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The Trauma and Life Events (TALE) checklist: development of a tool for improving routine screening in people with psychosis

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ABSTRACT

Background: Best practice guidelines recommend traumatic events should be assessed in psychosis to support the identification and, when indicated, treatment of post-traumatic stress reactions. However, routine assessment in frontline services is rare, and available tools are not tailored to psychosis. Assessment obstacles include lengthy measures, a focus on single, physically threatening events, and the exclusion of psychosis-related traumas.

Objective: To develop and validate a brief trauma screening tool for the identification of clinically significant traumas in people with psychosis.

Method: The Trauma and Life Events (TALE) checklist was developed in conjunction with people with lived experience of trauma and psychosis, and specialist clinicians and researchers. The psychometric properties (i.e. test-retest reliability, content validity, construct validity) of the TALE were evaluated in a sample of 39 people with psychosis diagnoses.

Results: The TALE displayed moderate psychometric acceptability overall, with excellent reliability and convergent validity for sexual abuse. High rates of psychosis-related trauma and childhood adversity were reported, in particular bullying and emotional neglect. A dose–response relationship between cumulative trauma, post-traumatic stress and psychosis was found.

Conclusions: The TALE is the first screening tool specifically designed to meet the needs of routine trauma screening in psychosis services. The psychometric limitations highlight the challenge of developing a measure that is both sufficiently brief to be useful in clinical settings and comprehensive enough to identify all relevant adverse events. Validation of the TALE is now required across the spectrum of psychosis.

Lista de Verificación de Eventos Traumáticos y Vitales (TALE): desarrollo de una herramienta para mejorar el cribado de rutina en personas con psicosis

Antecedentes: Las mejores guías clínicas recomiendan que los eventos traumáticos deben ser evaluados en psicosis para apoyar la identificación y, cuando se indique, el tratamiento de las reacciones de estrés postraumático. Sin embargo, la evaluación de rutina en los servicios de atención primaria es rara, y las herramientas disponibles no están adaptadas a la psicosis. Los obstáculos de evaluación incluyen mediciones prolongadas, un enfoque en eventos únicos que amenazan físicamente, y la exclusión de traumas relacionados con psicosis.

Objetivo: Desarrollar y validar una herramienta breve de detección de trauma para la identificación de traumas clínicamente significativos en personas con psicosis.

Método: La Lista de Verificación de Eventos Traumáticos y Vitales (TALE) se desarrolló en conjunto con personas que habían sufrido trauma y psicosis, y clínicos especialistas e investigadores. Las propiedades psicométricas (es decir, fiabilidad test-retest, validez de contenido y validez de constructo) del TALE se evaluaron en una muestra de 39 personas con diagnóstico de psicosis.

Resultados: El TALE exhibió en general una aceptabilidad psicométrica moderada, con excelente confiabilidad y validez convergente para el abuso sexual. Se reportaron altas tasas de trauma relacionado con la psicosis y adversidad infantil, en particular el acoso escolar y la negligencia emocional. Se encontró una relación dosis-respuesta entre el trauma acumulativo, el estrés postraumático, y la psicosis.

Conclusiones: TALE es la primera herramienta de detección específicamente diseñada para satisfacer las necesidades de la detección de trauma de rutina en los servicios de psicosis. Las limitaciones psicométricas resaltan el desafío de desarrollar una medida que sea lo suficientemente breve como para ser útil en contextos clínicos y lo suficientemente amplia como para identificar todos los eventos adversos relevantes. Actualmente se requiere la validación de TALE en todo el espectro de la psicosis.

HIGHLIGHTS
• The TALE is the first screening tool specifically designed to meet the needs of routine trauma screening in psychosis services.
• The psychometric properties are comparable to existing trauma measures.
• Further validation is needed across the psychosis spectrum.

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创伤和生活事件（TALE）清单：一个可改善精神病患者常规筛查的工具的开发

背景：最佳实践指南建议应在精神病中评估创伤事件，以支持诊断。当有需要时，这也有助于对创伤后应激反应的治疗。然而，一线服务的这种常规评估非常少见，并且可用的工具也不适合精神病。评估的困难包括冗长的措施，关注单一的有身体威胁性的事件，以及排除了与精神病相关的创伤。

目的：开发和验证一个简明的创伤筛查工具，用于鉴定精神病患者的临床显著创伤。

方法：有创伤经历并患有精神病的患者，专科临床医生和研究人员共同开发了创伤和生活事件（TALE）清单。使用39名诊断精神病的病人样本，对TALE的心理测量学特性（即重测信度，内容效度和结构效度）进行了评估。

结果：TALE总体上表现出中等可接受的心理测量可接受性，对性虐待事件有具有非常高的信度和聚合效度。结果显示了与精神病相关的创伤和童年负性事件的发生率很高，尤其是霸凌和情感忽视。还发现了累积性创伤，创伤后应激和精神病之间的剂量 - 反应关系。

结论：TALE是第一个专门设计用于精神病治疗服务中满足常规创伤筛查需求的工具。要开放一款既足够简明可用于在临床，同时足够全面可以识别所有相关的负性事件的测量工具是有难度的，TALE的心理测量学局限性强调了这点。需要在精神病的广义范围内验证TALE。

1. Introduction

The role of trauma, particularly victimization events, in psychosis is now well established, and elevated rates of Posttraumatic Stress Disorder (PTSD) are found in psychosis compared to the general population (de Bont et al., 2015; Mueser et al., 1998; Steel, Doukani, & Hardy, 2017; Varese et al., 2012). Multifactorial models of the pathways from traumatic events to psychosis have been proposed, and psychological therapies for post-traumatic stress responses in psychosis show promise (Hardy, 2017; van den Berg et al., 2015). This work has led to calls for the routine screening of trauma and post-traumatic stress responses in clinical practice (NICE, 2014). However, evidence suggests that assessment of traumatic events is rare in frontline services (Brooker, Tocque, Kennedy, & Brown, 2016). This study is the first to develop and conduct an initial validation of a brief screening tool for traumatic events specifically tailored to meet the needs of people with psychosis. Our aim is that this new assessment tool, the Trauma and Life Events (TALE) checklist, will improve the provision of trauma-informed care in psychosis services.

We highlight four key issues associated with existing trauma measures, which we sought to address in the TALE design and development. First, comprehensive assessment of all trauma types and life events relevant to psychosis and PTSD is needed. Existing screening tools typically screen for lifetime trauma exposure or adverse events in childhood. Lifetime trauma screening measures often focus on events involving physical threats, as specified in the event criterion ('*exposure to actual or threatened death, serious injury or sexual violation*') in DSM-V for PTSD (American Psychiatry Association [APA], 2013). The exclusion of other types of threatening events has been questioned, given that *psychologically* traumatizing events, such as emotional abuse, neglect and discrimination, are associated with post-traumatic stress reactions and psychosis (Brewin, 2015; Brewin, Lanius, Novac, Schnyder, & Galea, 2009; Kelleher et al., 2013; van Dam et al., 2012). Childhood trauma screening measures, such as the Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 2003) and the Childhood Abuse and Trauma Scale (CAT; Sanders & Becker-Lausen, 1995), include psychologically threatening events but tend to focus predominantly on familial trauma and do not routinely assess for the current significance of these events. This means clinicians need to undertake clinical interviews or use a variety of self-report measures to comprehensively assess for traumatic experiences.

A second problem is that psychosis-related traumas, such as hearing voices or involuntary hospitalization, are rarely incorporated in assessments, despite evidence that internally generated, physical threats or external, psychological threats can result in posttraumatic stress (Berry, Ford, Jellico-Jones, & Haddock, 2013; Fornells-Ambrojo, Gracie, Brewin, & Hardy, 2016). Any robust assessment of trauma in psychosis needs to include these events. The third issue is that tools do not always consider whether events occurred once, repeatedly, or persistently. This information can be useful given findings indicating a dose–response relationship between trauma, PTSD and psychosis severity (Morgan et al., 2014; Varese et al., 2012). Eliciting information about the severity and persistence of traumatic events is also necessary to inform risk management and safeguarding.

Finally, clinicians report a lack of confidence and competence in assessing and treating trauma in psychosis services (Walters, Hogg, & Gillmore, 2016). This may partly be driven by a lack of appropriate clinical tools to comprehensively, but briefly, screen for their occurrence and impact. To date, only two measures have been designed to assess trauma in

people with psychosis. The PTSD Assessment Tool for Schizophrenia (PATS; Mueser, Lu, Rosenberg, & Wolfe, 2010) assesses lifetime, symptom and treatment-related trauma, but is a semi-structured research interview unsuitable for routine clinical use. The Trauma Experience Checklist (TEC; Cristofaro et al., 2013) is relatively more suitable for clinical practice and was developed to assess abuse, neglect and stressful life events. However, it consists of 41 items and so is too lengthy to complete in clinical services (Beidas et al., 2015). It also does not assess psychosis-related traumas or provide a means to identify those events that are currently impacting on the person.

The current study therefore aimed to develop and conduct an initial validation of the TALE, a brief screening tool to assist clinicians' routine screening of traumatic events. Importantly, the TALE design was tailored to support trauma-informed care in people with psychosis by including a comprehensive assessment of relevant traumas and life events, and by evaluating current impact.

We hypothesized good test-retest reporting over a fortnight for overall event reporting and at an item level. In line with other trauma measure development a minimum kappa of .40 was determined as acceptable and it was anticipated that overall event reporting would show greater reliability than individual items (Carlson et al., 2011; Gray, Litz, Hsu, & Lombardo, 2004; Hooper, Stockton, Krupnick, & Green, 2011; Kubany et al., 2000). Secondly, we hypothesized the TALE would have moderate convergent validity with other trauma checklists, given that the measure would include several novel items which restricted direct comparison (Carlson et al., 2011; Gray et al., 2004; Hooper et al., 2011; Kubany et al., 2000). We specifically predicted that items relating to unwanted sexual contact, psychosis symptoms and adverse treatment experiences would show the strongest relationship to trauma items in other measures, as these items were most directly comparable against existing checklist items. Finally, in relation to construct validity, we hypothesized that individuals who reported more traumatic events would report higher rates of global impact and have more severe post-traumatic stress reactions, psychosis symptoms and posttraumatic cognitions, given that these are common reactions to trauma.

2. Method

2.1. TALE development: item generation, measure design and content validity

The TALE was designed as a 20-item checklist covering a range of traumatic and adverse life events associated with familial, social and environmental settings in both childhood and adulthood (see Supplementary Materials). It can be completed directly by the respondent, or with interviewer support, depending on the respondent needs and preferences. It includes four items on psychosis-related events, such as psychotic experiences and contact with mental health services. Respondents endorse whether an event happened to them ('yes' or 'no' response), whether there was repeated exposure ('did it happen more than once?') and the approximate age or age ranges. Respondents are then asked to identify any event(s) that ended at least a month ago and still affects them now, and provide a global rating of impact on a scale of 0 ('not at all') to 10 ('extremely affected'). Items were generated through reviewing existing trauma measures and relevant literature examining the rates and types of trauma and adversity most commonly experienced by individuals with psychosis. An open item about 'other events' was included to account for any experiences not covered by the checklist items. Item order was planned so as to aid rapport and disclosure by asking about experiences of abuse and unwanted sexual experiences in the second half of the checklist (Beck et al., 2004). The question prompts were designed to allow the interviewer to elicit sufficient detail for the purposes of initial care planning (i.e. event type, age, duration, impact), without requiring the respondent to disclose specific details. Content validity was assessed as part of the development of the TALE through consultation with specialist trauma clinicians and researchers in the fields of trauma and psychosis and the FAST-R (Feasibility And Support to Timely recruitment for Research) service user research department at Kings College London. People were asked to comment on ease of use, length, clarity of instructions, language, potential impact on respondents and clinical application. Initial piloting of the TALE was carried out within routine services in the National Health Service (NHS) Trusts. Following this stage, items were refined to increase the accessibility for both the administrator and respondent.

2.2. Participants

A total of 39 participants were recruited between December 2015 and April 2016 from eight community mental health teams in NHS in the UK. Recruitment was based on a convenience sample whereby clinicians were given a brief written summary of the study and its rationale which they were asked to share with eligible potential participants on their caseload. They then referred anyone on their caseloads who met the study criteria and provided verbal consent to share their contact details with the research team. A total of 60 referrals of potential participants were received from clinicians within the time period available for recruitment, of which 21 did

not consent to take part. During the recruitment period the majority of referrals were from Early Intervention psychosis teams (*n* = 22) while the remainder were from Secondary Care Psychology (*n* = 10) and Psychosis Recovery Services (*n* = 7). Criteria for inclusion were current treatment by a psychosis service, aged 16 years or over, no primary diagnosis of learning disability, head injury or substance misuse, and sufficient English to engage in the study.

2.3. Measures

2.3.1. Trauma assessment

In addition to the TALE, trauma event exposure was assessed by completing the Trauma History Questionnaire (THQ; Green, 1996), CTQ-SF (Bernstein et al., 2003) and the PATS (Mueser et al., 2010).

The THQ is a 24-item checklist of common traumatic events across the lifespan categorized as crime, general disaster, physical and sexual experiences. The measure asks about exposure (i.e. 'yes' or 'no'), frequency (i.e. number of times) and ages at which events occurred. The THQ has been found to have fair to good test-retest reliability and good inter-rater reliability (Hooper et al., 2011). Convergent and construct validity have also been found to be robust in clinical and non-clinical samples (Hooper et al., 2011).

The CTQ-SF is a 28-item questionnaire which assesses childhood experiences on a five-point scale ranging from 'never true' to 'very often true'. Subscales include severity of exposure to emotional, physical and sexual abuse, and emotional and physical neglect. Good internal consistency and validity have been demonstrated across gender and ethnicity (Bernstein et al., 2003; Thombs, Lewis, Bernstein, Medrano, & Hatch, 2007) and good test-retest reliability (Paivio & Cramer, 2004).

The PATS is semi-structured interview that was adapted from the unpublished PTSD Assessment Tool for Schizophrenia (Williams-Keeler, 1999). The interview was designed to assess post-traumatic reactions to experiences of psychosis and its treatment.

2.3.2. Impact of trauma

The Trauma Screening Questionnaire (TSQ; Brewin et al., 2002) is a brief 10 item screening questionnaire to assess the presence or absence of core PTSD symptoms of re-experiencing and hyperarousal with 'yes' and 'no' responses. A score of six or more 'yes' responses has been found to show good predictive validity for PTSD diagnosis in a psychosis population (de Bont et al., 2015) and found to be comparable to clinical interview in diagnostic capability in the general population (Brewin et al., 2002).

Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) is a 33-item questionnaire assessing negative beliefs about the self, self-blame and the world on a scale of 1 ('totally disagree') to 7 ('totally agree'). In the original study the PTCI was found to have excellent internal consistence and good test-retest reliability, and convergent validity with other symptom measures (Foa et al., 1999). It has also been used in trauma-focused therapy trials for PTSD in psychosis (e.g. van den Berg et al., 2015).

2.3.3. Symptom severity

Positive and negative symptom severity was assessed with the Community Assessment of Psychic Experiences (CAPE; Stefanis et al., 2002). The CAPE consists of 42 psychotic symptom items rated by frequency on a scale from 1 ('never') to 4 ('nearly always') and distress from 1 ('not distressed') to 4 ('very distressed'). Frequency and distress scores are summed into three subscales: positive (e.g. delusions and hallucinations), negative (e.g. blunted affect and avolition) and depressive (e.g. low mood and negative cognitions). The CAPE has been validated in clinical and non-clinical samples and found to reliably assess positive, negative and depressive symptoms (Hanssen et al., 2003; Konings, Bak, Hanssen, Van Os, & Krabbendam, 2006).

2.4. Procedure

Eligible participants were identified by their clinical teams and provided with information about the study, before being contacted by one of the study researchers. Following informed consent, all measures were administered by the researchers. A sub-sample of participants were asked to meet with the researcher two weeks later to complete the TALE again to evaluate retest reliability.

2.5. Data analysis

Analysis was carried out using SPSS v.21 (IBM Corp, 2013). Test-retest reliability was assessed for overall event reporting and item by item. Agreement of overall event reporting at Time One and Time Two were assessed through correlation coefficients. Item by item temporal stability was assessed using Cohen's (1960) kappa coefficients of agreement (κ) and absolute percentage agreement. Both were used to assess reliability because whilst percentage agreement allows for ease of interpretation it does not control for chance agreement (Hallgren, 2012). Convergent validity with existing trauma screening tools was carried out for overall trauma event reporting through correlation coefficients. Like-item validation was also carried out by comparing selected items on the TALE against 'best-matched' items from existing trauma checklists and scales (i.e. describing similar events or experiences) through percentage absolute

agreement and kappa coefficients of agreement. A total of 13 items from the TALE were identified as part of the planned analysis for comparison against existing measure items. As the TALE is a brief screening tool, it was often the case that one item on the TALE would be represented by several matched items on existing measures. For example, the TALE has one question for each subcategory of childhood adversity (emotional abuse, emotional neglect, physical abuse, physical neglect, sexual abuse), while each of these items is accounted for by five items on the CTQ-SF (Bernstein et al., 2003). Therefore, endorsing any of the five items on the CTQ-SF was coded as having experienced it and compared against endorsement of the equivalent item on the TALE. Where necessary, scores were converted to the same rating scale to aid validation. Specifically, the CTQ-SF and PATS (Mueser et al., 2010) were collapsed down to dichotomous responses ('no' or 'yes') to allow for comparison against like items on the TALE. The THQ (Green, 1996) already had a dichotomous scale so no conversions were necessary. The THQ also had the same rating scale for frequency (i.e. 'no', 'once', 'more than once') as the TALE, which allowed comparison of cumulative trauma exposure at a global reporting level between these measures. Construct validity was assessed by examining the relationship between rates of trauma events reported on the TALE to PTSD symptom severity on the TSQ, post-traumatic cognitions assessed using the PTCI and psychosis symptom severity using the CAPE.

3. Results

3.1. Participant demographics

The sample characteristics are described in Table 1. The sample (n = 39) was predominantly from Black, Asian and minority ethnic backgrounds (64.1%) with approximately equal gender ratio (51.3% male; 48.7% female). The majority had a diagnosis of unspecified psychosis (ICD 10 code F29: 43.6%). The average age of participants was 32.59 (SD = 13.54) years and the average time since onset of psychosis was 3–4 years with an average time of contact with mental health services of 1–2 years.

3.2. TALE: traumatic events

All 39 participants endorsed at least one trauma event (see Table 2) with the mean number of items endorsed being 9.92 (SD = 4.07; range = 2–19). The most commonly endorsed events were those relating to psychosis symptoms and treatment followed by bullying and discrimination. The least frequently endorsed item was exposure to war and civil unrest followed by unwanted sexual experiences in

Table 1. Demographic and clinical characteristics (N = 39).

Variable		
Age		M = 32.59 (SD = 13.54)
		n (%)
Gender	Male	20 (51.3)
	Female	19 (48.7)
Ethnicity	White British	14 (35.9)
	White Other	5 (12.8)
	Black/Black British	10 (25.7)
	Asian/British Asian	7 (18.1)
	Mixed	3 (7.7)
Education	No qualifications	6 (15.4)
	Secondary	8 (20.5)
	Further education	16 (41)
	Higher education	9 (23)
Service type	Early Intervention	22 (56)
	Secondary Care Psychology	10 (26)
	Psychosis Recovery Services	7 (18)
Duration of illness	<1 year	7 (17.9)
	1–2 years	7 (17.9)
	3–4 years	8 (20.5)
	5–10 years	7 (17.9)
	> 10 years	10 (25.6)
Time in current service	< 1 year	12 (30.8)
	1–2 years	10 (25.6)
	2–4 years	6 (15.4)
	> 5 years	11 (28.2)
ICD10 (World Health Organization, 1992) diagnosis	F20 Schizophrenia	8 (20.5)
	F21 Schizotypal disorder	1 (2.6)
	F25 Schizoaffective disorder	2 (5.1)
	F29 Unspecified psychosis	17 (43.6)
	F30–32 Affective disorders	11 (28.2)

adulthood and physical violence or aggression by a stranger. Other events captured by the open-ended item included miscarriage, burglary, and witnessing

Table 2. Frequencies of item reporting on the TALE.

TALE item	Frequency n (%)	Repeated exposure n (%)
15. Psychosis (symptoms)	32 (82)	28 (71.8)
17. Psychosis (treatment/ hospitalization)	29 (74.4)	19 (48.7)
5. Bullying	26 (66.7)	25 (64.1)
6. Discrimination	25 (64.1)	22 (56.4)
7. Emotional abuse	25 (64.1)	22 (56.4)
4. Unexpected move or loss of home	24 (61.5)	13 (33.3)
9. Witnessing violence at home	22 (56.4)	21 (53.8)
16. Psychosis (unusual behaviours)	22 (56.4)	16 (41)
2. Permanent separation or loss	21 (58.8)	13 (33.3)
3. Period of separation from caregiver	19 (48.7)	10 (25.6)
20. Any other events	19 (48.7)	13 (33.3)
10. Violence outside of home	18 (46.2)	11 (28.2)
13. Childhood sexual abuse	18 (46.2)	13 (33.3)
19. Accidents and illnesses	18 (46.2)	4 (10.3)
8. Physical abuse	17 (43.6)	15 (38.5)
11. Emotional neglect	17 (43.6)	17 (43.6)
18. Other experiences with health/ justice service	14 (35.9)	11 (28.2)
12. Physical neglect	10 (25.6)	9 (23.1)
14. Unwanted sexual experiences in adulthood	8 (20.5)	5 (12.8)
1. Exposure to war and civil unrest	3 (7.7)	1 (0.03)

an accident or death. All the individuals who experienced emotional neglect reported repeated exposure. Bullying and witnessing violence at home were also strongly endorsed as repeated traumatic events while accidents, illnesses and war exposure were least frequently endorsed as repeated traumatic events. In the case of war exposure, this is likely due to low rates of reporting overall.

3.3. Test-retest reliability

To ascertain temporal stability the TALE was re-administered to a subsample of clinical participants who researchers met with 7–28 days ($M = 19$, $SD = 6.13$) after the initial study meeting. Of the 39 original participants, we were able to invite 85% ($n = 33$) to take part in the second assessment within the timeframe for data collection. Of those, 51% ($n = 20$) completed the follow up assessment, 18% ($n = 7$) declined to take part and 15.5% ($n = 6$) were unreachable at follow up. No group differences were found in age, gender, illness duration, length of time in service, symptom severity or number of events reported between completers and non-completers. The groups did differ significantly on impact of trauma, with the retest group having significantly more symptoms on the TSQ (retest: $M = 6.47$, $SD = 2.65$; non-retest: $M = 4.37$, $SD = 2.83$; $t(36) = -2.36$, $p = .02$).

The TALE appeared to be reasonably stable over time as assessed by overall event reporting and item-by-item comparisons. Test-retest correlation for the TALE total number of endorsed items based on dichotomized reporting (i.e. 'yes' or 'no' responses), $r = .90$, $p < .001$, and cumulative scores (i.e. 'never', 'once', 'more than once'), $r = .95$, $p < .001$, showed good temporal consistency. Absolute agreement across the items was high (≥ 70%) and all but four items showed moderate agreement or higher as indicated by kappa ($\kappa \geq .47$, $p < .05$) based on dichotomized responses (see Table 3). The item assessing physical neglect showed perfect agreement across time ($\kappa = 1.00$, $p < .001$) while childhood sexual abuse ($\kappa = .90$, $p < .001$) and emotional neglect ($\kappa = .89$, $p < .001$) appeared to display almost perfect agreement. Forty-six traumatic events (11.8% of events reported) were disclosed at baseline but not follow-up, compared to 27 traumatic events (7.3% of events reported) that were endorsed at follow-up but not baseline. Most event types were more likely to be reported at baseline than follow-up, although discrimination, bullying, physical abuse, psychosis symptoms and psychosis behaviours were more frequently disclosed at follow-up than baseline. The largest discrepancy was for 'other' events, with nine events reported at baseline but not at follow-up.

Table 3. Temporal stability of the TALE.

TALE item	Absolute agreement (%)	Kappa
1. Exposure to war and civil unrest	90	.61*
2. Permanent separation or loss	75	.43
3. Period of separation from caregiver	80	.60*
4. Unexpected move or loss of home	80	.47**
5. Bullying	90	.78*
6. Discrimination	75	.47**
7. Emotional abuse	80	.57**
8. Physical abuse	90	.80*
9. Witnessing violence at home	85	.70*
10. Violence outside of home	75	.50**
11. Emotional neglect	95	.89*
12. Physical neglect	100	1.00*
13. Childhood sexual abuse	95	.90*
14. Unwanted sexual experiences in adulthood	90	.79*
15. Psychosis (symptoms)	90	.62*
16. Psychosis (unusual behaviours)	75	.50**
17. Psychosis (treatment/ hospitalization)	75	.52*
18. Other experiences with health/ justice service	80	.39
19. Accidents and illnesses	70	.39
20. Any other events	45	−0.038

*$p < 0.01$; **$p < 0.05$

3.4. Validity

3.4.1. Convergent validity

Convergent validity was assessed through overall trauma reporting convergence and comparing items on the TALE against like-items or item groupings from existing trauma measures (see Table 4). Both overall and cumulative event rates between the TALE and THQ were found to be strongly and positively correlated (total score: $r = .69$, $p < .001$; cumulative score: $r = .63$, $p < .001$) suggesting that overall trauma reporting was comparative to existing trauma screening tools. Of the 13 items assessed, five (physical abuse, emotional abuse, sexual abuse in childhood, unwanted sexual experiences in adulthood, treatment or hospitalization) reached a kappa greater than .40,

Table 4. Convergence of TALE items with like items on trauma measures.

TALE event item	Percentage agreement	Kappa
Trauma History Questionnaire (THQ)[a]		
1. War/conflict exposure	89.7	−.026
2. Loss/death of loved one	46.2	−.03
8. Physical abuse	71.8	.42*
10. Physical aggression	56.4	.13**
14. Unwanted sexual experiences in adulthood	97.4	.93*
19. Accidents and illnesses	48.7	.03
Childhood Trauma Questionnaire (CTQ-SF)[b]		
7. Emotional abuse	79.5	.51*
8. Physical abuse (childhood)	64.1	.38*
11. Emotional neglect	59	.24**
12. Physical neglect	25.6	NA[a]
13. Sexual abuse in childhood	97.4	.95*
PTSD Assessment Tool for Schizophrenia (PATS)[c]		
15. Psychosis (symptoms)	82.1	.17
16. Psychosis (behaviours)	59	.10
17. Treatment and hospitalization	84.6	.62*

*$p < 0.01$; **$p < 0.05$ [a] Unable to compute kappa because variables are constant
[a]Green, 1996.
[b]Bernstein et al., 2003.
[c]Mueser et al., 2010.

suggesting moderate item agreement. Items relating to sexual abuse were most strongly associated with existing trauma items, with both childhood and adult sexual abuse items indicating almost perfect item agreement (childhood sexual abuse: κ = .95, $p < .001$; unwanted sexual experiences in adulthood: κ = .93, $p < .001$). Item one, exposure to war and civil unrest, appeared to be influenced by marginal scores. Only three participants endorsed it, which meant that whilst it had high absolute percentage agreement (89.7%) it displayed less than chance convergence (κ = -.03, $p = .78$). Convergent validity of items for psychosis-related events were found to be variable, with treatment experiences showing substantial agreement with the corresponding items on the PATS (κ = .62, $p < .001$; 84.6%), while items relating to psychosis symptoms performed less well. Item 15, which asks about experiences of psychosis, showed high percentage agreement (82.1%) but only slight agreement according to kappa (κ = .17, $p = .08$). Item 16, which asked about behaviours relating to psychosis, was found to have only slight agreement (59%; κ = .10, $p = .20$).

3.4.2. Construct validity: relationship to outcomes

In addition to item analysis, TALE validation was evaluated through its relationship to outcomes (see Table 5). The relationship between TALE total scores and TSQ scores was found to be moderate ($r = .37$, $p = .02$) and this relationship was greater for the TALE cumulative score ($r = .45$, $p = .01$). Cumulative scores on the TALE were also positively correlated with PTCI total scores ($r = .41$, $p = .01$) and two of the subscales, beliefs about self ($r = .41$, $p = .01$) and beliefs about the world ($r = .50$, $p = .01$); self-blame was not significant. When examining the relationship between total TALE scores and the PTCI, all were non-significant. Cumulative scores on the TALE were significantly correlated with overall symptom severity as assessed by the CAPE ($r = .37$, $p = .02$). This was also the case for positive ($r = .41$, $p = .01$) and depressive ($r = .39$, $p = .02$) symptom subscales but not negative symptoms ($r = .13$,

Table 6. Trauma types identified by participants as having a current impact.

Trauma type	Current impact (%)
Hospitalization and treatment	12 (37.5)
Symptoms of psychosis	9 (28)
Multiple event types	6 (18.7)
Childhood sexual abuse	4 (12.5)
Bullying	3 (9)
Emotional neglect	3 (9)
Behaviours relating to psychosis	2 (6.3)
Discrimination	2 (6.3)
Violence outside of the home	2 (6.3)

$p = .42$). There were no significant relationships between total number of events endorsed on the TALE and symptom severity and only the positive symptom subscale was found to have a significant relationship with number of events ($r = .37$, $p = .03$).

As many of the events which people endorsed on the TALE may not be having a current impact, therefore confounding the construct validity analysis, responses to the current impact questions were also looked at in relation to TALE scores and outcomes on other measures. A high proportion of participants reported still feeling affected by events (82%; $n = 32$) with hospitalization and psychosis symptoms being the most frequently endorsed event types (see Table 6). Individuals who had experienced higher rates of trauma on the TALE also felt more affected by these experiences currently (total: $r = .44$, $p = .01$; cumulative: $r = .46$, $p = .01$) and this relationship remained significant event when controlling for psychosis symptoms. The same was found for the TSQ ($r = .67$, $p < .001$) when controlling for psychosis symptoms. However, the current impact was not significantly associated with any of the PTCI scales.

4. Discussion

The TALE was developed to be a brief tool for comprehensively assessing the occurrence and frequency of psychologically and physically threatening events, including psychosis-related traumas, and identifying those that continue to have a current impact on the person. Initial validation indicates that the TALE showed moderately acceptable psychometric properties for people with psychosis, consistent with previous research demonstrating the reliability and validity of trauma assessments in psychosis (Meyer, Muenzenmaier, Cancienne, & Struening, 1996; Mueser et al., 2001). However, the identified psychometric limitations highlight the challenge of developing a measure that is both sufficiently brief to be useful in clinical settings and comprehensive enough to identify all relevant adverse events (Gray et al., 2004; Kubany et al., 2000).

The TALE demonstrated good temporal stability for overall event reporting and reporting of cumulative events, although the majority of items had at least

Table 5. Correlations between TALE and symptom severity.

	Number of event types	Cumulative trauma severity
TSQ	.37*	.45*
PTCI total	.31	.41*
PTCI self	.31	.41*
PTCI world	.42	.50*
PTCI blame	.19	.27
CAPE total	.28	.37*
CAPE positive	.35*	.41*
CAPE negative	.05	.13
CAPE depression	.29	.39*

*$p < 0.05$
CAPE (Community Assessment of Psychic Experiences; Stefanis et al., 2002) PTCI (Posttraumatic Cognitions Inventory; Foa et al., 1999) TSQ (Trauma Screening Questionnaire; Brewin et al., 2002)

20% non-agreement. Inconsistent reporting was most commonly attributable to events being reported at baseline but not at follow-up. The presence of some temporal disagreement in event reporting is in line with research indicating that retrospective recall of trauma can fluctuate and is influenced by people's current mental state (Colman et al., 2016), Further, the temporal stability of the TALE is in line with gold standard trauma assessment measures such as the Trauma History Questionnaire (Mueser et al., 2001), particularly in relation to lower reliability for 'other events' items (Hooper et al., 2011).

Overall reporting of events was comparable to established trauma checklists. Lifetime sexual abuse had excellent convergent validity, with emotional abuse, physical abuse and adverse treatment experiences also reaching acceptable levels of convergence. In this sense, the TALE appears robust in identifying those traumas most associated with PTSD and psychosis (van Dam et al., 2012; Varese et al., 2012). Nonetheless, kappa values were generally low. Whilst comparison items were best-matched against TALE items, the CTQ, THQ and PATS tended to include more items related to each event type or individual items that were more specific than the broader items in the TALE (Kubany et al., 2000). The specificity of the other measures may facilitate respondent disclosure, although as we have noted a significant limitation of these measures is the administration time. Whilst the TALE items are less specific, they have the advantage of providing a comprehensive, brief trauma assessment, although clearly further validation of its psychometric properties is required. An additional consideration is that the CTQ also includes less severe stressful experiences within its categories of emotional abuse and emotional neglect, whereas the TALE aims to focus on traumatic events.

Cumulative experiences of trauma exposure had stronger associations with post-traumatic stress symptoms, trauma-related cognitions, global symptoms and positive symptoms compared to the correlations between the number of trauma types experienced and these clinical outcomes. These findings suggest that it is not the amount of event types but rather the severity of exposure that is associated with traumatic stress and psychosis severity, in line with findings indicating a dose–response relationship between trauma and psychosis (Varese et al., 2012). This may be due to exposure severity determining the impact on the psychosocial processes that contribute to mental health outcomes. However, trauma severity was not related to self-blame cognitions or negative symptom severity. The former may be explained by the self-blame items being less frequently endorsed compared to the negative self and world items, and the latter may be attributable to an avoidant or 'sealed-over' coping style, whereby people with negative symptoms may be less likely to disclose traumatic events (Tait, Birchwood, & Trower, 2003). This finding is also in line with a recent systematic review (Bailey, Alvarez-Jimenez, Garcia-Sanchez, Hulbert, Barlow & Bendall, 2018) that found only childhood neglect was associated with negative symptoms.

While the current study indicates that the TALE is an acceptable measure for identifying trauma events that are relevant to individuals with psychosis it is not without its limitations. The sample is a small, convenience sample which was mostly taken from Early Intervention Services. Diagnoses were based on clinical records, with a high proportion of non-specified psychosis, and the study measures were all self-report. Further evaluation is needed of the TALE with larger clinical samples, recruited from consecutive referrals and representing the spectrum of psychosis. The decision to use brief screening tools for comparison was to minimize the impact on participants, however, a broader range of screening tools could have been used to optimize the assessment of convergent validity. Furthermore, the limited number of like items and need to compare one item on the TALE to multiple items on comparison measures meant that there was no way of verifying the specificity of events identified (Kubany et al., 2000).

In summary, the TALE shows promise as a brief, easy to use tool for identifying traumatic events in frontline psychosis services. There is an urgent need to improve the implementation of trauma-informed care in routine practice, to better support people to manage the impact of trauma on their lives (Sweeney, Clement, Filson, & Kennedy, 2016). The study indicates that the TALE shows promise in supporting clinicians to deliver trauma-informed care in routine services by facilitating routine trauma assessment. Nonetheless, measure validation is an on-going process and needs to be considered in relation to specific contexts and cultures (Carlson et al., 2011). We invite further validation studies within routine clinical services, with the aim of optimizing the TALE's utility across the spectrum of psychosis.

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