Goldsmith, Pellmar, Kleinman, & Bunney, 2002). Suicidality has more recently been described as a continuum, which begins with suicidal thoughts and, in some cases, ends with a suicide attempt (Baca-Garcia *et al.*, 2011). Suicidal beliefs are recognised as early symptoms of future suicidal behaviours, and are ultimately known to play a central part in the attempt of suicide (Gili-Planas, Bennasar, Ferrer-Perez, & Bernardo-Arroyo, 2001). Although early research suggests that most people who have thoughts of suicide do not go on to make suicidal attempts (Gliatto & Rai, 1999), a more recent study found that 50% of planned suicide attempts tended to occur within a year of having previous suicidal feelings (Joe, Canetto, & Romer, 2008). In similar argument, Gili-Planas *et al.* (2001) believe that suicidal ideation is the first step to suicide, and further research suggests that such ideation increases an individual's risk of death by suicidal method (McAuliffe, 2002).

A broad range of research suggests that suicide is the most leading cause of death within university student based samples (Schwartz, 2006), indicating that university students are significantly more at risk from death by suicidal circumstances. In regards to the empirical

evidence, numerous recent studies have found suicidal thoughts to be particularly common in university students (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Furthermore, Wilcox *et al.* (2010) found that during university years, 12% of a student sample expressed suicidal ideation, with 2.6% of them having experienced repetitive suicidal thoughts. More recently, the American College Health Association (2011) reported that 3.7% of university students had considered suicide in the last 12 months, with 2.9% of the sample expressing self-harm behaviours such as cutting or burning. Taking these findings into account, it seems crucial to understand the development of such suicidality in university students in view of preventing future death by suicide (Garlow *et al.*, 2008).

Although the majority of research has provided a focus on how mental health distress within university students can be assessed as well as treated, recent studies have begun to investigate the predictors of the distress which some students face. For example, a study by Stamp, Crust, Swann, Perry, Clough and Marchant (2015) found mental toughness (MT) to be a significant predictor of psychological wellbeing in undergraduate university students, with higher MT levels relating to better overall wellbeing outcomes. Briefly, MT can thus be defined as a combination of positive psychological traits which assist in the ability to cope with and manage stress successfully (Clough, Earle, & Sewell, 2002). Although MT has been conceptualized in a variety of ways, a prominent approach in health psychology is the 4C's model presented by Clough *et al.* (2002). This particular approach to MT involves the existence of four positive psychological variables; commitment (determination in completing tasks, despite problems which may arise), challenge (seeking opportunities and viewing them as being positive rather than threatening), control (belief that one has ability to shape their life and manage emotions), and confidence (the extent that one believes in their own ability and interpersonal circumstances). In university students and adolescents, lower levels of MT have also been previously related to the heightened onset of depressive symptoms within students in a variety of different studies (Gerber *et al.*, 2015), suggesting that university students

are an at-risk sample from developing symptoms of depression.

The purpose of the present study was to examine the extent to which MT statistically predicts suicidality in a sample of students. It was hypothesized that MT would be a significant negative predictor of suicidality after controlling for demographic variables.

Method

Participants

A sample of 166 (male $n = 53$, female $n = 113$) university students aged 19-64 ($M = 27.16$, $SD = 9.31$) from the UK universities was recruited using an online survey. The sample comprised of one foundation year student, 15 first year students, 15 second year students, 20 third year students, 66 taught postgraduate students, and 49 research postgraduate students.

Measures

Mental Toughness

The Mental Toughness Questionnaire-18 (MTQ18; Clough *et al.*, 2002) was used to assess MT. This short form of the MTQ48 unidimensional assessment of MT using three items from each of the six scales in the MTQ48. Responses are recorded on a five-point Likert-type scale anchored by 1 (Strongly Disagree) to 5 (Strongly Agree). The MTQ48 has been rigorously tested for factorial validity in a sample of over 8,000 (Perry, Clough, Crust, & Nicholls, 2013), demonstrating acceptable properties. Gerber *et al.* (2015) demonstrated a strong correlation between the MTQ18 and MTQ48 ($r = .87$).

Suicidality

The Suicidal Behaviors Questionnaire-Revised (SBQ-R; Osman, Bagge, Gutierrez, Konick, Kooper & Barrios, 2001) was used to measure four elements of suicidal risk; lifetime suicidal ideation and attempts, frequency of past suicidal ideation, the threat of suicidal behaviour, and thoughts about future suicidal behaviour.

Overall responses should range from 3-18, with a higher score indicating higher suicidality. Each item is worth between three and six points depending on how many choices the item has. Each item has an individual scale, and each response corresponds to a certain point value. The SBQ-R is a shortened version of the 34-item

SBQ (Linehan & Nielsen, 1981). It has previously demonstrated acceptable internal consistency reliability ($\alpha = 0.87$) in adolescent and adult clinical and nonclinical samples, as well as high internal consistency within a sample of university students and good criterion-related validity (Osman *et al.*, 2001).

Procedure

Following ethical approval from a UK Higher Education Institution, participants who responded to and chose to complete the online survey, created using Bristol Online Surveys (BOS), were required to follow an online link that directed them to the questionnaire. Participants completed an eligibility form prior to give informed consent. If a participant selected the 'No' option in regards to wishing to provide consent, they were redirected away from the online survey. Total questionnaire completion took approximately 5-10 minutes. No remuneration was offered for participation.

Data analysis

Descriptive statistics were used to examine missing data, outliers, and univariate normality. Omega point estimates and bootstrapped confidence intervals assessed internal consistency as recommended by Dunn, Baguley, and Brunnsden, (2013). A multiple linear regression model was examined to determine the extent to which MT was predictive of suicidality. Demographic variables were controlled for by entering gender, year of study, and age into block one, with MT entered at block two.

Results

Preliminary analyses found no outliers in the data and there were no missing data. Descriptive statistics indicated no significant deviation from a normal distribution for MT ($k-s(166) = .50, p = .20$). Suicidality however, presented a positive skew ($k-s(166) = .17, p < .001$). Omega point estimates and confidence intervals were calculated using the MBESS package (Kelley & Lai, 2012), in R (R Development Core Team, 2012), with 1,000 bootstrap samples. MT presented good internal consistency ($\omega = .88, SE = .014, 95\% CI = .85, .91$), as did suicidality ($\omega = .86, SE = .020, 95\% CI = .82, .90$). Spearman's bivariate correlation with bootstrap indicated a

moderate negative correlation between MT and suicidality ($r_s = -.43, p < .001, 95\% CI = -.55, -.30$).

Descriptive data by year of study is presented in Table 1 (p. 47). A one-way ANOVA revealed significant differences by year of study for both MT ($F(4,160) = 3.39, p = .011$) and suicidality ($F(4,160) = 4.21, p = .003$). Post-hoc tests indicated that observed differences were that for MT, first year students were significantly less mentally tough than taught postgraduates ($M_{diff} = -8.23, p = .043, 95\% CI = -16.29, -.18$). For suicidality, second year students scored significantly higher than third years ($M_{diff} = 4.25, p = .001, 95\% CI = 1.22, 7.23$), taught postgraduates ($M_{diff} = 2.95, p = .014, 95\% CI = .41, 5.48$), and research postgraduate students ($M_{diff} = 3.28, p = .006, 95\% CI = .66, 5.89$). An independent-samples t-test indicated that males scored slightly higher in MT ($t(164) = -2.06, p = .04, M_{diff} = -3.59, 95\% CI = -7.22, -.22$), but there was no significant difference in suicidality ($t(164) = .31, p = .76, M_{diff} = .17, 95\% CI = -.99, 1.26$).

Multiple linear regression analyses presented an insignificant ΔR^2 for model one ($F(3,162) = 1.07, p = .36$), which inserted gender, year of study, and age as predictors of suicidality. Model two however, which inserted MT as a predictor variable, presented a significant ΔR^2 of .20 ($F(4,161) = 10.97, p < .001$). In total, 21.4% of variance of suicidality was accounted for. Table 2 (p. 47) presents individual coefficients from the models. MT ($\beta = -.46, t = -6.32, p < .001$) was the only statistically significant predictor of suicidality.

Discussion

The aim of this study was to investigate the extent to which suicidality was statistically predicted by MT in a student sample. The results confirmed that MT can be considered a predictor of suicidality, explaining 21.4% of the variance. In terms of suicidality, results also found that students within second year exhibited higher suicidality levels, a finding that it also consistent with recent research (Macaskill, 2013). This adds to the suggestion that second year of university is more psychologically challenging, due to a number of different factors that have been past discussed (Nelson *et al.*, 2013). Moreover, this present study has extended previous research (Stamp *et al.*, 2015) by revealing that MT is also

directly related to suicidality in university students. The present findings therefore add to the view that MT is an important resource in everyday life, relating to mental health and psychological functioning (Clough & Strycharczyk, 2012).

Although MT explained a significant amount of suicidality variance, there remains a large proportion of unexplained variance. This suggests that there are other factors that predict suicidality, apart from age, gender and year of university study. These may include previously discussed factors such as being from the LGBT community (Silenzio *et al.*, 2007), having attachment issues (Bowlby, 1973), experiencing depression (Garlow, 2002), experiencing chronic health conditions such as HIV and cancer (Bryan & Rudd, 2005), as well as body image issues and substance abuse (du Roscoät *et al.*, 2016). Besides this, there are also some critical implications in regards to the present study, which are worthy of being discussed. Firstly, in view of assessing students who present themselves to support services at university, it may be important to consider MT as mediating risk of suicidality. Previous research shows that having high MT helps individuals cope and manage everyday problems with students being less resilient to the demands of university education with lower MT (Gucciardi & Gordon, 2011). A low MT level can therefore mean that individuals are less able to cope with their challenges, which has shown to exhibit relations with higher risk of suicide. Due to this, and as the current findings seem to suggest that exhibiting a higher MT may protect one from suicidality, it may be important to incorporate MT training into suicide treatment programmes.

As a small, cross-sectional study, it is important to acknowledge several limitations. Firstly, there was no control for distractions, or whether or not other people were present whilst a student was completing the online survey. This poses the question as to whether social desirability may have also been an issue, something of which is considered as a significant weakness of questionnaire based research.

In regard to the present findings, it would be particularly useful for future researchers to extend these findings, by investigating further predictors of suicidality within the university population. This could then possibly lead to the

creation of interventions, specifically catered to university students that can help reduce the distress that may be leading to their suicidal risk. Moreover, the impact of these interventions, especially in regards to students who present with low MT scores, could be examined for the impact they have on successfully reducing suicidality as well as increasing MT. It would therefore be useful to extend MT interventions to different contexts, rather than the already limited research that is available within the sporting arena (Sheard & Golby, 2006). Lastly, it also seems important to take a focus on second year university students and their suicidal risk, due to the fact that this paper adds to previously documented findings on the suicidality of second year university students. Within this, this specific year group could be targeted in terms of being made more aware of universities support and wellbeing services.

In summary, the present study is the first to examine an empirical link between MT and suicidality in university students. Findings supported the hypothesis that MT is a significant, negative predictor of suicidality. It is recommended that further research examines the potential of MT interventions to reduce suicidality in students and particularly target at-risk groups.

References

- Adewuya, A. O., Ola, B. A., Aloba, O. O., Mapayi, B. M. & Oginni, O. O. (2006). Depression amongst Nigerian university students: Prevalence and sociodemographic correlates. *Social Psychiatry and Psychiatric Epidemiology*, 41, 674-678.
- Agolla, J. & Ongori, H. (2009). An assessment of academic stress among undergraduate students: The case of University of Botswana. *Educational Research and Review*, 4(2), 63-70.
- American College Health Association. (2011). National College Health Assessment II: Reference Group Executive Summary Spring 2011. Hanover, MD: American College Health Association.
- Barca-Garcia, E., Perez-Rodriguez, M. M., Oquendo, M., Keyes, K. M., Hasin, D. S., Grant, B. F., & Blanco, C. (2011). Estimating risk for suicide attempt: Are we asking the right questions? Passive suicidal ideation as a marker for suicidal behaviour. *Journal of Affective Disorders*, 134(1-3), 327-332. doi:10.1016/j.jad.2011.06.026
- Bowlby J. (1973). Attachment and Loss, volume 2, Separation: Anxiety and Anger. New York, NY: Basic Books.
- Bryan, C. J. & Rudd, M. D. (2005). Advances in the assessment of suicide risk. *Journal of Clinical Psychology*, 62(2), 185-200. doi:10.1002/jclp.20222
- Buchanan, J. L. (2012). Prevention of depression in the college student population: A review of the literature. *Archives of Psychiatric Nursing*, 26(1), 21-42.
- Castillo, L. G. & Schwartz, S. J. (2013). Introduction to the special issue on college student mental health. *British Journal of Clinical Psychology*, 69(4), 291-297. doi:10.1002/jclp.21972

- Clough, P. J. & Strycharczyk, D. (2012). *Developing Mental Toughness: Improving Performance, Wellbeing and Positive Behaviour in Others*. London: Kogan Page Limited.
- Clough, P. J., Earle, K. & Sewell, D. (2002). Mental toughness: The concept and its measurement. In I. M. Cockerill (Ed.), *Solutions in sport psychology* (pp. 32-43). London: Thompson.
- Du Roscoät, E., Legleye, S., Guignard, R., Husky, M. & Beck, F. (2016). Risk factors for suicide attempts and hospitalizations in a sample of 39,542 French adolescents. *Journal of Affective Disorders*, 190, 517-521. doi:10.1016/j.jad.2015.10.049
- Duane, E. A., Stewart, C. S. & Bridgeland, W. M. (2003). College student suicidality and family issues. *College Student Journal*, 37, 135-144.
- Dunn, T. J., Baguley, T. & Brunson, V. (2013). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology*, 105, 399-412. doi:10.1111/bjop.12046
- Eisenberg, D., Gollust, S. E., Golberstein, E. & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American Journal of Orthopsychiatry*, 77(4), 534-542. doi:10.1037/0002-9432.77.4.534
- Garlow, S. J., Rosenberg, J., Moore, J. D., Haas, A. P., Koestner, B., Hendin, H. & Nemeroff, C. B. (2008). Depression, desperation, and suicidal ideation in college students: Results from the American Foundation for Suicide Prevention College Screening Project at Emory University. *Depression and Anxiety*, 25(6), 482-488. doi:10.1002/da.20321
- Gerber, M., Feldmeth, A. K., Lang, C., Brand, S., Elliot, C., Holsboer-Trachsler, E. & Pühse, U. (2015). The relationship between mental toughness, stress, and burnout among adolescents: A longitudinal study with Swiss vocational students. *Psychological Reports: Employment Psychology & Marketing*, 117(3), 703-723. doi:10.2466/14.02.PR0.117c29z6 ISSN 0033-2941
- Gili-Planas, M., Bannasar, M. R., Ferrer-Perez, V. & Bernardo-Arroyo, M. (2011). Suicidal ideation, psychiatric disorder, and medical illness in a community epidemiological study. *Suicide and Life-Threatening Behavior*, 31(2), 207-213.
- Gliatto, M. F. & Rai, A. K. (1999). Evaluation and treatment of patients with suicidal ideation. *American Academy of Family Physicians*, 59(6), 1500-6.
- Gordon, S. & Gucciardi, D.F. (2011). A strengths-based approach to coaching mental toughness. *Journal of Sport Psychology in Action*, 2, 143-155.
- Hunt, J. & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health*, 46(1), 3-10.
- Izadinia, N., Amiri, M., Jahromi, R. G. & Hamidi, S. (2010). A study of relationship between suicidal ideas, depression, anxiety, resiliency, daily stresses and mental health among Tehran university students. *Procedia - Social and Behavioral Sciences*, 5, 1615-1619.
- Joe, S., Canetto, S. S. & Romer, D. (2008). Advancing prevention research on the role of culture in suicide prevention. *Suicide and Life-Threatening Behavior*, 38(3), 354-362. doi:10.1521/suli.2008.38.3.354
- Kaiseler, M., Polman, R. & Nicholls, A. (2009). Mental toughness, stress, stress appraisal, coping and coping effectiveness in sport. *Personality and Individual Differences*, 47, 728-733.
- Kelley, K. & Lai, K. (2012). MBESS: MBESS. *R package version 3.3.2*. Available at: <http://CRAN.R-project.org/package=MBESS> (Accessed 23rd May 2018).
- Macaskill, A. (2012). The mental health of university students in the United Kingdom. *British Journal of Guidance and Counselling*, 41(4), 426-441.
- McAuliffe, C. M. (2002). Suicidal ideation as an articulation of intent: A focus for suicide prevention? *Archives of Suicide Research*, 6, 325-338.
- Meyer R. E., Salzman, C., Youngstrom, E. A., Clayton, P. J., Goodwin, F. K., Mann, J. J. & Sheehan, D. V. (2010). Suicidality and risk of suicide--definition, drug safety concerns, and a necessary target for drug development: a brief report. *Journal of Clinical Psychiatry*, 71(8), 1040-1046. doi:10.4088/JCP.10cs06070ablu
- Nelson, B., Yuen, H. P., Wood, S. J., Lin, A., Spiliotacopoulos, D., Bruxner, A. & Yung, A. R. (2013). Long-term follow-up of a group at ultra-high risk ("prodromal") for psychosis: The PACE 400 study. *JAMA Psychiatry*, 70, 793-802.
- O'Dea, B., Wan, S., Batterham, P. J., Cleave, A. L., Paris, C. & Christensen, H. (2015). Detecting suicidality on Twitter. *Internet Interventions*, 2, 183-188.
- Osman, A., Bagge, C. L., Gutierrez, P. M., Konick, L. C., Kooper, B. A. & Barrios, F. X. (2001). The Suicidal Behaviors Questionnaire-Revised (SBQ-R): Validation with clinical and nonclinical samples. *Assessment*, 8, 443-454.
- Perry, J. L., Nicholls, A. R., Clough, P. J. & Crust, L. (2015). Assessing Model Fit: Caveats and Recommendations for Confirmatory Factor Analysis and Exploratory Structural Equation Modeling. Measurement in *Physical Education and Exercise Science*, 19, 12-21. 10.1080/1091367X.2014.952370
- R Development Core Team (2012). R: A language and environment for statistical computing. Vienna, Austria. Available at: <http://www.R-project.org/> (Accessed 23rd May 2018).
- Sarokhani, D., Delpisheh, A., Veisani, Y., Sarokhani, M. T., Esmaelimanesh, R. & Sayehmiri, K. (2013). Prevalence of depression among university students: A systematic review and meta-analysis study. *Depression Research and Treatment*, 2013, 1-7.
- Schwartz, A. J. (2006). College student suicide in the United States: 1990-1991 Through 2003-2004. *Journal of American College Health*, 6(54), 341-352.
- Sheard, M. (2010). *Mental toughness: The mindset behind sporting achievement*. New York, NY: Routledge/Taylor & Francis Group.
- Sheard, M. & Golby, J. (2006). Effect of a Psychological Skills Training Programme on Swimming Performance and Positive Psychological Development. *International Journal of Sport and Exercise Psychology*, 4, 149-169.
- Silenzio, V. M., Pena, J. B., Duberstein, P. R., Cerel, J. & Knox, K. L. (2007). Sexual orientation and risk factors for suicidal ideation and suicide attempts among adolescents and young adults. *American Journal of Public Health*, 97(11), 2017-2019.
- Stamp, E., Crust, L., Swann, C., Perry, J., Clough, P. & Marchant, D. (2015). Relationships between mental toughness and psychological wellbeing in University students. *Personality and Individual Differences*, 75, 170-174.
- Wilcox, H. C., Kuramoto, S. J., Lichtenstein, P., Långström, N., Brent, D. A. & Runeson, B. (2010). Psychiatric morbidity, violent crime, and suicide among children and adolescents exposed to parental death. *Journal of the American Academy of Child and Adolescent Psychiatry*, 49(5), 514-523.
- Wong, M. M., Brower, K. J. & Zucker, R. A. (2011). Sleep problems, suicidal ideation, and self-harm behaviors in adolescence. *Journal of Psychiatric Research*, 45(4), 505-511. doi:10.1016/j.jpsychires.2010.09.005

Table 1Descriptive data by year of study

	UG Year 1 (n = 15)	UG Year 2 (n = 15)	UG Year 3 (n = 20)	PG Taught (n = 66)	PG Research (n = 49)
MT	49.27 (10.33)	50.60 (12.51)	58.50 (10.33)	57.50 (10.50)	56.65 (8.90)
Suicidality	7.00 (3.49)	9.10 (3.68)	5.15 (2.30)	6.46 (3.48)	6.12 (2.90)

Note. UG = Undergraduate, PG = Postgraduate

Table 2Multiple linear regression summary with suicidality as dependent variable

	B	SE B	β	t	p	R ²
<i>Model 1</i>						.02
Gender	-.17 (-1.23, .98)	.57	-.02	-.30	.77	
Year	-.28 (-.78, .12)	.23	-.11	-1.32	.21	
Age	-.02 (-.07, .04)	.03	-.06	-.72	.44	
<i>Model 2</i>						.20
Mental toughness	-.15 (-.19, -.10)	.02	-.46	-6.32	<.001	

Education and Health

The journal, published by SHEU since 1983, is aimed at those involved with education and health who are concerned with the health and wellbeing of young people. Readership is worldwide and in the UK include: primary; secondary and further education teachers; university staff and health-care professionals working in education and health settings. The journal is online and open access, continues the proud tradition of independent publishing and offers an eclectic mix of articles.

Contributors (see a recent list) - Do you have up to 3000 words about a relevant issue that you would like to see published? Please contact the Editor

SHEU

Schools and Students Health Education Unit

The specialist provider of reliable local survey data for schools and colleges and recognised nationally since 1977

"The (SHEU survey) helped us to prioritise where we needed to be in terms of PSHE education. We delivered assemblies based on the evidence as well as curriculum development, and dealt with whole school issues – particularly in regard to pastoral care. The answers received to the question on the survey Who are you most likely to approach if you needed help worried staff as teacher was not a popular answer. Subsequently the staff asked themselves why this had happened and what needed to be done to address the issue. There was more emphasis on wider aspects of PSHE education delivery, which needed more attention. To summarise, the (SHEU survey) allows the PSHE department to assess the impact of teaching and learning and modify future lessons accordingly. It allows our school to look at whole school issues such as the extent to which the pastoral care system is meeting the needs of our pupils. It helps us to do need analysis of our pupils. It helps to provide important evidence for SEF / the extent to which we are meeting wellbeing indicators / National Healthy School standards." Secondary School Head

For more details please visit <http://sheu.org.uk>