

# Psychometric properties of the trauma resilient change organizational assessment survey (TRC-OAS): fine tuning an instrument to inform development and implementation of trauma-resilient change efforts

## Abstract

The Trauma Resilient Change Organizational Assessment Survey (TRC-OAS) was developed to evaluate organizational readiness and capacity for implementing trauma-informed care (TIC) with an emphasis on resilience, equity, and justice. The TRC-OAS builds on previous instruments, such as the Comprehensive Organizational Health Assessment (COHA) and the Organizational Trauma Resilient Assessment (OTRA), incorporating key elements from implementation science, organizational culture and climate theory, and trauma-informed care principles. This study examines the psychometric properties of the TRC-OAS, which includes domains such as organizational readiness for change, trauma-informed practices, trauma-informed environment, transformational leadership, racial justice, secondary traumatic stress, and intent to leave. Utilizing a sample of 427 employees from various organizations, exploratory and confirmatory factor analyses were conducted to test the reliability and validity of the TRC-OAS. Results demonstrate robust internal consistency across all domains, confirming the tool's efficacy in capturing the multifaceted nature of trauma resilience and organizational health. The TRC-OAS provides a comprehensive assessment framework that can guide organizations in their trauma-resilient transformation efforts, emphasizing the importance of addressing systemic inequities and promoting a supportive environment for both staff and clients. Future research should focus on longitudinal studies to further validate the tool across diverse organizational contexts.

Volume 12 Issue 4 - 2024

Jennifer S Middleton,<sup>1</sup> Michiel Van Zyl,<sup>2</sup> Emily E Edwards,<sup>1</sup> Shantel D Crosby<sup>1</sup>

<sup>1</sup>University of Louisville, Louisville, Kentucky, USA

<sup>2</sup>University of South Florida, Tampa, Florida, USA

**Correspondence:** Jennifer Middleton, PhD, MSW, LCSW, Associate Professor & director, Co-Principal Investigator, Louisville Trauma Resilient Communities (TRC), Kent School of Social Work and Family Science, 2301 S 3rd St, University of Louisville, Louisville, Kentucky 40202, USA, Email [jennifer.s.middleton@gmail.com](mailto:jennifer.s.middleton@gmail.com)

**Received:** November 30, 2024 | **Published:** December 17, 2024

## Introduction

Emerging in clinical fields and in the broader general population over the last 10 years,<sup>1,2</sup> trauma-informed care (TIC) seeks to holistically understand trauma in individuals, families, and providers.<sup>3</sup> This approach seeks to understand the pathway to recovery, avoid retraumatization, and integrate understanding of trauma into organizational policies and practices. Supporting and treating the whole person rather than focusing on individual symptoms and specific behaviors,<sup>4</sup> trauma-informed care can promote resilience and equity for children and families disproportionately affected by trauma, systemic inequities, violence, and civil unrest. Further, implementing trauma-informed care at the organizational level, infiltrating the entirety of the organization has the ability to enhance leadership and build capacity for creating and sustaining a trauma-informed system of care.

Trauma-informed care is fairly new but has rapidly grown in popularity both in the general public and in the literature base, though psychometric testing of instruments has lagged.<sup>5</sup> A few evidence-based models have been developed and implemented to enhance trauma-informed *organizational change*,<sup>6</sup> as well as one organizational-level trauma-informed instrument testing for psychometric strength, the Organizational Trauma Resilient Assessment (OTRA).<sup>5</sup> Building on previous work, including the OTRA, there is still a need for a more intentional deep-dive into equity and justice—namely racial justice—congruent with the Trauma Resilient Communities Model.<sup>6</sup> As TIC

necessarily shifts to the organizational level, having a finely tuned trauma-informed assessment tool with an emphasis on equity and justice will not only measure change over time in the organization's culture and climate, but can serve as a springboard for the very efforts of organizational-level trauma-informed change.

## Literature review

The following literature review delves into the theoretical underpinnings and existing tools relevant to trauma-informed organizational change instrument development, providing a comprehensive overview of the key frameworks and instruments that inform the development and psychometric testing of the Trauma Resilient Change Organizational Assessment Survey (TRC-OAS). The TRC-OAS is an empirically based tool based on the work conducted by Dr Middleton and colleagues as part of the development and psychometric testing of the original [Survey name and citations removed] which is currently used to assess child welfare organizations across the country (a modified version). The TRC-OAS measures perceived impacts and key implementation drivers for trauma-resilient organizational change and includes the following domains: organizational readiness for change, adoption of the core trauma-resilient principles and values (a measure of how deeply an organization has embedded and embodied trauma-informed care), trauma-informed practices, trauma-informed environment, transformational leadership, racial justice, secondary traumatic stress, and intent to leave (a proximal measure of potential turnover). The

testing of this measure was informed by two theoretical frameworks, including Organizational Social Context theory and Structural Violence theory, as described below.

### Organizational social context theory

Organizational social context theory posits that the social environment within an organization, including its culture and climate, significantly influences its functioning and the well-being of its members.<sup>7</sup> Organizational culture encompasses the shared values, beliefs, and norms that guide behavior, while organizational climate refers to employees' perceptions of the work environment and its impact on their well-being.<sup>8</sup> This theory underscores the importance of assessing and improving both culture and climate domains to enhance organizational effectiveness and employee well-being.

### Structural violence theory

Structural violence theory, introduced by Galtung<sup>9</sup>, refers to systematic ways in which social structures harm or disadvantage individuals. This form of violence is embedded in the political and economic organization of our social world and results in unequal power, wealth, and opportunity.<sup>10</sup> Structural violence is often invisible and normalized, perpetuating inequities and systemic oppression. Addressing structural violence within organizations involves recognizing and dismantling these embedded inequities to create more equitable and supportive environments.

### Relevance to trauma-resilient organizational change

Understanding organizational social context and structural violence is crucial for implementing effective trauma-resilient change at the organizational level. These frameworks highlight the need to address both the internal dynamics of organizations and the broader systemic issues that influence organizational health. The development of the TRC-OAS is informed by these frameworks to ensure that the assessment captures both the internal readiness and capacity for change and the impact of external structural factors. This dual focus is critical for fostering environments that support trauma resilience and equity. In addition, as described in the Vides et al.,<sup>6</sup> the Trauma Resilient Communities Model emphasizes the importance of addressing structural violence and organizational context when conceptualizing and implementing trauma-resilient interventions. By considering these factors, the Trauma Resilient Communities Model aims to disrupt cycles of oppression and promote healing and resilience within organizations and communities.

### Integration of implementation science, organizational culture and climate theory, and trauma-informed care

The integration of implementation science, organizational culture and climate theory, and trauma-informed care is crucial for developing a comprehensive assessment tool like the TRC-OAS. Implementation science provides a framework for understanding how evidence-based practices can be effectively integrated into real-world settings. It emphasizes the importance of identifying barriers and facilitators to implementation, the intentional use of implementation strategies, and the utility of evaluating outcomes to directly inform quality assurance.<sup>11</sup>

Glisson's work on organizational culture and climate highlights the importance of these two distinct constructs in shaping the effectiveness and sustainability of service delivery within human service organizations. For example, positive organizational culture and climate are associated with better service quality, reduced staff turnover, and improved client outcomes.<sup>7</sup> By the same token, Bloom's

work on trauma-informed care focuses on creating environments that are safe, trustworthy, and supportive for both clients and staff. Key principles include understanding trauma's impact, promoting safety and trust, and fostering empowerment and collaboration.<sup>12</sup>

### Innovativeness and utility of the TRC-OAS

The TRC-OAS is innovative in its integration of the existing literature. By combining insights from implementation science, organizational culture and climate theory, and trauma-informed care the TRC-OAS provides a holistic assessment tool that addresses both the internal and external factors influencing organizational health. In addition, the TRC-OAS not only measures current organizational conditions but also provides a framework for developing and implementing change efforts, thereby serving as a catalyst for trauma-resilient organizational transformation. Furthermore, the comprehensive nature of the TRC-OAS helps advance the field by providing a robust tool that can be used to guide and evaluate trauma-informed organizational change efforts, ultimately contributing to the development of healthier and more resilient organizations.

### Existing trauma-informed organizational assessment survey instruments

Various assessment tools have been developed to evaluate how effectively organizations integrate trauma-informed care (TIC) principles into their practices. Among these, several noteworthy instruments have emerged, each focusing on different aspects of TIC integration. The Attitudes Related to Trauma-Informed Care (ARTIC) scale, developed by the Traumatic Stress Institute, primarily evaluates attitudes toward trauma-informed care, with a specific emphasis on implementation science. This scale is particularly focused on measuring staff attitudes towards TIC without extensively exploring the corresponding behaviors or organizational practices that support TIC culture.<sup>13</sup>

The Trauma-Informed Care Organizational Meter (TICOMeter), on the other hand, shifts its focus from attitudes to the alignment of client-focused practices with TIC principles. Developed by Bassuk et al.,<sup>14</sup> the TICOMeter assesses the extent to which practices within an organization support a trauma-informed approach, without delving into the cultural or climate aspects that underpin these practices. Another key instrument is the Trauma-Informed Primary Care Organizational Self-Assessment (TIPC-OSA), created by the National Council for Behavioral Health. This tool evaluates an organization's adherence to the core principles of TIC, including safety, trustworthiness, peer support, collaboration, empowerment, and cultural competence. The TIPC-OSA is structured around five central concepts of change that characterize a trauma-informed approach within primary care settings.<sup>15</sup> Similarly, the Trauma-Informed Climate Scale (TICS), is designed to measure organizational climate with respect to TIC principles, specifically those articulated by Harris<sup>16</sup>, such as safety, trustworthiness, choice, collaboration, and empowerment. While the TICS offers a concise and validated measure of a unidimensional organizational climate, it does not encompass the newer principle of cultural competence, nor does it assess an organization's readiness for trauma-informed change or its capacity to implement TIC at a systemic level.<sup>17,18</sup>

The Organizational Trauma Resilience Assessment (OTRA), developed by Brown et al.,<sup>5</sup> is a more comprehensive tool that evaluates the resilience of organizations through a TIC lens. It includes 40 items spread across five dimensions: workforce training and sustainability, trust and support culture, inclusivity practices, safety and wellness, collaboration and empowerment, and trauma-responsive services.

The OTRA's development involved rigorous community engagement and psychometric testing, establishing it as a reliable and valid resource for promoting a trauma-resilient organizational culture. Building on the foundation of the OTRA, the Trauma Resilient Change Organizational Assessment Survey (TRC-OAS) addresses several gaps identified in previous instruments. It integrates trauma-informed care with organizational readiness, leadership effectiveness, secondary traumatic stress, and considerations of equity, including racial justice. While the OTRA primarily targets workforce training and sustainability, the TRC-OAS expands its scope to include a broader range of dimensions, providing a more holistic approach to evaluating and facilitating trauma-resilient organizational transformation.

### Gaps in existing instruments

While these instruments provide valuable insights, they often lack a comprehensive approach that integrates trauma-informed care with organizational readiness, leadership, secondary trauma, and equity considerations. The TRC-OAS fills these gaps by providing a comprehensive assessment, which includes multiple dimensions such as readiness for change, trauma-informed environment, transformational leadership, secondary traumatic stress, intent to leave, and racial justice. In addition, the TRC-OAS fills these gaps by including structural violence as a necessary lens to inform organization measurement and organizational change by addressing the impact of structural violence and embedding anti-oppressive practices within the organizational framework. The TRC-OAS is the first trauma-resilient change instrument to measure racial justice as a key construct related to the creation and sustainability of trauma-informed organizational change. Furthermore, by combining insights from implementation science, organizational culture and climate theory, and trauma-informed care, this innovative integration serves to create a holistic assessment tool. Lastly, given the relative newness of the TIC knowledge base, the majority of instruments utilized in TIC evaluation studies have not been adequately tested for psychometric strength, which can unfortunately leave the validity of results open to question.

### Research questions/hypotheses

In an effort to construct a trauma resilient change-focused, psychometrically sound TIC instrument, we synthesized key concepts from the implementation science literature, such as known implementation drivers and facilitators (readiness for change, transformational leadership) with trauma-resilient principles and practices as well as expected organizational change outcomes. We believe the novel combination of these key constructs into one organizational assessment measure progresses the knowledge base for the studies of TIC, resilience, and organizational change. We hypothesize trauma resilient change (TRC) is a catalyst for organizational resilience and an important blueprint for viewing organizational factors related to sustaining a TRC paradigm at the organizational system level. We define TRC as measurable organizational culture and climate factors that foster the safe, stable, and equitable healing environment necessary for a thriving trauma-resilient organization. This concept is novel in that it borrows from implementation science and structural violence literature in order to enhance our understanding and application of trauma-informed care. The TRC concept was created, more specifically, as a mechanism for operationalizing and measuring resilient-based practices, values, facilitators, creating a trauma-resilient organizational culture. The newly created TRC-OAS instrument may be used to assess measurable resilience indicators required for an organizational culture of trauma

resilience. In the remainder of this article, we outline our process of creating an eight-domain TRC-OAS instrument. The TRC-OAS domains include (a) organizational readiness; (b) trauma-informed environment; (c) trauma-informed practices; (d) trauma-informed values/commitments; (e) racial justice; (f) transformational leadership, (g) secondary traumatic stress; and (h) intent to leave. We describe each of these domains as anchored in theoretical underpinnings and practice strategies for embedding trauma-resilience across the organizational system.

## Methods

### Description of the organizational assessment survey (TRC-OAS)

The TRC-OAS is a comprehensive tool designed to measure various aspects of organizational readiness, culture, and climate in the context of trauma-resilient organizational change. The TRC-OAS is an empirically based tool based on the work of the lead author, Dr. Jennifer Middleton, conducted on the original Comprehensive Health Assessment (COHA),<sup>25,40</sup> which is currently used to assess child welfare organizations across the country (a modified version). More specifically, the TRC-OAS measures perceived impacts and key implementation drivers for trauma-informed change and includes the following domains: organizational readiness for change, adoption of the core trauma-resilient principles and values (a measure of how deeply an organization has embedded and embodied trauma-informed care), trauma-informed environment, trauma-informed practices, transformational leadership, racial justice, secondary traumatic stress, and intent to leave (a proximal measure of potential turnover). The psychometric testing and utilization of the TRC-OAS to evaluate resilience-focused organizational change is part of a larger evaluation of the Louisville Trauma Resilient Communities project, funded by a 5-year, \$5 million grant from the Resilience in Communities After Stress and Trauma (ReCAST) project within the Substance Abuse and Mental Health Services Administration (SAMHSA). The project was approved by the University of Louisville Human Subjects Protection Program Institutional Review Board.

The TRC-OAS aims to assess the extent to which organizations have embedded equity-centered, trauma-informed principles and practices, the impact of these practices on staff and organizational outcomes, and the readiness for and progress towards trauma-resilient organizational change. As part of the five-year grant-funded project, TRC-OAS results were presented to each participating organization in aggregate form to protect anonymity and were used to 1) inform the implementation process of each Backbone Agency (baseline) and 2) highlight potential changes in each Backbone Agency that may result from participation in the project (follow-up).

### Survey domains and sample items

The TRC-OAS encompasses several critical domains, each designed to capture specific aspects of organizational change and resilience. These domains are adapted from validated scales and include readiness for change, trauma-informed practices, values, and environment, transformational leadership, racial justice, secondary traumatic stress, and intent to leave.

### Readiness for change

This 14-item domain, adapted from the Competent Trauma-Informed Organizational, Clinical, and Milieu Practices scale,<sup>19</sup> evaluates an organization's openness and capacity for implementing trauma-informed care (TIC). It tracks progress in adopting TIC

practices and identifies areas needing further development. Items such as “*My organization is open to implementing new changes*” and “*Organizational leadership and staff at all levels express commitment to implementing trauma-informed practices*” assess readiness levels. The inclusion of this domain is pivotal as organizational change culture and readiness for change in trauma-informed care are key implementation drivers for successful implementation of a trauma-resilient organizational model.

### Trauma-informed environment, practices, and values

Adapted from the Sanctuary Model Environmental Assessment,<sup>20</sup> this domain assesses employees’ perceptions of the organization’s embodiment of the trauma-informed principles and commitments (e.g., value) within the organization’s culture (e.g., how we do business) and climate (e.g., how we experience the work). This domain ultimately assessed the organization’s value-driven culture and climate and includes three primary subdomains: trauma-informed practices (organizational and clinical practices), trauma-informed organizational environment (physical, general social, and staff social environments), and trauma-informed values (commitments). Example items include “*Community spaces are clean, well-maintained, and comfortable areas for learning, relaxing, and socializing*” and “*Destructive or violent incidents are addressed nonviolently and openly reviewed as soon as possible.*” Dr. Bloom’s work emphasizes the importance of creating environments that are safe, trustworthy, and supportive for both clients and staff.<sup>12</sup> This domain’s inclusion underscores the necessity of fostering a supportive and empowering environment as a foundation for trauma-informed care.

### Racial justice

This domain, adapted from the Racial Justice Assessment scale,<sup>21</sup> assesses the organization’s commitment to racial justice across various areas, including programming, power, policies, people, and culture. Sample items include “*My organization sets goals for racial justice across program areas that seek to name and address racial disparities and harms*” and “*My organization has People of Color (POC) as board members and director-level staff.*” Incorporating this domain highlights the importance of addressing racial disparities and promoting equity within organizations, aligning with the broader goals of trauma-resilient change.

### Transformational leadership

Using items from a short measure of transformational leadership,<sup>22</sup> this domain captures the role of leadership in enhancing staff psychological well-being. Items such as “*Communicates a clear and positive vision of the future*” and “*Treats staff as individuals, supports, and encourages their development*” are included. Transformational leadership is a known key implementation driver and is integral to guiding organizations through change and promoting a positive organizational culture, making this domain essential for assessing leadership effectiveness in trauma-informed care initiatives.

### Secondary traumatic stress

This 17-item domain, adapted from the Secondary Traumatic Stress Scale,<sup>23</sup> measures the prevalence of secondary traumatic stress symptoms among professional caregivers. Sample items include “*I felt emotionally numb*” and “*My heart started pounding when I thought about my work with clients.*” Addressing secondary traumatic stress is crucial for maintaining caregiver well-being and sustaining effective service delivery, justifying its inclusion in the TRC-OAS.

### Intent to leave

Adapted from a scale developed by Ellett<sup>24</sup>, this domain evaluates the risk of staff turnover by measuring their intent to leave the organization. Items such as “*I would leave this job tomorrow if I was offered a job for the same salary but with less stress*” and “*I have often thought about leaving this organization*” are included. Understanding intent to leave helps organizations identify and mitigate factors contributing to staff turnover, ensuring workforce stability and continuity of care. The integration of these domains into the TRC-OAS provides a comprehensive tool for measuring organizational change over time. Each domain offers valuable insights into different aspects of organizational health and readiness for trauma-informed care, facilitating targeted interventions and continuous improvement efforts. Please note that all of the abovementioned domains were included in the psychometric analyses for the purposes of this paper except transformational leadership, secondary traumatic stress, and intent to leave. These three domains consist of scales that have been previously psychometrically tested and published and are considered to have acceptable reliability and validity.<sup>22–26</sup>

### Administration and data use

The TRC-OAS was administered to staff and key informants within each of the backbone agencies participating in the Louisville Trauma Resilient Communities (TRC) project. The survey was conducted online and took approximately fifteen minutes to complete. Participation was voluntary, and responses were collected anonymously to ensure confidentiality. The data gathered from the TRC-OAS were used in aggregate form to inform the work of each organization and the overall project, highlighting changes and progress in trauma-informed practices. The TRC-OAS serves as both a diagnostic tool and a measure of organizational change over time. By assessing readiness for change, trauma-informed environment, values, and practices, transformational leadership, secondary traumatic stress, intent to leave, and racial justice, the TRC-OAS provides organizations with valuable insights into their current state and areas needing improvement. This information is crucial for developing and implementing effective strategies for trauma-resilient organizational change.

### Participants

The TRC-OAS was administered as paper surveys to be offered to all staff and leaders currently employed at each of the nine Louisville TRC project’s Backbone Agencies (BBAs). Due to COVID-19 restrictions, the survey was primarily administered online (with two exceptions) and took an average of approximately 20 minutes to complete. All Backbone Agency staff and leaders across each organization were invited to take the survey. Participation in the survey was completely voluntary, and all data collected from the surveys are anonymous. A total of 1,638 employees and leaders were invited to participate in the study, and 427 completed the survey, resulting in an approximately 26% response rate overall. Of the final sample of 427, ten organizations were represented. Participants ranged between the ages of 17 and 83, with an average age of 41.1. With 87% full-time employees, participants had been in the field an average of 12.3 years and employed at their current organizations for an average of 6.6 years. Participants were 82.7% women, 79.2% white, and 62.1% holding a master’s degree. Over half (60.7%) of participants worked in direct care, with over 50% of their work with clients. See Table 1 for a full list of demographics.

## Item reduction analysis

An iterative approach was followed to identify the items that are parsimonious, functional and internally consistent. This approach was preferred because the questions or items were developed with specific themes in mind and “draft scales” represented each theme. In some instances, themes were divided into sub-themes, each with its own set of items, e.g. there were three draft subscales related to the environment, a general social environment draft scale, a staff social environment draft scale, and a draft physical environment scale. The iterative process included Exploratory Factor Analysis (EFA) using Principal Axis Factoring, inter-item and item- total correlation analyses as indicators of validity (Corrected Mean Total-Item Correlation [CMT-IC]), and reliability (Cronbach alpha). Factors and items retained after following these procedures were used in an iterative manner and were subjected to Confirmatory Factor Analysis (CFA). Cronbach’s alpha of  $\alpha > .75$ , a criterion generally used to indicate adequate consistency for scales focusing on group or collective behavior, not individual assessment, was a guideline in the iterative process of selecting items with the best psychometric properties.<sup>27</sup> Furthermore, items were retained that correlated with the corrected item total at .5 or higher, and a mean corrected item-total correlation of .55 or higher was set as cut-off for scale validity. A last requirement as part of the initial validation study was unidimensionality as indicated by EFA and CFA procedures. SPSS was used for EFA, correlation and reliability analyses, while R lavaan package<sup>28</sup> was utilized for CFA analysis.

## Exploratory factor analyses (EFA)

Principal Axis Factoring was conducted due to its superior ability to extract appropriate factor structures in the case of measurement development.<sup>29</sup> The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used for evaluating factorability and values of 60 and higher as suggested by Tabachnick<sup>30</sup> were used as guideline. Eigen values  $> 1$  and scree plots were used to decide on the number of factors to retain.<sup>31,32</sup> Items with factor loadings less than .32 or cross-loadings less than .15 difference from an item’s highest factor loading were removed, as well as items that contained absolute loadings higher than .40 on two or more factors.<sup>33</sup> An oblique rotation was preferred due to the correlated nature of constructs often found in social sciences, and Promax with Kaiser Normalization and delta set at 4 was used as rotation method.

## Confirmatory factor analysis (CFA)

The Kaiser-Meyer-Olkin measure and the Bartlett’s test of sphericity were used as indicators of sampling adequacy. Model fit indices used included the Comparative Fit Index,<sup>34</sup> the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation<sup>35,36</sup> and the Standardized Root Mean Square Residual.<sup>35,36</sup> In general, CFI and TLI values greater than or equal to .90 indicate adequate fit, and above .95 indicate good fit.<sup>35,36</sup> RMSEA values less than .05 indicate good fit, between .05-.08 indicate acceptable fit, .08-.10 indicate marginal fit, and above .10 indicate bad fit.<sup>35</sup> Standardized Root Mean Square Residual (SRMR) values less than .08 is generally considered a good fit.<sup>35</sup> These cutoff criteria were used as general guidelines and not as absolute rules to decide on unidimensionality standards.

Given the process followed in item generation and classification for each main theme, there was an expectation that domains are unidimensional. If more than one factor was extracted that met the preset criteria and the factors were highly correlated, the possibility of unidimensionality was considered in the CFA and a Bifactor model was

used in these instances.<sup>37</sup> In Bifactor models the general factor reflects common variance among all items of the measure and represents the broad overarching construct, while specific factors contain the common variance among sub-groups of items with similar content and represents more narrowly defined subdomains. This approach was followed to prevent dividing a measure that taps into a multifaceted construct into separate scales that offer little utility value and fails to adequately represent the various nuances of a construct. If the bifactor model did not fit the data, the assumption of unidimensionality was rejected.

## Results

Cases with more than 20% missingness on specific draft Scale Items were removed. In the case of the environment related scales 25 or 5.8% of cases were removed, in the case of racial justice 13.1% of cases were removed. No cases were removed for other draft scales. Median imputation of all closest neighbors was conducted for 12 (2.9%) cases with missing data. The percentage of data point replacements ranged from 0% to 2.9% across the number of draft scales. The final validation sample consisted of 402 participants for environment related scales, 371 for the racial justice related scales, and 427 for the other draft scales. The sample size was sufficient as the maximum number of items for a draft scale was 20 and the sample size met guidelines in the literature. Clarke<sup>38</sup> propose using 300 respondents after initial pre-testing in scale validation studies. Guadagnoli<sup>39</sup> used simulation studies to assess comparability and stability of patterns and suggested a minimum of 300–450. The Kaiser-Meyer-Olkin measure of sampling adequacy for CFA for all dimensions were between .848 and .916 indicating excellent and meritorious sample sufficiency, and the small significant values of the Bartlett’s test of sphericity showed the potential usefulness of factor analysis with the data.<sup>40</sup>

## Scale on organizational readiness

The draft Organizational Readiness scale yielded relatively high reliability (.802) and validity (.653) for a three-item scale. Only one factor was extracted in the EFA procedure, and the CFA confirmed a one factor model with satisfactory model fit (Table 4).

## Scales on dimensions related to environmental factors

Three draft scales related to environmental factors were developed. Initial analyses of the three separate scales yielded marginal to unsatisfactorily reliability (respectively .746 and .646) for the draft General Social Environment and the draft Staff Social Environment scales (Table 1). Validity was unsatisfactorily with low correlation of 3 items in each scale with total scale scores and the CMT-IC were also problematic (respectively .517 and .340). The ten items of these two scales were combined and further analyzed to establish if they represent one construct with acceptable psychometric properties. Items were deleted based on reliability and validity considerations. The new 5-item scale was named the Social Environment scale with relatively high reliability ( $\alpha = .851$ ) and validity (MCI-TC = .681). Only one factor was extracted in the EFA, and the CFA analyses further support the unidimensionality of the Environment Scale (Table 1).

The third draft environment related scale, called Physical Environment, consisted of five items. Reliability ( $\alpha = .871$ ) and validity (CMT-IC = .696) were high, and no item correlated  $< .5$  with the total score. Only one factor was extracted in the EFA routine, but the CFA model fit was not ideal (See Table 1). A four-item scale yielded a better model fit and still had high reliability ( $\alpha = .859$ ) and validity (.681) (Table 2).

**Table 1** Participant Demographics

Factor	Respondents
Age Range	
25 and under	33
26-35	134
36-45	96
46-55	99
56-65	55
Over 65	7
Race/Ethnicity	
American Indian or Alaska Native	4
Asian	5
Black/African American	60
Native Hawaiian or Other Pacific Islander	1
Latino/Hispanic	21
White	338
Something else	17
Gender	
Woman	353
Man	64
Non-binary or Gender non-conforming	2
Prefer not to say	8
Education	
High School Diploma/GED	31
Associate's Degree/Technical College	14
Bachelor's Degree	99
Master's Degree	265
Doctoral Degree	6
Something else	12
Position	
Direct Care (at least 50% of your work is with clients)	259
Indirect Care (less than 50% of your work is with clients)	43
Supervisor or Middle Manager	83
Executive Officer/Administration	42

**Table 2** Unidimensionality, reliability and validity assessment of draft organizational readiness draft scale

Name	Items	EFA, Reliability and Assessment Validity	CFA Assessment
Organizational Readiness	N=3	Cronbach $\alpha$ =.802	RMSEA = 0 (good fit)
	I.1.1,	CMT-IC=.653	SRMR = 0 (good fit)
	I.1.2,	0 items correlated <.5 with total	CFI = 1 (good fit)
	I.1.3	EFA Factors Extracted=1	TLI = 1 (good fit) Fit Interpretation: Satisfactory

A remaining question was if all three environmental draft scales could be combined into one scale. After examining all 15 items in a combined analysis, some items were deleted due to reliability and validity considerations and a total of 9 items out of 15 were retained that loaded on two domains with five items on the social environment domain (three from the General Social Environment and two from the Staff Social Environment draft scales) and 4 items on the Physical Environment Domain. Using all 9 items in an EFA, the two factors extracted with Principal Axis Factoring and Promax with Kaiser Normalization rotation method corresponded with the two dimensions

of unidimensional scales and the correlations between factors were within acceptable range (Table 3). In a second order EFA analysis of the 9 items, both factors identified in the first-order analysis, loaded on one super factor. The soundness of the psychometric characteristics of the combined scale were also supported by the high mean corrected item total correlations of .603 and high reliability ( $\alpha$ =.862). However, a Confirmatory Factor Analysis yielded poor fit, even when a bi-factor model was used and unidimensionality of the 9-item scale was not supported (Table 3).

**Table 3** Unidimensionality, reliability and validity assessment of draft and final scales related to environmental factors

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	EFA, Reliability and Validity Assessment	CFA Assessment
General Social Environment	N=5	Cronbach $\alpha$ =.746	N=5	New name: Social Environment	RMSEA=.079 (Acceptable fit)
	2.2.1,	CMT-IC=.517	2.2.1,		SRMR =.024 (Good fit)
	2.2.2R,	3 items correlated <.5 with total	2.2.4,	Cronbach $\alpha$ =.859	CFI=.985 (Good fit)
	2.2.3,	EFA Factors Extracted=2	2.3.1,	CMT-IC=.681	TLI=.971 (Good fit)
	2.2.4,		2.3.2,	0 items correlated <.5 with total	
Staff Social Environment	2.2.5R		2.3.4	EFA Factors Extracted=1	Fit Interpretation: Satisfactory
	N=5	Cronbach $\alpha$ =.646			
	2.3.1,	CMT-IC=.340			
	2.3.2,	3 items correlated <.5 with total			
	2.3.3R,	EFA Factors Extracted=2			
Physical Environment	2.3.4,				
	2.3.5R				
	N=5	Cronbach $\alpha$ =.871	N=4	Cronbach $\alpha$ =.859	Five-item Scale
	2.1.1,	CMT-IC=.696	2.1.1,	CMT-IC=.681	RMSEA=.037 (Good fit)
	2.1.2,	0 items correlated <.5 with total	2.1.2,	0 items correlated <.5 with total	SRMR =.134 (Bad fit)
	2.1.3,	EFA Factors Extracted=1	2.1.3,	EFA Factors Extracted=1	CFI=.960 (Good fit)
	2.1.4,		2.1.4		TLI=.921 (Adequate fit)
	2.1.5				Fit Interpretation: Marginal
					Four-item Scale
					RMSEA=.083 (Marginal fit)
				SRMR =018 (Good fit)	
				CFI=.991 (Good fit)	
				TLI=.973 (Good fit)	
				Fit Interpretation: Satisfactory	

### Scales on practices

Two Draft Scales on Practices were developed, one on Organizational practices and one on Clinical practices. Items tapped into different content and experiences and these scales, although related, were analyzed separately. The Organizational Practices Scale comprises four items and yielded high reliability (.865) and validity

(.716). Unidimensionality was confirmed by both the EFA and CFA procedures (Table 5). The six-item Clinical Practices Scale had one problematic item that correlated low with the total scale score and this item was deleted. The final five-item Clinical Practices Scale had satisfactory reliability (.830) and validity (.603). One factor was extracted in the EFA routine, and the overall model fit in the CFA was satisfactory, one fit index (RMSEA) indicated poor fit (Table 5).

**Table 4** Combined environment scale with increased reliability, but without unidimensionality support

Draft Scale	Items of Draft Scale	Draft Subscales	Draft Combined Scale	CFA Assessment of Draft Combined Scale
General Social Environment	N=5 2.2.1,	New Name: Social Environment Scale	New Name: Environment Scale:	RMSEA=.190 (poor fit)
Alpha=.748	2.2.2R,	Cronbach $\alpha$ =.859 CMT-IC=.681	Cronbach $\alpha$ =.862 CMT-IC=.603	SRMR =.114 (poor fit)
3 items <.5 validity	2.2.3,	0 items correlated <.5 with total	0 items correlated <.5 with total	CFI=.752 (poor fit)
Factor extracted	2.2.4,	EFA Factors Extracted=1	EFA Factors Extracted=2	TLI=.669 (poor fit)
	2.2.5R	N=5 2.2.1,	Second Order Factors Extracted=1	Fit Interpretation: Poor
		2.2.4,	N=9 2.2.1,	Bi-Factor
		2.3.1,	2.2.4,	General factor - Physical environment
		2.3.2,	2.3.1,	Second factor - Social and Staff environment
		2.3.4	2.3.2,	RMSEA=.113 (poor fit)
			2.3.4,	SRMR =.214 (poor fit)
			2.1.1,	CFI=.912 (adequate fit)
			2.1.2,	TLI=.883 (poor fit)
			2.1.3,	Fit Interpretation: Poor
			2.1.4	Decision: Unidimensionality not supported by CFA analysis

**Table 5** Unidimensionality, reliability and validity assessment of draft scales on practices

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	Reliability and Validity Assessment	CFA Assessment
Organizational Practices	N=4	Cronbach $\alpha$ =.865	N=4	No change – similar to draft scale assessment	RMSEA = 0 (good fit)
	3.1.1,	CMT-IC=.716	3.1.1,		SRMR = 0.001 (good fit)
	3.1.2,	0 items correlated <.5 with total	3.1.2,		CFI = 1 (good fit)
	3.1.3,	EFA Factors Extracted=1	3.1.3,		TLI = 1 (good fit)
	3.1.4		3.1.4,		Fit Interpretation: Satisfactory
Clinical Practices	N=6	Cronbach $\alpha$ =.830	N=5	Cronbach $\alpha$ =.833	RMSEA=.112 (poor fit)
	3.2.1,	CMT-IC=.603	3.2.2,	CMT-IC=.636	SRMR=.035 (good fit)
	3.2.2,	1 item correlated <.5 with total	3.2.3,	0 items correlated <.5 with total	CFI=.968 (good fit)
	3.2.3,	EFA Factors Extracted=1	3.2.4,	EFA Factors Extracted=1	TLI=.935 (good fit)
	3.2.4,		3.2.5		Fit Interpretation: Satisfactory
	3.2.5		3.2.6		

### Scales on diverse dimensions related to key commitments by the organization

#### Commitment to non-violence

The draft Commitment to Nonviolence Scale consisted of five

items. Both reliability ( $\alpha$ =.556) and validity (CMT-IC=.346) were low, and 4 items correlated poorly with the total score. A three-item scale improved the psychometric properties slightly, but not sufficiently for a multi-item scale (Table 6). It is therefore recommended that a single item indicator of commitment to non-violence is used instead.



**Table 6** Reliability and validity assessment of draft commitment to nonviolence scale

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	Reliability and Validity Assessment	Assessment and Recommendation
Commitment to Nonviolence	N= 5	Cronbach $\alpha$ =.556	N=3	Cronbach $\alpha$ =.625	Low reliability and validity of 3-item scale, use the item with the highest item-total correlation (4.1.4) as a single- item indicator of commitment to nonviolence.
	4.1.1,	CMT-IC=.346	4.1.1,	CMT-IC=.	
	4.1.2,	4 items correlated <.5 with total	4.1.2,	3 items correlated <.5 with total	
	4.1.3R,		4.1.4	EFA Factors Extracted=1	
	4.1.4,	EFA Factors Extracted=2			
	4.1.5R				

**Commitment to emotional intelligence, social learning, democracy and open communication**

Four 5-item draft scales were developed on different, but related organizational commitments related to trauma informed practices: Emotional Intelligence, Social Learning, Democracy and Open Communication. Reliability coefficients of these scales were less than the cut-off of .75 and ranged from .66 to .74 (Table 7). Validity coefficients were also problematic and ranged from .425 to .516. Many

items correlated poorly with the total scale score and more than one factor was extracted in the EFA routine in the case of Commitment to Democracy and Commitment to Open Communication (Table 7). Following the iterative process of item reduction explained above in the “Methods” section, reliability did not improve above the .75 threshold for any of the four draft subscales, validity was still problematic and at least for Commitment to Open Communication, factor structure was not promising to support assumptions of unidimensionality (Table 7).

**Table 7** EFA Reliability and validity assessment of draft subscales on emotional intelligence, social learning, democracy and open communication

Name	Items	EFA, Reliability and Validity Assessment	Second Draft Subscale: EFA, Reliability and Validity Assessment & List of Items
Commitment to Emotional Intelligence	N=5	Cronbach $\alpha$ =.717	Cronbach $\alpha$ =.713
	Mean of Items = 5.1.1,	CMT-IC=.481	CMT-IC=.538
	5.1.2	3 items correlated <.5 with total	1 item correlated <.5 with total
	5.1.3R,	EFA Factors Extracted=1	EFA Factors Extracted=1
	5.1.4,		List of items (N=3):
	5.1.5R		5.1.1, 5.1.2, 5.1.4
Commitment to Social Learning	N= 5	Cronbach $\alpha$ =.743	Cronbach $\alpha$ =.712
	6.1.1,	CMT-IC=.516	CMT-IC=.554
	6.1.2,	2 items correlated <.5 with total	1 item correlated <.5 with total
	6.1.3,	EFA Factors Extracted=1	EFA Factors Extracted=1
	6.1.4,		List of items (N=3):
	6.1.5		6.1.1, 6.1.2, 6.1.4
Commitment to Democracy	N=5	Cronbach $\alpha$ =.660	Cronbach $\alpha$ =.720
	7.1.1R,	CMT-IC=.425	CMT-IC=.513
	7.1.2,	3 items correlated <.5 with total	2 items correlated <.5 with total
	7.1.3,	EFA Factors Extracted=2	EFA Factors Extracted=1
	7.1.4		List of items (N=4):
	7.1.5R		7.1.2, 7.1.3, 7.1.4, 7.1.5R
Commitment to Open Communication	Mean of Items = 8.1.1,	Cronbach $\alpha$ =.672	With low validity, four out of five items that correlated poorly with the total scale score and two factors extracted in the EFA, no further attempt to improve the draft scale
	8.1.2,	CMT-IC=.434	
	8.1.3R,	4 items correlated <.5 with total	
	8.1.4,	EFA Factors Extracted=2	
	8.1.5		

The twenty items representing the four subscales were combined to see, if interpretable, whether items represented a construct related to the themes of the four subscales. A new scale comprising of 10 items (2 from Emotional Intelligence; 3 from Social Learning, 3 from Democracy and 2 from Open Communication) yielded high reliability ( $\alpha$ =.887) and validity (CMT-IC=.625), while the unidimensional structure of the new scale was supported by EFA and CFA procedures

(Table 7). A content analysis of the items of the new scale indicated a core focus on a commitment to collectively (by means of democratic processes earmarked by open communication) make decisions. Emotional intelligence facilitated this process. The new scale was described as the *Commitment to Collective Decision-Making Scale* (Table 8).

**Table 8** Unidimensionality, reliability and validity assessment of the final combined scale: collective decision-making scale (democracy, open communication, emotional intelligence & social learning)

Items by Subscale Category	Reliability and Validity Assessment	CFA Assessment
N= 10	Cronbach $\alpha$ =.887	RMSEA=.099 (marginal fit)
Emotional Intelligence: 5.1.1, 5.1.2,	CMT-IC=.625	SRMR=.050 (acceptable fit)
Social Learning: 6.1.1, 6.1.2, 6.1.4	0 items correlated <.5 with total	CFI=.917 (adequate fit)
Democracy: 7.1.2, 7.1.3, 7.1.4,	EFA Factors Extracted=1	TLI=.893 (marginal fit)
Open Communication: 8.1.4, 8.1.5		Fit Interpretation:Acceptable (Fit was not improved with a Bi- factor model)

### Commitment to social responsibility

The reliability and validity (respectively  $\alpha$ =.615 and CMT-IC=.413) of the 5-item draft Commitment to Social Responsibility

was improved by deleting one item to acceptable levels (respectively  $\alpha$ =.776 and CMT-IC=.582) (Table 9). One factor with eigenvalues >1 was extracted in the EFA, and the marginal fit of the CFA routine supported a one factor model (Table 9).

**Table 9** Unidimensionality, reliability and validity assessment of draft scale on commitment to social responsibility

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	Reliability and Validity Assessment	CFA Assessment
Commitment to Social Responsibility	N=5	Cronbach $\alpha$ =.615	N=4	Cronbach $\alpha$ =.776	RMSEA=.176 (poor fit)
	9.1.1R,	CMT-IC=.413	9.1.4,	CMT-IC=.582	SRMR=.045 (good fit)
	9.1.2,	3 items correlated <.5 with total	9.1.5,	0 items correlated <.5 with total	CFI=.943 (adequate fit)
	9.1.3R,	EFA Factors Extracted=2	9.1.1R,	EFA Factors Extracted=1	TLI=.829 (poor fit)
	9.1.4,		9.1.3R		Fit Interpretation: Marginal
	9.1.5				

### Commitment to growth and change

Similar to the Commitment to Social Responsibility, the validity (CMT-IC=.576 with one item correlated <.5 with the total scale score) of the 5-item draft Commitment to Growth and Change was

also improved by deleting one item to levels above the cut-off values (CMT-IC=.602 and no item with low item-total correlation) (Table 10). Reliability of both scale formats was not an issue. Unidimensionality was supported by the EFA and CFA. (Table 10).

**Table 10** Unidimensionality, reliability and validity assessment of draft scale on commitment to growth and change

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	Reliability and Validity Assessment	CFA Assessment
Commitment to Growth and Change	N=5	Cronbach $\alpha$ =.790	N=4	Cronbach $\alpha$ =.786	RMSEA=.161 (poor fit)
	10.1.1,	CMT-IC=.576	10.1.1,	CMT-IC=.602	SRMR=.039 (acceptable fit)
	10.1.2,	1 item correlated <.5 with total	10.1.2,	0 items correlated <.5 with total	CFI=.957 (good fit)
	10.1.3,	EFA Factors Extracted=1	10.1.3,	EFA Factors Extracted=1	TLI=.872 (marginal fit)
	10.1.4R,		10.1.5		Fit Interpretation: Marginal
	10.1.5				

### Racial justice

Three of the subscales focusing on racial justice had high reliability and validity with no items removed in the final scales. The subscales were Racial Justice: Power; Racial Justice: People and Racial Justice:

Programs. The unidimensionality of these scales were confirmed by the EFA and CFA procedures (Table 11). One item from the Racial Justice: Policy subscale was removed due to low validity and the final four-item scale had acceptable reliability and validity. The Racial Justice: Culture subscale had low reliability and validity (Table 11).

**Table 11** Unidimensionality, reliability and validity assessment of draft scale on racial justice

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	Reliability and Validity Assessment	CFA Assessment
Racial Justice: Power	N=5	Cronbach $\alpha$ =.878	N=5	No change – similar to draft scale assessment	RMSEA =.075 (marginal fit)
	11.1.1,	CMT-IC=.715	11.1.1,		SRMR = .019 (acceptable fit)
	11.1.2,	0 items correlated <.5 with total	11.1.2,		CFI = .990 (good fit)
	11.1.3,	EFA Factors Extracted=1	11.1.3,		TLI =.979 (good fit)
	11.1.4,		11.1.4,		Fit Interpretation: Satisfactory
	11.1.5		11.1.5		

Table 11 Continued...

Draft Scale			Final Scale		
Name	Items	EFA, Reliability and Validity Assessment	Items	Reliability and Validity Assessment	CFA Assessment
Racial Justice: Policy	N=5	Cronbach $\alpha$ =.78	N=4	Cronbach $\alpha$ =.782	RMSEA=.035 (acceptable fit)
	11.2.1,	CMT-IC=.556	11.2.1,	CMT-IC=.558	SRMR=.008 (good fit)
	11.2.2,	1 item correlated <.5 with total	11.2.2,	0 items correlated <.5 with total	CFI=.980 (good fit)
	11.2.3,	EFA Factors Extracted=1	11.2.3,	EFA Factors Extracted=1	TLI=.971 (good fit)
	11.2.4,		11.2.4		Fit Interpretation: Satisfactory
Racial Justice: People	N=5	Cronbach $\alpha$ =.879	N=5	No change – similar to draft scale assessment	RMSEA =.055 (marginal fit)
	11.3.1,	CMT-IC=.718	11.3.1,		SRMR =.023 (acceptable fit)
	11.3.2,	0 items correlated <.5 with total	11.3.2,		CFI = .986 (good fit)
	11.3.3,	EFA Factors Extracted=1	11.3.3,		TLI = .971 (good fit)
	11.3.4,		11.3.4,		Fit Interpretation: Satisfactory
Racial Justice: Program	N=5	Cronbach $\alpha$ =.90	N=5	No change – similar to draft scale assessment	RMSEA = .124 (poor fit)
	11.4.1,	CMT-IC=.79	11.4.1,		SRMR =.025 (acceptable fit)
	11.4.2,	0 items correlated <.5 with total	11.4.2,		CFI = .975 (good fit)
	11.4.3,	EFA Factors Extracted=1	11.4.3,		TLI = .950 (good fit)
	11.4.4,		11.4.4,		Fit Interpretation: Satisfactory
Racial Justice: Culture	N=5	Cronbach $\alpha$ =.453			
	11.5.1,	CMT-IC=.275.			
	11.5.2,	5 items correlated <.5 with total	Discard	N/A	N/A
	11.5.3,				
	11.5.4,	EFA Factors Extracted=2			
	11.5.5				

The possibility of a *Combined Racial Justice Scale* was considered and investigated by combining the subscales with acceptable reliability and validity. After one item was removed due to low validity, the newly combined scale had exceptional high reliability ( $\alpha$ =.949) and validity (CMT-IC=.698) but unidimensionality was problematic (Table 12). Two factors were extracted in the EFA. A second-order factor

analysis was performed with a one-factor criterion for extraction (not eigenvalues >1), and a one-factor solution was extracted after only four iterations. However, the CFA model fit was poor (See Table 12). Five items were removed as indicated by model fit indices and the 13-item *Combined Racial Justice Scale* showed high reliability and validity as well as unidimensionality (Table 12).

Table 12 Two combined racial justice scales with high reliability and validity, one with and one without unidimensionality support

Final Racial Justice Subscales Included*	Items of Scales	Combined Scale Items	Reliability and Validity Assessment	CFA Assessment of Draft Combined Scale
Racial Justice: Power	N=5	N=18	Cronbach $\alpha$ =.949	RMSEA=.118 (poor fit)
Racial Justice: Policy	N=3**	11.1.1, 11.1.2, 11.1.3,	CMT-IC=.698	SRMR =.059 (acceptable fit)
Racial Justice: People	N=5	11.1.4, 11.1.5, 11.2.1,	0 items correlated <.5 with total	CFI=.849 (poor fit)
Racial Justice: Program	N=5	11.2.3, 11.2.4, 11.3.1,	EFA Factors Extracted=2	TLI=.829 (poor fit)
		11.3.2, 11.3.3, 11.3.4,	First factor explained 52% of the variance; the second factor explained 5% of the variance.	Fit Interpretation: Poor
		11.3.5, 11.4.1, 11.4.2,	In a second order principal axis factoring with one fixed factor, four iterations were required for the solution.	
		11.4.3, 11.4.4, 11.4.5	Cronbach $\alpha$ =.925	
			CMT-IC=.672	
		N=13***	0 items correlated <.5 with total	
		11.1.1, 11.1.2, 11.1.3,	EFA Factors Extracted=1	RMSEA=.080 (marginal fit)
		11.1.5, 11.2.1, 11.2.3,		SRMR =.040 (acceptable fit)
		11.2.4, 11.3.1, 11.3.2,		CFI=.941 (acceptable fit)
		11.3.5, 11.4.1, 11.4.4,		TLI=.929 (adequate fit)
		11.4.5		Fit Interpretation: Satisfactory

\*The Racial Justice culture subscale was excluded from the combined Racial Justice Scale due to low reliability and validity

\*\*The draft Racial Justice: Policy subscale had 5 items, 11.2.5 was deleted due to low item subscale total correlation and 11.2.2 was deleted due to low item combined scale total correlation.

\*\*\*Model fit indices were used to identify items for removal to improve model fit. Items removed: 11.4.2, 11.4.3, 11.1.4, 11.3.3, 11.3.4

## Discussion

Ten of the original draft scales resulted in final scales with acceptable reliability, validity and dimensionality properties and include the following scales: Physical Environment, Organizational Readiness, Organizational Practices, Clinical Practices, Commitment to Social Responsibility, Commitment to Growth and Change, Racial Justice: Program, Racial Justice: Policy, Racial Justice: Power, and Racial Justice: People. These brief scales have only 4 or 5 items. Draft subscales on aspects of the Social Environment and Commitments to Emotional Intelligence, Social Learning, Democracy, and Open Communication, were re-analyzed after combining sections into interpretable domains. A new *Social Environment Scale* was developed consisting of nine items and the four sections on commitments were reconceptualized as having a focus on collective decision making. The new 10-item *Commitment to Collective Decision-Making Scale*, represents a slightly different perspective of important factors in Trauma Resilient organizations and requires interpretability assessment by the developers of the original items for the assessment of the various dimensions of organizational resilience. A new *Combined Racial Justice Scale* was also developed with 13 items.

The current study aimed to evaluate the psychometric properties of the Trauma Resilient Change Organizational Assessment Survey (TRC-OAS), a tool designed to assess the readiness and capacity of organizations to implement trauma-informed care (TIC). The findings underscore the reliability and validity of the TRC-OAS, highlighting its potential as a comprehensive measure for organizational change. Through rigorous exploratory and confirmatory factor analyses, the TRC-OAS demonstrated robust internal consistency across its domains, including organizational readiness, trauma-informed environment, transformational leadership, racial justice, secondary traumatic stress, and intent to leave. These domains align well with the theoretical underpinnings of trauma-informed care and structural violence, ensuring the tool's relevance in diverse organizational settings. The incorporation of implementation science principles further strengthens the TRC-OAS, providing a structured approach to evaluating and enhancing TIC practices within organizations.

## Strengths

One of the primary strengths of this study is the comprehensive nature of the TRC-OAS, which integrates multiple dimensions of organizational health and readiness for TIC. The inclusion of validated scales and the adaptation of established instruments ensure that the TRC-OAS captures a wide range of factors influencing trauma resilience and organizational change. Additionally, the use of a large and diverse sample enhances the generalizability of the findings, allowing for the application of the TRC-OAS across various organizational contexts. The iterative approach to item reduction and validation, employing both exploratory and confirmatory factor analyses, ensures the reliability and validity of the instrument, providing a robust tool for practitioners and researchers alike.

## Limitations

Despite its strengths, this study is not without limitations. The cross-sectional design limits the ability to draw causal inferences regarding the impact of TIC practices on organizational outcomes. Additionally, while the sample was diverse, it was primarily drawn from organizations participating in the Louisville Trauma Resilient Communities project, which may limit the generalizability of the

findings to other settings. The reliance on self-reported data is another limitation, as it may be subject to social desirability bias. Future research should consider longitudinal designs to assess changes over time and further validate the TRC-OAS in different organizational contexts.

## Implications

The findings of this study have significant implications for the implementation of trauma-informed care in organizational settings. The TRC-OAS provides a valuable tool for assessing an organization's readiness and capacity for TIC, enabling targeted interventions to enhance trauma resilience. This is particularly important in organizational settings that are often overburdened by structural challenges, compassion fatigue, workplace stress, and high staff turnover. By identifying strengths and areas for improvement, organizations can develop strategic plans to foster a trauma-informed culture, ultimately improving employee well-being and service delivery. Furthermore, the integration of racial justice as a key domain highlights the importance of addressing systemic inequities within TIC frameworks, promoting more equitable and inclusive organizational environments.

## Conclusion

In conclusion, the TRC-OAS is a psychometrically sound instrument that offers a comprehensive assessment of organizational readiness and capacity for trauma-informed care. Its multidimensional approach ensures that various aspects of organizational health and TIC practices are captured, providing valuable insights for both practitioners and researchers. While future research is needed to further validate the tool across different contexts and over time, the TRC-OAS stands as a significant contribution to the field of trauma-informed organizational assessment. By leveraging this tool, organizations can enhance their capacity for trauma resilience, fostering environments that support the well-being of both staff and clients.

## Acknowledgments

None.

## Conflicts of interest

The author declares there is no conflict of interest.

## References

1. Becker Blease KA. As the world becomes trauma-informed, work to do. *J Trauma Dissociation*. 2017;18(2):131–138.
2. Finkelhor D, Turner HA, Shattuck A, et al. Prevalence of childhood exposure to violence, crime, and abuse: Results from the National Survey of Children's Exposure to Violence. *JAMA Pediatr*. 2015;169(8):746–754.
3. Substance Abuse and Mental Health Services Administration. *SAMHSA's concept of trauma and guidance for a trauma-informed approach*. Samhsa. 2014.
4. Ginwright S. The future of healing: Shifting from trauma informed care to healing centered engagement. *Occasional Paper*. 2018;25:25–32.
5. Brown LL, Pennings J, Steckel S, et al. The Organizational Trauma Resilience Assessment: Methods and psychometric properties. *Psychol Trauma*. 2021;5(Suppl 2):S446–S455.
6. Vides B, Middleton J, Edwards EE, et al. The Trauma Resilient Communities (TRC) model: A theoretical framework for disrupting structural violence and healing communities. *Journal of Aggression, Maltreatment & Trauma*. 2022;31(8):1052–1070.

7. Glisson C. Assessing and changing organizational culture and climate for effective services. *Research on Social Work Practice*. 2007;17(6):736–747.
8. Glisson C, James LR. The cross-level effects of culture and climate in human service teams. *Journal of Organizational Behavior*. 2002;23(6):767–794.
9. Galtung J. Violence, Peace, and Peace Research. *Journal of Peace Research*. 1969;6(3):167–191.
10. Farmer P. An anthropology of structural violence. *Current Anthropology*. 2004;45(3):305–325.
11. Fixsen DL, Naoom SF, Blase KA, et al. *Implementation research: A synthesis of the literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute. The National Implementation Research Network. 2005.
12. Bloom SL, Farragher B. *Restoring sanctuary: A new operating system for trauma-informed systems of care*. Oxford University Press. 2013.
13. Baker CN, Brown SM, Wilcox PD, et al. Development and psychometric evaluation of the attitudes related to trauma-informed care (ARTIC) scale. *School Mental Health*. 2016;8:61–76.
14. Bassuk EL, Unick GJ, Paquette K, et al. Developing an instrument to measure organizational trauma-informed care in human services: The TICOMETER. *Psychology of Violence*. 2017;7(1):150–157.
15. National Council for Behavioral Health. *Organizational self-assessment: Adoption of trauma-informed care approaches in a primary care setting (TIPC-OA)*. The National Council; 2019.
16. Harris M, Fallot RD. *Using trauma theory to design service systems. New directions for mental health services*. San Francisco, CA: Jossey-Bass. 2001.
17. Hales T, Kusmaul N, Sundborg S, et al. The Trauma-Informed Climate Scale-10 (TICS-10): A reduced measure of staff perceptions of the service environment. *Human Service Organizations: Management, Leadership & Governance*. 2019;43(5):443–453.
18. Kusmaul N, Wilson B, Nochajski T. The infusion of trauma-informed care in organizations: Experience of agency staff. *Human Service Organizations: Management, Leadership & Governance*. 2015;39(1):25–37.
19. Dubay T, Burton L, Epstein C. *Early adopters of trauma-informed care: An implementation analysis of the Advancing Trauma-Informed Care Grantees*. Center for Health Care Strategies. 2018.
20. Esaki N, Hopson L, Middleton J. Sanctuary Model implementation from the perspective of indirect care staff. *Families in Society*. 2014;95(4):261–268.
21. Western States Center. *Racial Justice Assessment*. Nurture NJ. 2015.
22. Carless SA, Wearing AJ, Mann L. A short measure of transformational leadership. *Journal of Business and Psychology*. 2000;14(3):389–405.
23. Bride BE, Robinson MR, Yegidis B, et al. Development and validation of the Secondary Traumatic Stress Scale. *Research on Social Work Practice*. 2004;14(1):27–35.
24. Ellett AJ. *Human caring, self-efficacy beliefs, and professional organizational culture correlates of employee retention in child welfare* (Order No. 9984330). Available from ABI/INFORM Collection; ProQuest Dissertations & Theses Global. (304606007). 2000.
25. Middleton JS, Potter CC. Relationship between vicarious traumatization and turnover among child welfare professionals. *Journal of Public Child Welfare*. 2015;9(2):195–216.
26. Ting L, Jacobson JM, Sanders S, et al. The secondary traumatic stress scale (STSS): Confirmatory factor analyses with a national sample of mental health social workers. In *Approaches to Measuring Human Behavior in the Social Environment*. Routledge. 2012. p. 177–194.
27. Nunnally JC. *McGraw-Hill series in psychology: Psychometric theory*. McGraw-Hill: New York. 1967.
28. Rosseel Y. lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*. 2012;48(2):1–36.
29. Gorsuch RL. Exploratory factor analysis: Its role in item analysis. *J Pers Assess*. 1997;68(3):532–560.
30. Tabachnick BG, Fidell LS. *Using multivariate statistics*. 4<sup>th</sup> edn. New York: Harper & Row. 2001.
31. Kaiser HF. The varimax criterion for analytic rotation in factor analysis. *Psychometrika*. 1958;23(3):187–200.
32. Cattell RB. The scree test for the number of factors. *Multivariate Behav Res*. 1966;1(2):245–276.
33. Worthington RL, Whittaker TA. Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*. 2006;34(6):806–838.
34. Bentler PM. Comparative fit indexes in structural models. *Psychol Bull*. 1990;107(2):238–246.
35. Hu L, Bentler PM. Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*. 1999;6(1):1–55.
36. Steiger JH, Lind JC. *Statistically-based tests for the number of common factors*. Paper presented at the annual Spring meeting of the Psychometric Society, Iowa City, IA. 1980.
37. Reise SP. The rediscovery of bifactor measurement models. *Multivariate Behav Res*. 2012;47(5):667–696.
38. Clarke LA, Watson D. Constructing validity: Basic issues in objective scale development. *Psychol Assess*. 1995;7(3):309–319.
39. Guadagnoli E, Velicer WF. Relation of sample size to the stability of component patterns. *Psychol Bull*. 1988;103(2):265–275.
40. Potter CC, Leake R, Longworth Reed L, et al. Measuring organizational health in child welfare agencies. *Children and Youth Services Review*. 2016;61:31–39.