



Towards Understanding the Relationship Between Psychosocial Factors and Ego Resilience Among Primary School Children in a Kenyan Setting: A Pilot Feasibility Study

David Ndetei^{1,2} · Victoria Mutiso¹ · Anika Maraj³ · Kelly Anderson³ · Christine Musyimi^{1,4} · Abednego Musau¹ · Albert Tele¹ · Isaiah Gitonga¹ · Kwame McKenzie^{3,5}

Received: 13 October 2017 / Accepted: 3 June 2019 / Published online: 8 June 2019
© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

Ego resilience in childhood is linked to positive mental health outcomes but varies across cultures. Kenya presents a unique context in which children are vulnerable to adversity. We therefore hypothesized that Ego resilience traits are found in Kenya. We aimed to: (i) demonstrate Ego resilience in Kenya, (ii) determine associated social-demographic and psychological factors in a non-clinical population of primary school going children, (iii) contribute to the global data base with Kenyan data and (iv) lay the grounds for informed future and more focused studies in Kenya. We used a socio-demographic questionnaire, Ego Resilience scale (ER-89) and the Youth Self Report (YSR). Multivariate analyses showed the only independent predictors of Ego resilience were female gender ($p < 0.001$) and peri-urban region ($p < 0.001$). We did not find any association between Ego resilience and YSR syndrome scores in this non-clinical population study. We achieved our aims.

Keywords Psychosocial factors · Ego resilience · School aged children

Introduction

Ego resilience is a personality trait that accounts for significant individual differences in the capacity to adapt in the face of trauma and stress in a general way, rather than to a specific and identifiable stressor, and reflects individual differences that may be present as early as birth (Waugh et al. 2008). Ego-resilience, or trait resilience, is defined as the “capacity to adapt one’s behavior to various situational contexts” (Philippe et al.

2011). It is the individual’s ability to dynamically and appropriately self-regulate allowing highly resilient people to adapt more quickly to changing external and internal stressors and circumstances (Block and Block 1980; Philippe et al. 2011; Wagnild and Young 1993). Ego resilience personality traits theory presumes a personality trait, with potentially biological and/or genetic basis (Davidson 2001). The concept of resilience is of particular importance for children as research shows that early success in coping increases the likelihood that the

✉ David Ndetei
dmndetei@amhf.or.ke

Victoria Mutiso
vmutiso@amhf.or.ke

Anika Maraj
anika.maraj@mail.mcgrill.ca

Kelly Anderson
kelly.anderson@schulich.uwo.ca

Christine Musyimi
christine.musyimi@amhf.or.ke

Abednego Musau
abednego.musau@amhf.or.ke

Albert Tele
albert.tele@amhf.or.ke

Isaiah Gitonga
isaiah.gitonga@amhf.or.ke

Kwame McKenzie
Kwame.McKenzie@camh.ca

¹ Africa Mental Health Foundation, P.O. Box 48423 – 00100, Nairobi, Kenya

² Department of Psychiatry, University of Nairobi, Nairobi, Kenya

³ Centre for Addiction and Mental Health (CAMH), Toronto, ON, Canada

⁴ Vrije Universiteit, Amsterdam, Netherlands

⁵ Department of Psychiatry, University of Toronto, Toronto, ON, Canada

individual will have successful coping skills throughout their lifetime (Ungar et al. 2011). Children with high levels of resilience also demonstrate improved social competence (Taylor et al. 2014), increased positive emotions after a distressing encounter (Philippe et al. 2009), faster emotional recovery (Tugade and Fredrickson 2004), lower depressive symptoms (Fredrickson et al. 2003), and improved cognitive functioning and attentiveness (Martel et al. 2007).

The above referenced studies on Ego resilience have mainly been conducted in “Western” cultural settings. However, there is evidence from Philippines, a non-Western setting, which suggests that the theory of Ego-resilience is applicable to non-Western cultures (Avdeyeva and Church 2005).

A World Bank Report on Kenya has reported a wide range of adversities in Kenyan children. These adversities range from poverty to poor law enforcement, leading to child rights violations such as neglect, sexual abuse and child labour, which are further compounded by periods of severe draught, food insecurity, inadequate protection (UNICEF 2008), terrorist and politically instigated violence (Burke 2012; Harder et al. 2010, 2012) widespread bullying in schools (Ndeti et al. 2007), and high levels of mental disorders (Ndeti et al. 2009). All these justify a study on Ego resilience in Kenya. However, the multiplicity of adversity make it relatively difficult to relate resilience to any particular adversity. Thus there is a need to focus on the level of Ego resilience that confers protection against a wide range of explicit, implicit, overt, and covert adversities. The focus is not on assessing the resilience of the children in relation to any particular adversity, but rather, the potential to adjust positively or negatively to day-to-day adversity.

Based on previous literature, we hypothesize that Ego resilience is a trait that is found across cultures including Kenya and that its expression in Kenya, like has been found elsewhere, is variable depending on psycho-social factors. We proposed to conduct a pilot study with the main aim to determine the feasibility of using the ER-89 scale in children in a Kenyan setting as a basis for future context appropriate studies on its psychometric properties. We focused on children because of the reported diversity of adversity. The specific aims are to provide preliminary data on the association of the Ego resilience with social demographic and psychosocial factors among the children in the study setting. The outcomes of the main and specific aims will inform future studies on overall Kenyan representative data.

Methods

Study Sites

The study was part of a bigger implementation study—the Kenya Integrated Intervention Model for Dialogue and Screening to Promote Children’s Mental Wellbeing (KIDS). This study had identified two counties in South East Kenya for the implementation of KIDS. From each of these counties we randomly identified one sub-county for inclusion in the study. From Makueni County, we identified Kibwezi West Sub County and from Machakos County, we identified Machakos Sub County. For this study, we studied the same demographic characterization that was part of the larger KIDS study.

Kibwezi West sub-county is a rural area whereas Machakos Sub County is a peri-urban area. At the time of the study, there were 21,680 children enrolled in 66 primary schools, which were divided into three clusters in Kibwezi West and 44,603 children enrolled in 129 primary schools, which were divided into six clusters in Machakos. The clusters were meant to enhance and harmonize supervision. The primary school education is free. One school cluster was randomly chosen from each sub-county, with 11 schools selected in Kibwezi West and 12 schools selected in Machakos. The student populations in both sub-counties have almost equal proportions of boys and girls.

Study Sample

The primary school education is from standard 1–8 (from age 6 to 13 years). However, due to late enrollment, it is not unusual to find older students in many schools i.e., much older than 13 years. For the purpose of this study, we included only ages 11 and above as the Youth Self Report (YSR) can only be administered to children between the ages of 11–18. We approached the head teachers of the sampled schools for their permission, which they gave. Each of the classes in standard six and seven at each school had 45 children, thus a total of 90 children in each of the 23 schools i.e., $90 \times 23 = 2070$ children, in both study sites were approached for this study. Their parents were also approached through the regular parents-teachers’ consultative meetings in which the nature of the study was explained followed by a request for informed consent for their children to participate. The nature of the study was also explained to the children and their assent was obtained. All those who were approached, gave consent or assent. We were also not allowed by the teachers, with the concurrence of the parents, to involve the students in standard eight as they were preparing for the national examinations.

Procedures

All the data collection tools were adapted by a multidisciplinary team and translated into Kiswahili. Conceptual forward and backward translations were done until there was consensus amongst a group of bilingual speakers from a variety of professions. This process was undertaken in order to promote equivalence in meaning to the original version. Students self-completed the instruments (in Kiswahili or English). Both the interviews and the written scales were administered by research assistants with appropriate qualifications (i.e., completed high school and had previous research experience, or had taken a health-related course in addition to training on administering the related tools). The trained research assistants administered the questionnaires to students in a classroom setting. The research assistants read each question up to a maximum of three times. The children then recorded their answer and were allowed to skip the question if they did not understand, or they did not want to answer. The research assistants had been trained on how to avoid giving cues and facial expressions likely to suggest a desired answer during interviews. A total of 45 min were needed to go through all of the tools. Forms were transported to a central office for storage, data entry and cleaning. The data were double-entered into the study database to prevent errors.

Measures

Ego Resiliency: The Ego Resilience 89 (ER-89) scale was used to assess Ego resilience among students. The original Ego Resiliency scale is an 89 item [ER-89-R] self-rating scale (Block and Block 1980) developed as a personality model that posits Ego resiliency as a central personality construct for understanding motivation, emotion, and behaviour. It measures resilience in a general way, not necessarily as a response to a specified and identifiable stressor (Block and Kremen 1996). The revised version [ER-89-R] consists of 14 items (Fredrickson et al. 2003; Tugade and Fredrickson 2004) in which participants are asked to indicate the degree to which they agree with each statement on a four-point scale (1 = does not apply at all; 4 = applies very strongly). The ER-89 has good internal reliability (Cronbach's $\alpha = 0.76$) (Block and Kremen 1996) and excellent construct validity (Windle et al. 2011). A total score between 14 and 56 is reported, with a higher score indicating higher levels of Ego-resilience. In a cross cultural study in Italy, Spain, and the USA, ER-89-R was found to have good psychometric properties (Alessandri et al. 2007).

Behavioral and emotional disorders: The YSR, a standardized screening and clinical assessment self-report tool for children aged between 11 and 18 years, was used to identify behavioral and emotional disorders. The section for assessing

emotional and behavioral disorders consists of 112 statements, each with three options of responses on a likert scale with zero representing absence of phenomenon, one representing occasional presence and two representing presence most or nearly all the time. Statements refer to the immediate 6 month period preceding the administration of the tool. The YSR has demonstrated consistent test–retest reliability (> 0.60) and internal consistency (0.60–0.90) in over 80 cross cultural studies where it has been validated (Achenbach and Rescorla 2013; Ebesutani et al. 2011; Fonseca-Pedrero et al. 2012; Ivanova et al. 2007). The normative data is equally similar, if not identical, across different cultures (Achenbach and Rescorla 2013). Local studies in the Kenyan context using adapted English and Swahili translations have replicated these properties (Harder et al. 2014). We have also used YSR extensively in Kenya (Mutiso et al. 2017; Ndeti et al. 2018). The YSR is entered in standardized data management software which generates scores of the entries to produce eight DSM syndrome scales and three broad scales based on the magnitude of the scores (Ebesutani et al. 2011).

Demographic variables: The Missouri Student Survey Questionnaire, initially developed by the Missouri Institute of Mental Health (Missouri Department of Mental Health 2002) and used extensively in the United States, was adapted for the Kenyan context and used to collect comparable socio-demographic information.

Data Analysis

In our analysis we only included children who had answered all the questions. Descriptive statistics were performed on the socio-demographic information and presented as proportions for count data and means with standard deviation for continuous data. Ego resilience scores for individual participants were computed by summing up individual item scores from all the 14 statements (range 14–56), with higher scores meaning higher resilience. Similarly, YSR scores were generated on three broad band scales for externalizing, internalizing, and total problems. A higher score on each of these dimensions indicated more behavioral/emotional problems.

One way ANOVA analyses were conducted to examine unadjusted relationships between resilience scores and age, gender, district, religion, father's employment status, mother's employment status, and the three broadband scales for emotional and behavioral problems. Factors that were found to be significantly associated with Ego resilience scores ($P = 0.05$) were used to examine independent predictors of Ego resilience measured on continuous scale using generalized linear models (GLM) using maximum likelihood estimates. Results for the simple and GLM analyses are presented as beta coefficients and 95% confidence intervals. All analyses were done using Stata SE version 12.1.

Results

Sample Description

Out of a total of 2070 children, 1883 (91%) answered all the questions. The socio-demographical and clinical characteristics of the 1883 are shown in Table 1. About 51% of the students were female and 51.2% lived and schooled in rural areas. The majority of the students (93.4%) were Christians. Most of the students (81%) had parents who were married. Close to a third of the students' male parents had below secondary level education, compared to 16.6% of their female counterparts who attained below secondary level of education. More male parents (62.9%) were reported to have been employed compared to 40.7% of female parents. The mean age of the students was 12.7 (SD = 1.6) years and ranged from 10 to 18 years. In our study the reliability of ER-89 was good (Cronbach's $\alpha = 0.64$). The mean score for internalizing,

externalizing and total problems was 59.17 (SD = 10.7); 49.07 (SD = 11.7) and 52.07 (SD = 12.2) respectively. These findings are summarized in Table 1 below;

Unadjusted Analyses

Results from analysis of variance and linear regression are shown in Table 2. Male students (Mean = 43.7; SE = 0.2) experienced significantly higher levels of ego resilience compared to females (Mean = 42.3; SE = 0.2). Students who were older experienced significantly higher levels of ego resilience ($\beta = 0.28$, $P = 0.003$). Students with high internalizing, externalizing, and total problem scores experienced significantly lower levels of Ego resilience ($P \leq 0.01$). Students who were from urban areas (Mean = 41.7; SE = 0.2) experienced significantly lower levels of ego resilience compared to students who came from rural areas (Mean = 44.2; SE = 0.2). Students who came from families where parents were married (Mean = 43.2; SE = 0.2) had significantly higher levels of Ego resilience as compared to those

Table 1 Socio-demographic and psychological characteristics of respondents

Variable	Category	Frequency (N = 1883)	Percentage (%)
Gender	Female	968	51.4
	Male	915	48.6
District	Urban	918	48.8
	Rural	965	51.2
Religion	Other	91	4.8
	Christian	1759	93.4
	Missing	33	1.8
Marital status of the parents	Married	1471	78.1
	Single/divorced	357	19.0
	Missing	55	2.9
Fathers educational level	Primary or less	599	31.8
	Secondary or more	830	44.1
	Don't know	392	20.8
	Missing	62	3.3
Mothers educational level	Primary or less	784	41.6
	Secondary or more	752	39.9
	Don't know	312	16.6
	Missing	35	1.9
Fathers employment status	Unemployed	559	29.7
	Employed	1185	62.9
	Missing	139	7.4
Mothers employment status	Unemployed	1034	54.9
	Employed	767	40.7
	Missing	82	4.4
Resilience scores	Mean, median, SD, range	(43.0; 43; 6.6; 14–56)	
Internalizing problems scores	Mean, median, SD, range	(59.1; 59; 10.7; 27–98)	
Externalizing problems scores	Mean, median, SD, range	(49.0; 50; 12.2; 29–86)	
Total problems scores	Mean, median, SD, range	(52.0; 54; 6.6; 26–92)	
Age in years	Mean, median, SD, range	(12.7; 12; 1.6; 10–18)	

Table 2 Factors associated with Ego resilience among the participants

Variable	Category	Mean	SE	95% Confidence interval		F-value	P Value
				Lower	Upper		
Gender	Female	42.28	0.22	41.85	42.71	21.28	< 0.001
	Male	43.68	0.21	43.27	44.10		
District	Urban	41.71	0.22	41.28	42.14	65.45	< 0.001
	Rural	44.15	0.21	43.74	44.55		
Religion	Other	41.96	0.66	40.65	43.27	2.33	0.127
	Christian	43.05	0.16	42.73	43.36		
Marital status of the parents	Married	43.18	0.17	42.84	43.51	4.49	0.034
	Single/divorced	42.35	0.36	41.63	43.06		
Fathers educational level	Primary or less	43.15	0.27	42.62	43.68	0.06	0.805
	Secondary or more	43.06	0.23	42.61	43.51		
Mothers educational level	Primary or less	43.39	0.23	42.94	43.84	2.80	0.095
	Secondary or more	42.83	0.24	42.35	43.30		
Fathers employment status	Unemployed	42.79	0.29	42.23	43.35	1.26	0.262
	Employed	43.17	0.19	42.80	43.54		
Mothers employment status	Unemployed	43.11	0.21	42.70	43.52	0.05	0.827
	Employed	43.04	0.23	42.58	43.49		
Internalizing problems	β - coefficient (unstandardized)	- 0.05	0.01	- 0.07	- 0.02	10.42	0.001
Externalizing problems	β - coefficient (unstandardized)	- 0.05	0.01	- 0.08	- 0.03	16.99	< 0.001
Total problems	β - coefficient (unstandardized)	- 0.05	0.01	- 0.07	- 0.02	15.35	< 0.001
Age in years	β - coefficient (unstandardized)	0.28	0.09	0.09	0.46	8.61	0.003

Bold values indicate statistically significant at $P < 0.005$

who were from either single/divorced/widowed family (Mean = 42.4; SE = 0.4).

Generalized Linear Model (GLM)

Socio-demographic and psychological wellbeing variables of the students with significant associations with the Ego resilience scores were entered into the GLM to identify variables that are independently associated with Ego resilience levels. The results of GLM (normal distribution with identity link function) using Ego resilience as the dependent variable and seven predictors are shown in Table 3.

Table 3 Multivariate generalized linear models of factors associated with Ego resilience (N = 1883)

Parameter	Category	β	S. E	95% CI		Significance
				Unstandardized	Lower	
Gender	Female	- 1.48	0.31	- 2.09	- 0.87	<0.001
	Male	Reference				
District	Urban	- 2.23	0.31	- 2.85	- 1.61	<0.001
	Rural	Reference				
Marital status of the parents	Married	0.77	0.4	- 0.01	1.54	0.052
	Single/divorced	Reference				
Age in years	Age	0.06	0.1	- 0.14	0.25	0.568
Internalizing problems	Internalizing	- 0.06	0.05	- 0.15	0.03	0.213
Externalizing problems	Externalizing	- 0.05	0.04	- 0.12	0.02	0.179
Total problems	Total	0.05	0.06	- 0.07	0.17	0.419
Maximum likelihood estimate	MLE	41.7	1.38	39.08	44.49	

Bold values indicate statistically significant at $P < 0.005$

After controlling for all other factors, female gender and living in urban areas were associated with low levels of resilience ($P < 0.001$). Coming from a family where the parents are married was marginally associated with higher levels of Ego resilience ($P = 0.052$) as compared to those that come from a single parent family.

Discussion

The high response rate in the study has been found in several other school based responses in Kenya. This is attributed to the keenness of parents, teachers and children on any activity that has the potential to inform interventions that improve the academic and wellbeing of the children (Ndeti et al. 2007, 2008a, b, c, 2009a, b, c).

The internal reliability in our sample (0.64) was good and comparable to (0.76) in another study (Block and Kremen 1996).

Age and Gender Differences

Though the focus of the study was standard six and seven children who normally in the age of 11 and 12 years, a number of them were late entrants resulting from the free education and therefore had a chance to get education which they could not afford prior to the policy for free education was in place. There were a few early entrants who were short of the minimize age by a few days or weeks. These are the explanations for the wide age-range.

No significant differences were found between age and resilience on multivariable level analysis and therefore age is not an independent predictor of Ego resilience. This is in contrast with the findings from Thailand where it was found that resilience increases with age among primary school children (Nintachan 2007). Our findings concur with findings of a number of studies from the US that found that female adolescents have lower resilience than male adolescents (Puskar et al. 2010; Sun and Stewart 2007). However, they differ from findings in other studies which suggested that enhanced social relations and social skills development of girls confer higher resilience as compared to boys (Sun and Stewart 2007), or that gender has no impact on resilience (Min and Jiamei 2011). Gender differences as moderators between emotional and behavioral problems in children, and variability of emotional and behavioral problems across adolescent age-groups have been widely documented (Abad et al. 2002; Spear 2000).

In the Kenyan cultural situation boys are expected and prompted to be ‘tough’ and cope in the face of life’s challenges, whereas girls tend to be more shielded and protected

from such challenges and therefore have fewer opportunities to develop these skills.

Geographic Differences

Our results suggest that students from the rural county are more resilient than those from the peri-urban district. This is in agreement with what has already been documented that individuals from rural communities have more extensive social networks and greater levels of support from family and community members (Communities 2010). The benefit of this increased social support has been demonstrated in previous research that found that social support was associated with higher resilience levels (Bonanno et al. 2007). Buikstra et al. (2010) in Australia emphasize the importance of social and physical environments on individual functioning and suggests that community resilience can provide strength for individuals. The importance of environment has also been demonstrated in Britain, where research has found that rural residents had better mental health than non-rural residents (Weich et al. 2005).

Differences by Social Status

Parental education, marital status, occupation and religion did not have any relationship with Ego resilience. The present results concur with work by Van Schaick, who found that there was no relationship between religiousness and resilience in college freshmen (Van Schaick 2011). This is in contrast with previous work which associated religious involvement with adolescent resilience by enhancing social skills, expanding problem solving strategies, and increasing positive affect (Alcorta 2006). However, since all the schools in this study were mixed in terms of religious background, and given that participants were young primary school students with no religious practices of their own apart from those of their parents, the religious backgrounds reported by the children could be more of a reflection of the practicing religions of their parents.

Psychological Factors

In the present study the association between Ego resilience and emotional and behavioral problems did not reach statistical significance on multivariate analysis, and thus conclude that emotional and behavioral problems is not an independent factor influencing Ego resilience. This is in contrast to the reports found in literature where it has been shown to be a predictor (Block and Block 1980; Chuang et al. 2006; Huey and Weisz 1997)

The above discussions of our findings are subject to the caveat that we did not have prior data on the psychometric

properties of the ER-89 in the Kenyan socio-cultural setting. However, ER-89 has been found to have good psychometric properties in a cross cultural study involving Italy, Spain and the USA (Alessandri et al. 2007). Furthermore, based on their work in Philippines, Avdeyeva and Church (2005) suggested that the Theory of Ego resilience is applicable to non-western cultures.

It is also to be noted that most of the studies on Ego resilience have been done in clinical populations as opposed to non-clinical populations as was in this study. The ER-89 is a subjective measure of the participants and in this context not amendable to independent objective clinical evaluation. However, focusing on school going children using a self-administered instrument has the potential to reach critical numbers of at risk youth for possible early intervention.

Our study is primarily a feasibility study that seeks to lay the ground for further studies. Despite the lack of local psychometric properties, our study found agreements with studies elsewhere including western settings that gender and social factors have associations with Ego resilience. Though we were able to determine the reliability of ER-89 in our sample, we did not determine its construct validity for lack of a validated gold standard for measuring Ego resilience. In spite of this, every effort was made through adaptation, translation and adoption process guided by specialists, not to lose the original meaning in the ER-89. The findings of this study are however applicable to school going children in the specified age and classes in the specified study areas and thus cannot be extrapolated beyond these limits.

The above limitations notwithstanding, we have achieved the aims of this study. We have established the feasibility of this kind of study that opens the grounds for psychometric studies on the ER-89, not only in settings adopted in our study but other populations that can include different clinical and non-clinical populations and wide age spectrum, that would generate evidence based policies and practice. We have established prima facie evidence in the Kenyan setting that Ego resilience, though subjective in our study, is associated with psychological features measured by YSR, social and gender scores. Therefore, our findings are comparable to what has been found elsewhere particularly in western settings. In the process, we have provided cross cultural, hitherto undocumented data for Kenya to the global database; this is in itself a contribution.

Acknowledgements This study was funded by a Grant from Grand Challenges Canada (#0083-04) and was supported by the Africa Mental Health Foundation (AMHF). Kelly Anderson was supported by a Post-doctoral Fellowship Award from CIHR (#274885). We acknowledge Professor Jenelle R. Shanley from The Pennsylvania State University for critiquing the manuscript. Our appreciation to Ruth Ruhara, Darius

Nyamai and Grace Mutevu of AMHF for their editorial inputs and the parents, teachers and children for their unreserved cooperation.

Authors' Contributions DN, KM, VM and KA conceptualized the idea for the study and developed the study design. AM¹, AM² and AT conducted the analyses. CM wrote the first draft while IG reviewed it and contributed to the final draft. All authors finally read, reviewed and approved the manuscript.

Compliance with Ethical Standards

Conflicts of Interest Authors declare that they have no financial or non-financial competing interests.

Research Involving Human Participants Ethics approval was obtained from the Research Ethics Boards at the Centre for Addiction and Mental Health and the Kenya Medical Research Institute.

Informed Consent The school head teachers' gave permission for school participation, parents provided written informed consent for their child to participate and the children signed a written assent form that contained information on procedures, risks versus benefits of the study, confidentiality measures, and the right to withdraw or participate in the study at their own volition.

References

- Abad, J., Forns, M., & Gómez, J. (2002). Emotional and behavioral problems as measured by the YSR: Gender and age differences in Spanish adolescents. *European Journal of Psychological Assessment, 18*(2), 149.
- Achenbach, T., & Rescorla, L. (2013). Achenbach system of empirically based assessment. In F. R. Volkmar (Ed.), *Encyclopedia of Autism Spectrum Disorders* (pp. 31–39). New York: Springer.
- Alcorta, C. S. (2006). Youth, religion, and resilience. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 67*(6-A), 2006–2209.
- Alessandri, G., Vecchio, G. M., Steca, P., Caprara, M. G., & Caprara, G. V. (2007). A revised version of kremen and block's ego resilience scale in an italian sample. *TPM—Testing, Psychometrics, Methodology in Applied Psychology, 14*(3–4), 165–183.
- Avdeyeva, T. V., & Church, A. T. (2005). The cross-cultural generalizability of personality types: a Philippine study. *European Journal of Personality, 19*(6), 475–499. <https://doi.org/10.1002/per.555>.
- Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In W. A. Collins (Ed.), *Development of cognition, affect, and social relations: The Minnesota symposia on child psychology* (Vol. 13, pp. 39–101). Abingdon: CRC Press.
- Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology, 70*(2), 349–361. <https://doi.org/10.1037/0022-3514.70.2.349>.
- Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology, 75*(5), 671–682.
- Buikstra, E., Ross, H., King, C. A., Baker, P. G., Hegney, D., McLachlan, K., et al. (2010). The components of resilience—Perceptions of an Australian rural community. *Journal of Community Psychology, 38*(8), 975–991. <https://doi.org/10.1002/jcop.20409>.

- Burke, H. M., Ndeti, D., Harder, V., Mutiso, V., & Khasakhala, L. (2012). Multiple traumas, postelection violence and posttraumatic stress among impoverished Kenyan youth. *Journal of Traumatic Stress, 25*, 64–70.
- Chuang, S. S., Lamb, M. E., & Hwang, C. P. (2006). Personality development from childhood to adolescence: A longitudinal study of ego-control and ego-resiliency in Sweden. *International Journal of Behavioral Development, 30*(4), 338–343.
- Communities, C. for R. (2010). State of the countryside 2010. Retrieved from <http://webarchive.nationalarchives.gov.uk/20110303145243/http://ruralcommunities.gov.uk/sotc2010>
- Davidson, R. J. (2001). Toward a biology of personality and emotion. *Annals of the New York Academy of Sciences, 935*(1), 191–207. <https://doi.org/10.1111/j.1749-6632.2001.tb03481.x>.
- Ebesutani, C., Bernstein, A., Martinez, J. I., Chorpita, B. F., & Weisz, J. R. (2011). The youth self report: applicability and validity across younger and older youths. *Journal of Clinical Child and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53, 40*(2), 338–346. <https://doi.org/10.1080/15374416.2011.546041>.
- Fonseca-Pedrero, E., Sierra-Baigrie, S., Lemos-Giráldez, S., Paino, M., & Muñiz, J. (2012). Dimensional structure and measurement invariance of the Youth Self-Report across gender and age. *Journal of Adolescent Health, 50*(2), 148–153.
- Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology, 84*(2), 365–376.
- Harder, V. S., Mutiso, V. N., Khasakhala, L. I., Burke, H. M., & Ndeti, D. M. (2012). Multiple traumas, postelection violence, and post-traumatic stress among impoverished Kenyan youth. *Journal of Traumatic Stress, 25*(1), 64–70. <https://doi.org/10.1002/jts.21660>.
- Harder, V. S., Mutiso, V. N., Khasakhala, L. I., Burke, H. M., Rettew, D. C., Ivanova, M. Y., et al. (2014). Emotional and behavioral problems among impoverished Kenyan youth: Factor structure and sex-differences. *Journal of Psychopathology and Behavioral Assessment, 36*(4), 580–590.
- Harder, V., Mutiso, V., Khasakhala, L., Ivanova, M., Burke, H., & Ndeti, D. (2010). Prevalence of behavioral and emotional problems among Kenyan youth from an urban slum. *Comprehensive Psychiatry, 51*(6), e5.
- Huey, S. J., Jr., & Weisz, J. R. (1997). Ego control, ego resiliency, and the five-factor model as predictors of behavioral and emotional problems in clinic-referred children and adolescents. *Journal of Abnormal Psychology, 106*(3), 404.
- Ivanova, M. Y., Achenbach, T. M., Rescorla, L. A., Dumenci, L., Almqvist, F., Bilenberg, N., ... Döpfner, M. (2007). The generalizability of the Youth Self-Report syndrome structure in 23 societies. *Journal of Consulting and Clinical Psychology, 75*(5), 729.
- Martel, M. M., Nigg, J. T., Wong, M. M., Fitzgerald, H. E., Jester, J. M., Puttler, L. I., et al. (2007). Childhood and adolescent resiliency, regulation, and executive functioning in relation to adolescent problems and competence in a high-risk sample. *Development and Psychopathology, 19*(2), 541–563.
- Min, Z., & Jiamei, L. (2011). A research on influencing factors of adolescent emotional resilience. *Psychological Science (China), 34*(3), 593–597.
- Missouri Department of Mental Health. (2002). The Missouri Student Survey Questionnaire. Retrieved June 6, 2019, from <http://dmh.mo.gov/>.
- Mutiso, V., Tele, A., Musyimi, C., Gitonga, I., Musau, A., & Ndeti, D. (2017). Effectiveness of life skills education and psychoeducation on emotional and behavioral problems among adolescents in institutional care in Kenya: a longitudinal study. *Child and Adolescent Mental Health. https://doi.org/10.1111/camh.12232*.
- Ndeti, D. M., Khasakhala, L. I., Kuria, M. W., Mutiso, V. N., Ongecha-Owuor, F. A., & Kokonya, D. A. (2009a). The prevalence of mental disorders in adults in different level general medical facilities in Kenya: a cross-sectional study. *Annals of General Psychiatry, 8*, 1. <https://doi.org/10.1186/1744-859X-8-1>.
- Ndeti, D., Khasakhala, L., Mutiso, V., Ongecha-Owuor, F., & Kokonya, D. (2009b). Patterns of drug abuse in public secondary Schools in Kenya. *Substance Abuse, 30*(1), 69–78.
- Ndeti, D. M., Khasakhala, L. I., Mutiso, V., Ongecha-Owuor, F. A., & Kokonya, D. A. (2009c). Psychosocial and health aspects of drug use by students in public secondary schools in Nairobi. *Kenya. Substance Abuse, 30*(1), 61–68. <https://doi.org/10.1080/08897070802606410>.
- Ndeti, D. M., Khasakhala, L., Nyabola, L., Ongecha-Owuor, F., Seedat, S., Mutiso, V., ... Odhiambo, G. (2008b). The prevalence of anxiety and depression symptoms and syndromes in Kenyan children and adolescents. *Journal of Child & Adolescent Mental Health, 20*(1), 33–51. <https://doi.org/10.2989/JCAMH.2008.20.1.6.491>
- Ndeti, D. M., Khasakhala, L., Ong'echa, F. A., Kokonya, D., Mutiso, V., Kuria, M., ... Akanga, S. (2008c). A study of drug use in five urban centres in Kenya. *African Journal of Drug and Alcohol Studies, 7*(1), 53–58.
- Ndeti, D. M., Khasakhala, L. I., Seedat, S., Syanda, J., Ongecha-Owuor, F. A., Kokonya, D. A., et al. (2008a). Psychometric properties of the multidimensional anxiety scale for children (MASC) amongst Nairobi public secondary school children, Kenya. *Journal of Child and Adolescent Mental Health, 20*(2), 101–109.
- Ndeti, D. M., Mutiso, V., Gitonga, I., Agudile, E., Tele, A., Birech, L., ... McKenzie, K. (2018). World Health Organization life-skills training is efficacious in reducing youth self-report scores in primary school going children in Kenya. *Early Intervention in Psychiatry. https://doi.org/10.1111/eip.12745*
- Ndeti, D. M., Ongecha, F. A., Khasakhala, L., Syanda, J., Mutiso, V., Othieno, C. J., ... Kokonya, D. A. (2007). Bullying in public secondary schools in Nairobi, Kenya. *Journal of Child and Adolescent Mental Health, 19*(1), 45–55. <https://doi.org/10.2989/17280580709486634>
- Nintachan, P. (2007). Resilience and risk-taking behavior among Thai adolescents living in Bangkok, Thailand, Ph.D., 329 p-329 p. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009982019&lang=es&site=ehost-live>
- Philippe, F. L., Laventure, S., Beaulieu-Pelletier, G., Lecours, S., & Lokes, N. (2011). Ego-resiliency as a mediator between childhood trauma and psychological symptoms. *Journal of Social and Clinical Psychology, 30*(6), 583–598. <https://doi.org/10.1521/jscp.2011.30.6.583>.
- Philippe, F. L., Lecours, S., & Beaulieu-Pelletier, G. (2009). Resilience and positive emotions: Examining the role of emotional memories. *Journal of Personality, 77*(1), 139–176. <https://doi.org/10.1111/j.1467-6494.2008.00541.x>.
- Puskar, K. R., Marie Bernardo, L., Ren, D., Haley, T. M., Hetager Tark, K., Switala, J., et al. (2010). Self-esteem and optimism in rural youth: Gender differences. *Contemporary Nurse, 34*(2), 190–198. <https://doi.org/10.5172/conu.2010.34.2.190>.
- Spear, L. P. (2000). The adolescent brain and age-related behavioral manifestations. *Neuroscience & Biobehavioral Reviews, 24*(4), 417–463. [https://doi.org/10.1016/S0149-7634\(00\)00014-2](https://doi.org/10.1016/S0149-7634(00)00014-2).
- Sun, J., & Stewart, D. (2007). Age and gender effects on resilience in children and adolescents. *International Journal of Mental Health Promotion, 9*(4), 16–25. <https://doi.org/10.1080/14623730.2007.9721845>.

- Taylor, Z. E., Eisenberg, N., VanSchyndel, S. K., EggumWilkins, N. D., & Spinrad, T. L. (2014). Children's negative emotions and ego-resiliency: Longitudinal relations with social competence. *Emotion, 14*(2), 397–406.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320–333. <https://doi.org/10.1037/0022-3514.86.2.320>.
- Ungar, M., Theron, L., & Didkowsky, N. (2011). Adolescents' precocious and developmentally appropriate contributions to their families' well-being and resilience in five countries. *Family Relations, 60*(2), 231–246. <https://doi.org/10.1111/j.1741-3729.2010.00645.x>.
- UNICEF. (2008). Kenya poverty and inequality assessment, (44190), 1–25.
- Van Schaick, L. A. (2011). Predicting resilience and psychological well-being in early adulthood: The role of religion in childhood and adolescence. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 71*(7–B), 4525.
- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1*(2), 165–178.
- Waugh, C. E., Fredrickson, B. L., & Taylor, S. F. (2008). Adapting to life's slings and arrows: Individual differences in resilience when recovering from an anticipated threat. *Journal of Research in Personality, 42*(4), 1031–1046. <https://doi.org/10.1016/j.jrp.2008.02.005>.
- Weich, S., Twigg, L. I. Z., & Lewis, G. (2005). Rural/non-rural differences in rates of common mental disorders in Britain. *The British Journal of Psychiatry, 188*(1), 51–57. Retrieved from <http://bjp.rcpsych.org/content/188/1/51.abstract>
- Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes, 9*(1), 8. <https://doi.org/10.1186/1477-7525-9-8>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.