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Traumatic experiences assessed with the life events checklist for Kenyan adults

Edith Kamaru Kwobah[a,*] **[Writing – review & editing]**, **Supriya Misra**[b] **[Writing – review & editing]**, **Amantia A. Ametaj**[c] **[Writing – review & editing]**, **Anne Stevenson**[c,f] **[Writing – review & editing]**, **Rocky E. Stroud**[c,f] **[Writing – review & editing]**, **Karestan C. Koenen**[c,d,f] **[Writing – review & editing]**, **Bizu Gelaye**[c,d,e,f] **[Writing – review & editing]**, **Symon M. Kariuki**[g,h,i] **[Writing – review & editing]**, **Charles R. Newton**[g,h,i] **[Writing – review & editing]**, **Lukoye Atwoli**[j,k] **[Writing – review & editing]**

[a]Department of Mental Health, Moi Teaching and Referral Hospital, Eldoret, Kenya

[b]Department of Public Health, San Francisco State University, San Francisco, CA, USA

[c]Department of Epidemiology, Harvard T. H. Chan School of Public Health, Boston, MA, USA

[d]Department of Psychiatry, Massachusetts General Hospital, Boston, MA, USA

[e]Department of Psychiatry, Harvard Medical School, Boston, MA, USA

[f]Stanley Center for Psychiatric Research at Broad Institute of MIT and Harvard, Cambridge, MA, USA

[g]Neuroscience Unit, Kenya Medical Research Institute - Wellcome Trust Research Program, Kilifi, Kenya

[h]Department of Public Health, Pwani University, Kilifi, Kenya

[i]Department of Psychiatry, University of Oxford, United Kingdom

[j]Department of Mental Health, Moi University School of Medicine, Eldoret, Kenya

[k]Brain and Mind Institute and Medical College East Africa, Aga Khan University Nairobi, Kenya

Abstract

Background—Life Events Checklist (LEC-5) has been widely used to assess for exposure to potentially traumatic life events (PTEs), but its psychometric properties have not been evaluated in Kenya. The objectives of this study were to determine the frequency and types of PTEs within this setting and to examine the construct validity of LEC-5 in Kenya.

Methods—The LEC-5 was administered to 5316 participants in the ongoing multisite case–control study of Neuropsychiatric Genetics of African Populations-Psychosis. We used exploratory factor analysis to assess LEC-5 structure, and conducted confirmatory factor analyses to compare

[*]Corresponding author. eckamaru@gmail.com (E.K. Kwobah).

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these results with two other models: a six-factor model based on the only prior EFA of the LEC and a theoretical seven-factor model.

Results—The majority (63.4% overall and 64.4% of cases and 62.4% of controls) of participants had experienced at least one PTE in their lifetime. Results of the exploratory factor analyses for LEC-5 yielded a seven-factor solution with eigenvalues greater than one, accounting for 55.3% of the common variance. Based on confirmatory factor analyses, all three models had good fit for our sample, but the theoretical seven-factor model had the best fit.

Limitations—The study did not assess if the participants perceived experiences as traumatic, we did not carry out test retest reliability or and we did not consider cultural variations in perception of trauma.

Conclusion—This study provides evidence of a high prevalence of traumatic life events and for the construct validity of LEC-5 in assessing PTE exposures in a Kenyan setting.

Keywords

Life events checklist; Traumatic events; Psychosis; Exploratory factor analysis; Confirmatory factor analysis

1 Introduction

Exposure to potentially traumatic events (PTEs) is common world-wide. For example, the World Health Organization World Mental Health (WHO WMH) survey of data from 24 countries reported that 70% of participants had been exposed to at least one traumatic event (Benjet et al., 2016). Although there are limited data for Sub-Saharan Africa, high rates of exposure to traumatic events are likely experienced in this region (Musisi, 2004). The South African Stress and Health (SASH) project, as one example, found that 73.8% of participants had been exposed to at least one such event (Atwoli et al., 2013). In Kenya, only a few studies have examined rates of traumatic events, with one house-hold survey reporting that 48% of respondents had experienced severe trauma in their lifetime (Jenkins et al., 2015).

It is important to identify PTEs given their association with mental and physical health disorders as well as substance use disorders. Post-traumatic stress disorder (PTSD) is one of the most common mental health conditions in persons exposed to traumatic events (Javidi and Yadollahie, 2012). Exposure to trauma is also associated with the development of anxiety (Backholm and Björkqvist, 2012), depressive disorders (Breslau et al., 2000), alcohol use disorders (Dragan and Lis-Turlejska, 2007), as well as chronic physical conditions such as hypertension (Atwoli et al., 2015). By assessing the prevalence of PTEs, stakeholders in the healthcare system, including clinicians, administrators, and policy makers, may be able to better plan care and screen for these diagnoses.

The Life Events Checklist LEC-5; (Weathers et al., 2013) is one of several tools created to assess PTE exposure and is among the most widely used (Elhai et al., 2005). The LEC was initially developed by the U.S. Veteran Affairs National center for PTSD for the Diagnostic and Statistical Manual of Mental Disorders (DSM- IV) in 2000) and later revised for DSM-5 in 2013. The Life Events Checklist for DSM-5 (LEC-5), was developed concurrently with

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the Clinician Administered PTSD Scale (Weathers et al., 2001). LEC-5 has been used in cross-cultural settings, but there are limited studies on the psychometric properties of this tool in different settings. A prior study did evaluate these properties in South Korea (Bae et al., 2008), but to the best of our knowledge, no prior study examined them in Kenya or in an African setting, although the tool has been used in prior studies conducted in South Africa (Fjeldheim et al., 2014; Mhlongo et al., 2018). Therefore, the objectives of this study were to: (i) establish the frequency and type of potentially traumatic events within the Kenyan setting, for both cases (patients with psychosis) and controls (individuals in a general medical setting), and (ii) examine construct validity by determining the factor structure of LEC-5 in Kenyan adults. The findings of this study will have implications for clinical and population based studies that use the LEC-5 both in Kenya and other similar settings in sub-Saharan Africa given that there are several aspects of the way of life that is shared among African countries (Idang, 2015).

2 Methods

Data for the current investigation are derived from an ongoing multisite study, the Neuropsychiatric Genetics of African Populations-Psychosis (NeuroGAP-Psychosis), which is being conducted in Ethiopia, Kenya, South Africa, and Uganda. NeuroGAP-Psychosis is a case–control and genome-wide association study (GWAS) whose main objective is to establish genetic and environmental risk factors for psychotic disorders in African populations (Stevenson et al., 2019).

2.1 Participants

Participants were cases and controls recruited in Kenya from March 2018 (the start of the NeuroGAP-Psychosis study in Kenya) to March 2020 (for the purposes of these analyses). Inclusion criteria for cases were (1) clinical diagnosis of either schizophrenia, bipolar disorder, or schizoaffective disorder (all referred to as “psychosis” in this paper), (2) aged ≥ 18 years, and (3) fluency in Swahili or English. Age and language criteria were used to select controls, who were individuals from the same geographic location as the cases but without a clinical diagnosis of psychosis. We excluded inpatients, those who did not have ability to consent and those who had acute substance use or psychological distress as assessed by the primary psychiatrist.

Recruitment sites were located across western and coastal Kenya and included Moi Teaching and Referral Hospital and affiliated sites in Webuye, Kapenguria, Kitale, Kapsabet, Iten, and Kakamega and the Kenya Medical Research Institute (KEMRI) Wellcome Trust Research Program with recruiting sites in Kilifi County, Malindi sub-County, Port Reitz, and Coast General Provincial Hospitals. Data across sites was collected at one point in time.

Ethical approval to conduct this study was obtained from all participating sites: 1) Institutional Research and Ethics Committee at Moi University School of Medicine (#IREC/2016/145, approval number: IREC #1727), 2) the Kenya National Council of Science Technology and Innovation (NACOSTI/P/17/56,302/19,576), 3) the KEMRI center Scientific Committee (KEMRI/CGMRC/CSC/070/2016) and KEMRI Scientific and Ethics Review Unit (KEMRI/SERU/CGMR-C/070/3575) in Kenya, and 4) the Harvard T.H. Chan

School of Public Health (#IRB17–0822) in the United States. All participants in the current study were required to provide written informed consent. For all participants, we administered the University of California, San Diego Brief Assessment of Capacity to Consent (UBACC) to ascertain ability to consent (Jeste et al., 2007).

2.2 Measures

As part of the NeuroGAP-Psychosis study, we collected information on participants' social demographics, as well as the LEC-5. The LEC-5 assesses exposure to 16 events associated with distress or PTSD and includes an additional item assessing any other life-threatening or stressful events not captured in the first 16. Since the development of LEC, a number of studies have examined its reliability and validity in different settings. A study conducted in Boston reported good test–retest reliability, and good convergence with another measure of trauma history—the Traumatic Life Events Questionnaire (Kubany et al., 2000). Outside of the U.S., a Polish study evaluated the validity of LEC-5 and showed good test–retest reliability with a Kappa coefficient >0.90 (Rzeszutek et al., 2018). A Korean study of the LEC reported good test–retest reliability with a mean kappa value of 0.61, as well as fair internal consistency as indicated by a Cronbach alpha value of 0.67 (Bae et al., 2008). The LEC- 5 was also translated and adapted for use in Brazil and demonstrated adequate rates of equivalence (content validity coefficient scores above the 0.80 cut-off) on all items for semantic, cultural, and conceptual criteria between the Portuguese and English versions (Lima et al., 2016). For our study, we translated the LEC-5 into Swahili which is a national language in Kenya (Harries, 1976).

2.3 Procedures

Before initiating the study, research staff members received extensive training on data collection procedures, including overviews of ethical considerations in research, consenting process, interview techniques, and demonstrations on how to administer the questionnaires, role plays, and use of the data collection tablets. Upon consent, trained research assistants administered the LEC-5 either in English or Swahili depending on the participants' preference, given that both English and Swahili are the official languages in Kenya, hence spoken by majority of the Kenyans (Ogechi, 2009). We also collected demographic characteristics of the participants, including age, level of education, marital status, current living situation, and sex assigned at birth as a binary male or female choice.

2.4 Data analysis

Analyses were restricted to the 16 unique PTEs in LEC-5. These include two events that can only be witnessed (accidental death, violent death) but exclude the last item (any other PTE) since it is unclear how to interpret the loading of this item on a shared factor with other items. All analyses were conducted in Stata (StataCorp, 2017). We examined the frequency distributions of sociodemographic characteristics, individual PTEs, and cumulative PTEs. To test for differences between cases and controls, we used the Student's *t*-test for continuous variables and Pearson's chi-square test for categorical variables. To investigate the factor structure of the LEC-5, we completed an exploratory principal component analysis with an unspecified number of factors on a randomly split half sample of our data. Factors with eigenvalues greater than one were retained followed by orthogonal varimax rotation. The

highest factor loading was used to assign each item to a single factor. Then, we conducted confirmatory factor analyses (CFAs) to compare the results from (1) this study's exploratory factor analysis (EFA), with two other models: (2) a six-factor model based on the only prior EFA of the LEC, completed with a Korean sample (Bae et al., 2008), which was combined with an EFA of a 27-item module from the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI) in the World Mental Health (WMH) Survey (Benjet et al., 2016), and (3) a theoretical seven-factor model based on the findings of the same 27-item module from the WHO WMH Composite International Diagnostic Interview (CIDI) used in the South African Stress and Health (SASH) Survey (Atwoli et al., 2013). Although the WHO module included more items, the LEC-5 items could be grouped into six of the same categories (war events, physical violence, sexual violence, accidents, network events, and witnessing death). The LEC-5 did not include any items for "unexpected death of loved one" but did include "severe suffering" (listed separately in the model). CFA models were analyzed with a sample variance-covariance matrix and maximum likelihood estimation procedure. Latent variables for all three models were permitted to be correlated with one another based on prior evidence of the association between traumatic events, but measurement error was not assumed to be correlated. The marker item for each latent factor was the first item, and the reliability for single item indicators was set at 0.8 in two models with single item indicators. We ran the first model using the second half of the split sample to test the results from EFA.

To compare the three CFA models, we used the following metrics of model fit: (1) standardized root mean square residual (SRMR) of 0.08 or below; (2) root mean square error of approximation (RMSEA) of 0.06 or below, (3) comparative fit index (CFI) of 0.90 or above); (4) Tucker-Lewis index (TLI) of 0.90 or above (Hu and Bentler, 1999), (5) Akaike information criterion (AIC) lowest value; and (6) Bayesian information criterion (BIC) lowest value (Vrieze, 2012). Based on these and additional model parameters, we selected a single final model for use in future analyses.

3 Results

Sociodemographic characteristics of the sample are shown in Table 1. In total, 5316 participants (mean age = 36.3 years, standard deviation = 12.0 years) participated in the study. The majority of participants were men (52.9%), married (45.0%) and younger than 45 (76.4%). Only about one-third of study participants had completed schooling beyond secondary education. About half (51.9%) of the sample consisted of cases (i.e., individuals with a psychosis diagnosis).

The final sample included 2760 cases and 2556 controls (Table 2). Most participants (63.4% overall, 64.4% of cases, 62.4% of controls) had experienced at least one PTE in their lifetime, with about a third having experienced two or more PTEs. Physical assault was the most commonly reported traumatic event (27.5%), and the second-most common was witnessing sudden violent death (23.1%). No difference was detected in the prevalence rates or number of PTEs between control and case participants, but differences emerged in the type of traumatic events reported by each group. Compared to controls, cases were significantly more likely to report experiencing: physical assault, weapon assault, sexual

assault, other unwanted sexual experiences, severe suffering, and causing serious harm to others (see Table 2). Additionally, cases reported fewer instances of natural disasters, transport accidents, exposure to toxic substances, illness/injury, and witnessing or learning about sudden violent death and sudden accidental death compared to control participants (see Table 2).

4 Factor analyses

The results of the EFA for LEC-5 on a randomly selected split-half sample of our data yielded a seven-factor solution with eigenvalues greater than one that accounted for 55.3% of the common variance (Table 3). Two items of the LEC-5 related to sexual trauma loaded strongly on factor 1 (unwanted sexual violence and sexual assault). Items related to physical violence loaded strongly on factor 2 with similar factor loadings of 0.80. Factor 3 consisted of two events related to witnessing or learning about the death of a close one. Three items loaded onto factor 4, with natural disaster being strongest (0.70) and life-threatening injury/illness being weakest (0.46). Factor 5 consisted of two items related to environmental disasters. Three items loaded on factor 6, with severe suffering loading strongly (0.61), while causing harm or death loaded negatively (- 0.50). Lastly, Factor 7 encompassed two items with combat or war zone being the strongest (0.79). A few items, including captivity and life-threatening illness/injury crossloaded on two different factors.

Next, we compared the three models: (1) the EFA from the sevenfactor model from this study, (2) the six-factor model from the prior EFAs of the LEC and WHM (Benjet et al., 2016) and (3) a theoretical seven-factor model of the same 27-item module from the WHM-SASH Survey (Atwoli et al., 2013). All three models had good model fit with our sample of Kenyan adults (see Table 4), with SRMRs ⟨ 0.08, RMSEAs < 0.06, CFIs ⟩ 0.90, and TLIs close to 0.90. No model was superior across all indices, but the theoretical seven-factor model (model 3) came close with the best SRMR, RMSEA, CFI, and TLI but a poorer AIC and BIC; the TLI was slightly below 0.90. Therefore, this model was comparatively the best-fitting model. Figs. 1 and 2 present standardized parameter estimates from each model solution. Factor-loading estimates showed that items from LEC-5 were strongly related to their specified latent factors in the seven-factor model (Fig. 1), with the exception of indicators that fell below the 0.3 cut-off for the latent variable for war (i.e., combat at 0.17 and captivity at 0.17) and the latent variable for accidents with the indicators natural disaster (0.24), transportation accident (0.23), and toxic substance (0.10).

5 Discussion

This study is the first to examine the factor structure of the LEC-5 in Kenya and the frequency and type of potentially traumatic events within the Kenyan setting for individuals with or without psychosis. Our findings indicated that well over half of both cases and controls had experienced at least one PTE in their lifetime. There were some significant differences in traumatic experiences, with individuals with psychosis reporting more violent traumatic events (e.g., physical, weapon, and sexual assault), and fewer of other types of traumas (e.g., natural disaster, transport accidents, exposure to toxic substances) than control

individuals. We also found evidence for the factorial validity of LEC-5 in Kenya based on prior theory for the types of events that may be present in sub-Saharan African countries.

The estimated lifetime prevalence for any traumatic event in our sample was 63.4%, which is higher than the 48% prevalence reported in a community-based study of 1158 adults done in Nyanza, Kenya that used an open-ended question with seven examples that overlap with categories from the LEC-5 (Jenkins et al., 2015). One possibility for this discrepancy is that the Jenkins et al. study was set in a rural province of western Kenya; our study consists of both rural and urban sites in western Kenya and the eastern coast. A study of school children in Kenya found that children living in rural areas, compared to those in urban areas, have higher trauma exposure and PTSD prevalence (Mbwayo et al., 2019) possibly due to the differences in the living conditions. Additionally, the Jenkins et al. study was conducted in the general population, while our study included patients with psychosis and used different measures and methods for collecting PTEs. Our findings do align with prior research indicating a high lifetime trauma prevalence (e.g., the SASH project), which reported that 73.8% of participants in South Africa had been exposed to at least one traumatic event (Atwoli et al., 2013). Similarly, a comprehensive report from the WMH Surveys reported that 70% of those from several low-, middle-, and high-income countries reported exposure to at least one traumatic event in their lifetime (Benjet et al., 2016). A national U.S. study reported that 89% of 2900 surveyed adults had experienced a PTE in their lifetime based on their responses to a list of 28 questions each querying a different type of event (Kilpatrick et al., 2013), while a study in France reported a 72% lifetime exposure rate to PTEs based on the WHO CIDI 28 traumatic life events assessment (Husky et al., 2015).

In our study, physical assault was the most commonly reported traumatic life event, with witnessing sudden violent death as a close second. This differs from the South African SASH study, which reported unexpected sudden death as the commonest traumatic life event, followed by witnessing trauma occurring to others (Atwoli et al., 2013). In contrast, mental health surveys have identified accidents and injuries to be the leading traumatic events worldwide (Benjet et al., 2016). These results highlight the fact that, although many people have been exposed to traumatic events, the most common type of event differs based on setting. Hence, well-validated measures are needed to capture the common types of PTEs in different contexts.

In terms of construct validity, the EFA for LEC-5 demonstrated mostly acceptable factor loadings and a good model fit for our sample of Kenyan adults. In our study, the seven factors yielded on EFA related to war, physical violence, sexual violence, accidents, environmental events, severe suffering, and witnessing traumatic events. These findings accord with other studies that have evaluated the most common traumatic events in cultural contexts similar to our study, including school going adolescents in Nairobi, Kenya (Seedat et al., 2004) and high school students in Gambia (O'Donnell et al., 2011). In contrast, a network analysis study of the LEC-5 from participants in North America found three clusters for traumatic events: accidental/injury traumas, victimization traumas, and predominant death threat traumas (Contractor et al., 2020). This finding differs from our

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own seven factor model but was tested with different methods than ours and in a Western setting.

The results of the CFA showed that the best-fitting model for the Kenyan setting was the theoretical seven-factor model based on the WMH SASH study (Atwoli et al., 2013). Categories included in the theoretical seven-factor model are: war, physical violence, sexual violence, accidents, network trauma, severe suffering, and witnessing. Overall, the WMH SASH categories tested based on theoretical similarities between events may make the most intuitive sense since traumatic events serve less as latent factors and more as composite phenomena (Netland, 2005; Rasmussen et al., 2018). Two of the latent factors, war and accidents, had indicators that did not seem to group well. In the Kenyan context, combat and captivity traumas do not appear to relate to one another. Similarly, natural disasters, fires, serious accidents, and exposure to toxic substances may not cluster with one another in Kenya. A reason for this is not very clear and may warrant future research to try explore a possible cultural explanation.

6 Limitations

This study should be considered within its limitations. First, the LEC does not assess whether participants perceived the experienced events as traumatic. Events deemed traumatic as well as culturally specific events may be useful additions as collected in other settings for checklists developed in Western settings (Ametaj et al., 2021). Second, the LEC was only administered once, precluding analysis of test–retest reliability. Finally, caution should be exercised when generalizing this to other African settings since different perceptions of trauma in different cultural settings may cause variation in reporting of the traumatic experiences. However, the large sample size of our study and the rigorous analyses conducted enhance the generalizability of our findings. Also, inclusion of participants from both rural and urban settings also contributes to the generalizability of our findings within Kenya.

7 Conclusion

In conclusion, our study provides evidence for a high prevalence of traumatic life events among Kenyan adults and for the construct validity of LEC-5 in assessing PTE exposures in a Kenyan setting. Having a cross-culturally validated tool is useful in future work related to traumatic stress and other adverse mental and physical health outcomes. To provide support for the value of routine PTE screening, we recommend future research on the LEC's criterion validity (e.g., predictive validity) as well as concurrent assessments for other mental disorders among those exposed to potentially traumatic events. In the future it would be useful to compare these findings with other countries in sub-Saharan Africa to establish if there are any variations. Examining the measurement invariance and differential item function of the LEC by population characteristics including place of residence (urban vs rural) will also be useful.

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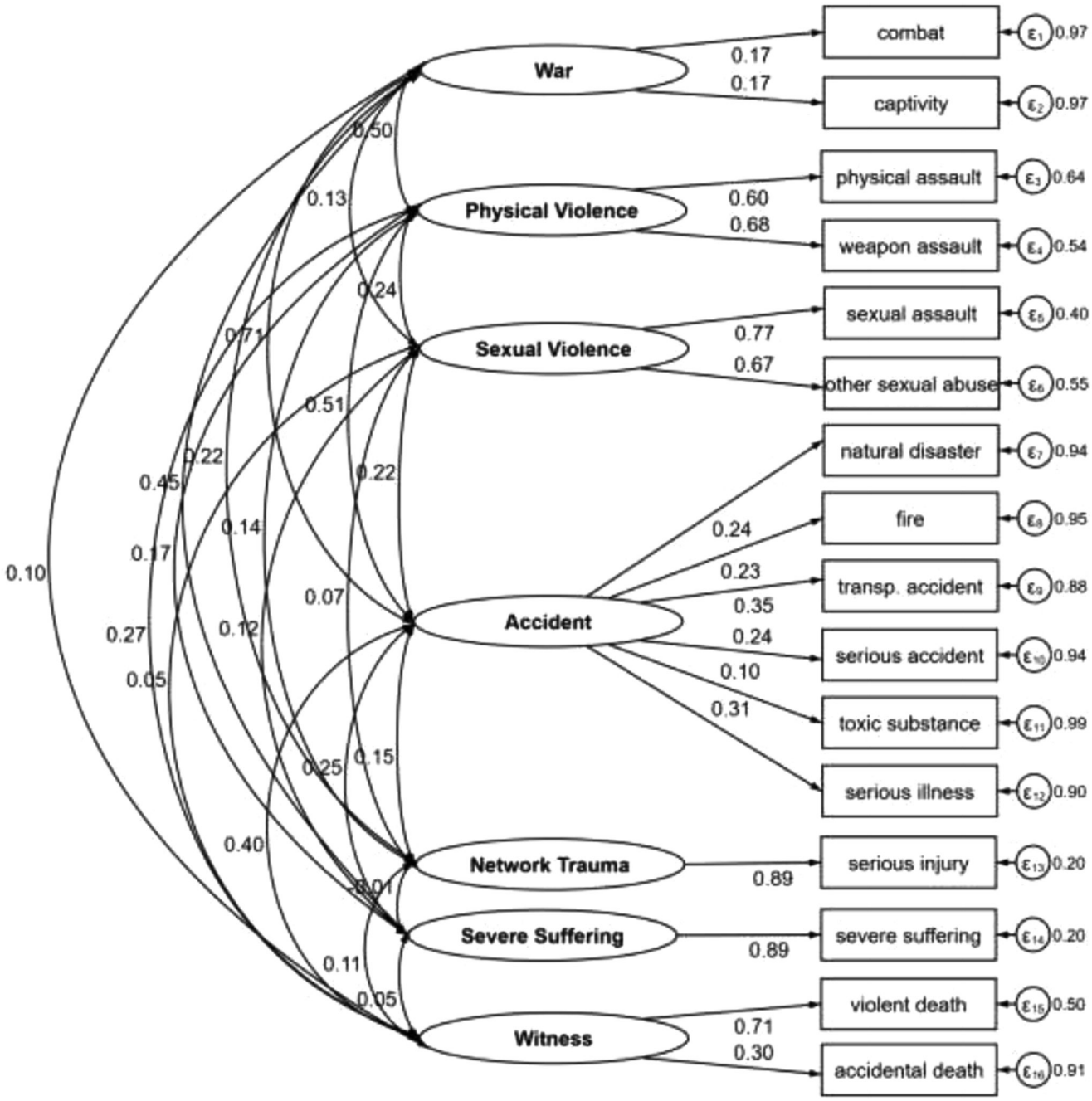

Fig. 1. The theory-seven factor model - final model selected for Life Events Checklist for DSM-5 (LEC-5) in Kenya.

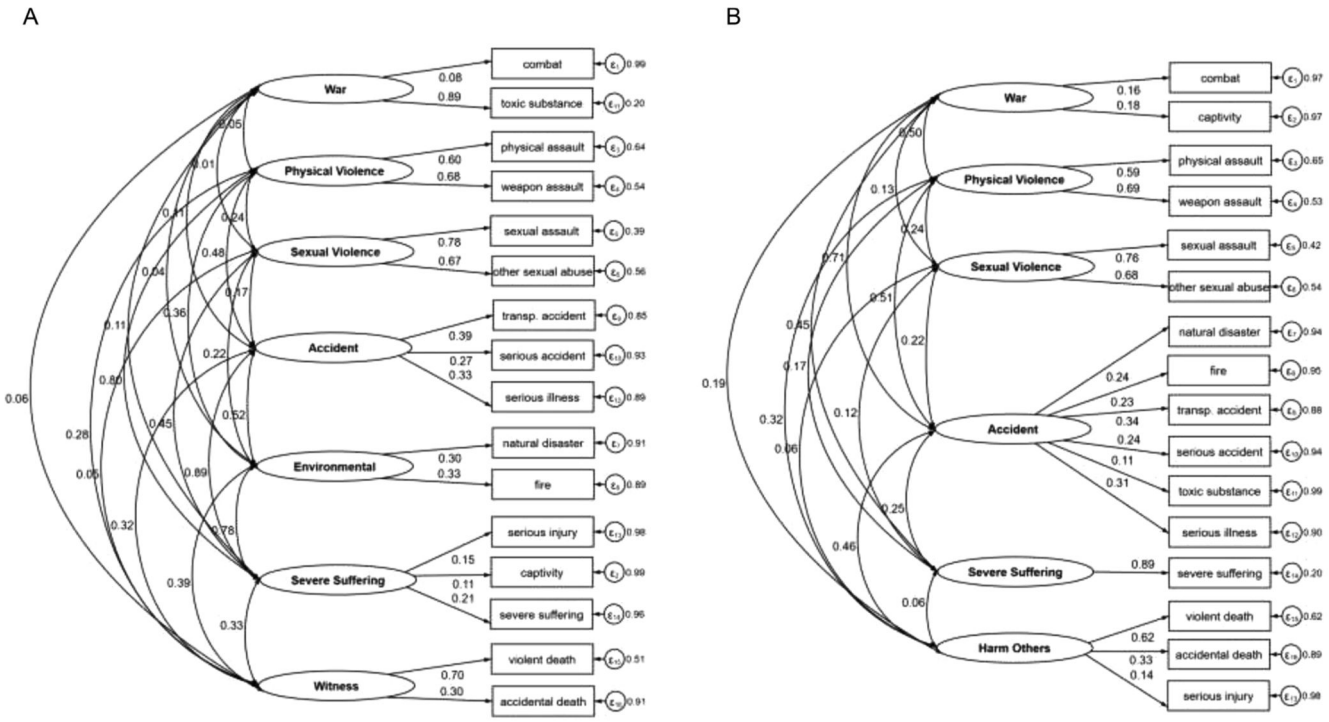

Fig. 2. (a) Exploratory factor analysis model from the current study and (b) World Mental Health Survey - Korean model.

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Table 1

Kenyan sample demographics (*N* = 5316)*.

	Count	% or SD
Cases	2760	51.9
Gender (*%*)		
Woman	2502	47.1
Man	2814	52.9
Age (*Mean, SD*)	36.32	11.95
Age categories (*%*)		
18–29	1745	32.8
30–44	2320	43.6
45–64	1123	21.1
65+	128	2.4
Marital status (*%*)		
Single	1986	37.4
Married or cohabitating	2324	43.7
Widowed	213	4.0
Divorced or separated	723	13.6
Level of education (*%*)		
No formal education	95	1.8
Primary	1763	33.2
Secondary	1729	32.5
University	1727	32.5
Living arrangements (*%*)		
Alone	821	15.4
With parents	1620	30.5
With spouse or partner	2051	38.5
With friends or other relatives	817	15.4
Unknown	7	0.1

* *Note*: Counts may not add up to the total due to missing information for some participants.

Table 2

Frequency of traumatic events according to case or control status.

	Total (*N* = 5316) n (%)	Cases (*N* = 2760) n (%)	Controls (*N* = 2556) n (%)	p-value
Frequency of events				
Any event	3372 (63.4)	1777 (64.4)	1595 (62.4)	0.134
None	1944 (36.6)	983 (35.6)	961 (37.6)	0.395
One	1448 (27.2)	757 (27.4)	691 (27.0)	
Two	943 (17.7)	490 (17.8)	453 (17.7)	
Three	514 (9.7)	270 (9.8)	244 (9.6)	
Four or more	466 (8.8)	259 (9.4)	207 (8.1)	
Type of event				
Natural disaster	233 (4.4)	101 (3.7)	132 (5.2)	0.007*
Fire/explosion	241 (4.5)	134 (4.9)	107 (4.2)	0.240
Transport accident	691 (13.0)	331 (12.0)	260 (14.1)	0.024*
Serious accident	220 (4.1)	104 (3.8)	116 (4.5)	0.160
Toxic substance	115 (2.2)	49 (1.8)	66 (2.6)	0.044*
Physical assault	1462 (27.5)	908 (32.9)	554 (21.7)	<0.001*
Weapon assault	730 (13.7)	429 (15.6)	301 (11.8)	<0.001*
Sexual assault	236 (4.4)	154 (5.6)	82 (3.2)	<0.001*
Unwanted sexual experience	174 (3.3)	103 (3.7)	71 (2.8)	0.050*
Combat/war-zone	116 (2.2)	51 (1.9)	65 (2.5)	0.083
Captivity	43 (0.8)	26 (0.9)	17 (0.7)	0.260
Illness/injury	443 (8.3)	202 (7.3)	241 (9.4)	0.005*
Severe suffering	202 (3.8)	119 (4.3)	83 (3.3)	0.042*
Sudden violent death	1227 (23.1)	598 (21.7)	629 (24.6)	0.011*
Sudden accidental death	839 (15.8)	403 (14.6)	436 (17.1)	0.014*
Caused serious harm/death	142 (2.7)	102 (3.7)	40 (1.6)	<0.001*
Other experiences	516 (9.7)	236 (8.6)	280 (11.0)	0.003

Note: Chi-square test p-value is denoted for number of events. Trend test p-value is noted for differences between cases and controls for "any event" and for each different type of event.

*denotes significance of at least $p < .05$.

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J Affect Disord. Author manuscript; available in PMC 2022 April 01.

Table 3

Principal component analysis with orthogonal varimax rotation of life events checklist for DSM-5 (LEC-5).

LEC Item	Factor Loading							% Endorsed
	1	2	3	4	5	6	7	
Factor 1: Sexual Violence								
8. Sexual Assault	0.8904							4.4
9. Other Unwanted Sexual Experience	0.8648							3.3
Factor 2: Physical Violence								
6. Physical Assault		0.7998						27.5
7. Weapon Assault		0.7992						13.7
Factor 3: Witnessed Death								
14. Violent Death			0.7044					23.1
15. Accidental Death			0.8052					15.8
Factor 4: Accidents & Illness/Injury								
3. Transport Accident				0.5942				13.0
4. Serious Accident				0.7134				4.1
12. Life-Threatening Illness/Injury				0.4554		0.3305		8.3
Factor 5: Environmental								
1. Natural Disaster					0.6956			4.4
2. Fire/Explosions					0.6129			4.5
Factor 6: Severe Suffering								
11. Captivity					0.3027	0.4822		0.8
13. Severe Suffering						0.6058		3.8
16. Caused Harm/Death						−0.5002		2.7
Factor 7: War Events								
5. Toxic Substance							0.5429	2.2
10. Combat/War Zone							0.7896	2.2
								Total
Eigenvalue	1.55	1.50	1.23	1.22	1.14	1.12	1.09	
% Variance	9.70	9.36	7.71	7.61	7.12	7.00	6.82	55.31

Note. Loadings smaller than 0.3 are not displayed.

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Table 4
Fit indices for comparison of confirmatory factor analysis models.

	Fit Indices							
	X^2	df	*SRMR*	*RMSEA*	*CFI*	*TLI*	*AIC*	*BIC*
EFA 7 factor	445.05	84	0.024	0.028	0.919	0.884	−17,135.720	−16,688.396
Prior 6 factor	464.83	90	0.024	0.028	0.916	0.888	−17,127.936	−16,720.083
Theory 7 factor	410.49	85	0.022	0.027	0.927	0.897	−17,172.283	−16,731.538

Note. All chi-square values are significant at $p < 0.001$; SRMR = standardized root-mean-square residual; RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker–Lewis index; AIC = Akaike information criterion; BIC = Bayesian information criterion.