Development, Validation, and Application of the Secondary Traumatic Stress Scale (STSS) in the Kenyan Context

Adie Gabriel Ugbong, Dr Jasper Isoe

Tangaza University

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ABSTRACT

There is growing concern that counsellors and psychologists may experience mental strain due to working with clients who have trauma. As a result, there is an increasing interest in studying secondary traumatic stress (STS) among them. Many validation studies of the Secondary Traumatic Stress Scale (STSS) have been carried out yielding positive outcomes, yet there remains a gap in the local validation or adaptation of the STSS in Kenya. The purpose of this study was to examine the development, validation and application of the STSS in the assessment of STS in the Kenyan context. This was achieved by reviewing current literature from peer-reviewed journal articles between 2020 to 2025. The studies reviewed were screened for their empirical use, translation process, and validation or adaptation of the STSS. Some important information extracted from these reviewed sources included the factor structures of the tool, the internal consistency indices, contextual suitability, and the translation methods. Global validation studies (Chinese, Italian, Urdu and French) demonstrated strong reliability of the STSS with two studies (Italian & Chinese versions) indicating some modifications or restructuring of the factor structure of the STSS. The African studies indicate that the STSS has high internal consistency ($\alpha > .80$), but they all lack cultural validation, translation procedures and confirmatory analysis (CFA). Although the STSS has also been used in Kenya across the healthcare and humanitarian fields and has exhibited high internal consistency, so far no validation studies have been undertaken to test its structural validity. This gap raises concerns about the structural and cultural suitability of the tool within Kenya and Africa in general. This study recommends that future research should prioritize the validation of the STSS including translating, CFA, and measurement invariance testing to ensure that the STSS culturally and contextually reflects the phenomena of secondary traumatic stress within Kenyan populations and Africa in general.

Keywords: Secondary Traumatic Stress (STS), Secondary Traumatic Stress Scale (STSS) Culturally validated tools, Psychometric assessments, Kenya.

INTRODUCTION

The field of psychometrics is concerned with the measurement and prediction of behaviour, aptitudes, and psychological traits (Wijsen, 2022). Lovett (2023) describes psychometrics as the science which underlies psychological measurement. Exploring the relationship of certain psychological constructs and their external phenomena requires knowledge of psychometrics. Lovett (2023) uses the term “practical psychometric” in arguing that psychometrics as used for assessment in the psychological field enables psychologists to make informed judgements regarding which specific tests are more suitable for a client, and how to make judgement from the results of these assessments. Therefore, measurement and psychometrics are important in the field of psychology to evaluate merits of psychological assessments (Shou et al., 2022). In this regard, psychometric assessments in helps to bridge the gap between theory and practice. It enables practitioners to quantify latent traits and constructs such as stress, anxiety, empathy, resilience and trauma.

Psychological science has attracted a lot of attention from all spheres due to its importance in explaining human behaviour in any social set up (Chirica et al., 2024). Assessment as used in this work refers to any standardized psychological testing that produces a numerical score which are then interpreted in line with the various constructs that they aim to measure or assess (Hey et al., 2023). These assessment tools are usually developed in form of rating scales, questionnaires, or standardized observation procedures. For instance, a questionnaire

might be handed to a healthcare worker to assess for secondary traumatic stress, or compassion fatigue, and at the end the answers are summed up and the results are interpreted in line with the established scoring guidelines. Assessment in modern psychological practice is built on well-grounded empirical, theoretical and evidence-based frameworks, which lead to effective interventions (Furr, 2020). Hence, assessment tools with poor psychometric properties could lead to ineffective diagnosis and interventions.

In recent years, there has been an interdisciplinary push for evidence-based practices (EBP) in achieving accurate diagnostic outcomes (Dombrowski et al., 2021; Hoffmann et al., 2023). The field of psychology is one of such fields that places emphasis on the importance of EBP especially as it concerns assessment. This reliance on EBP is central in achieving ethical and effective therapeutic interventions (Hey et al., 2023). EBP is achieved in the psychological field through the use of efficient psychometric assessments tools that ensure there is consistency, accountability, and effectiveness in therapeutic decisions. The insistence on robust and evidence-based psychometric assessments can be evidenced in the promotion of Evidence-Based Practice in Psychology (EBPP); a model highly promoted by the APA and other professional psychological bodies (Ogle et al., 2024). Also, the World Health Organization (WHO) has noted the increase in mental health concerns and through its programs advocate for the improvement of mental health practice worldwide (WHO, 2024).

This concern about the rise of mental health issues has also been resounded by several studies within Kenya (Ali et al., 2022; Ndetei et al., 2022), especially among people in helping professions such as healthcare personnel, police officers and teachers (Adie et al., 2024; Muchiri et al., 2024). Despite the growing need for psychological services, there are concerns that mental health professionals have heavily relied on the use of western developed tools for psychological assessments and interventions (Nyongesa et al., 2022; Kipkemoi et al., 2024). Some progresses have been made through the validation of some of these tools such as the Primary Care PTSD care (Mwangala et al., 2024), and the validation of the English and Swahili adaptation of the patient health questionnaire (Tele et al., 2023). Only few assessment tools have been validated or developed within the Kenyan context. Hence the heavy reliance on tools that are not locally developed or validated leads to challenges in accurate assessment and intervention outcomes. The growing mental health research among healthcare personnel in Kenya highlights the urgency of evaluating, validating and adapting assessment tools such as the STSS in order to establish their cultural validity and reliability among the Kenyan population.

Purpose of the Study

The purpose of this study was to examine the development, validation and application of the STSS developed by Bride et al. (2004) in the assessment for secondary trauma stress (STS) in the Kenyan context. Current literature acknowledges that healthcare personnel are exposed to the traumatic experiences of their clients, making these healthcare professionals vulnerable to experiencing secondary traumatic stress (Diop et al., 2022; Kanyanta et al., 2023). Despite the acknowledgement that healthcare professionals experience STS, few assessment tools have been put through psychometric evaluation and validation in the local Kenyan context in assessing this phenomenon. The STSS by Bride et al. (2004) is a standardized tool used widely and internationally, but its validity and reliability and cultural relevance within the Kenyan context has not yet been examined. Hence, this current study seeks to examine the current literature on STSS, its development, psychometric properties, and evaluate its application in mental health practice within Kenya. The current effort contributes to the advancement of evidence-based psychometric assessments grounded in the Kenyan cultural context.

METHODOLOGY

The literature search conducted for this study was targeted to identify studies relevant to the development, linguistic, validation, and the psychometric evaluation of the STSS. The search for literature was conducted across some databases such as Google Scholar, PsycINFO, PubMed, and African Journals Online (AJOL). The search included publications between 2000 to 2025 in order to capture the most recent methodological and cultural development of the STSS. The terms and phrases used during the search included “Secondary Traumatic Stress Scale”, “Secondary Traumatic Stress,” “STSS Validation,” “Psychometric Properties,” “Cross-cultural Adaptation,” “Assessment Tools,” “Kenya,” and “Africa.”

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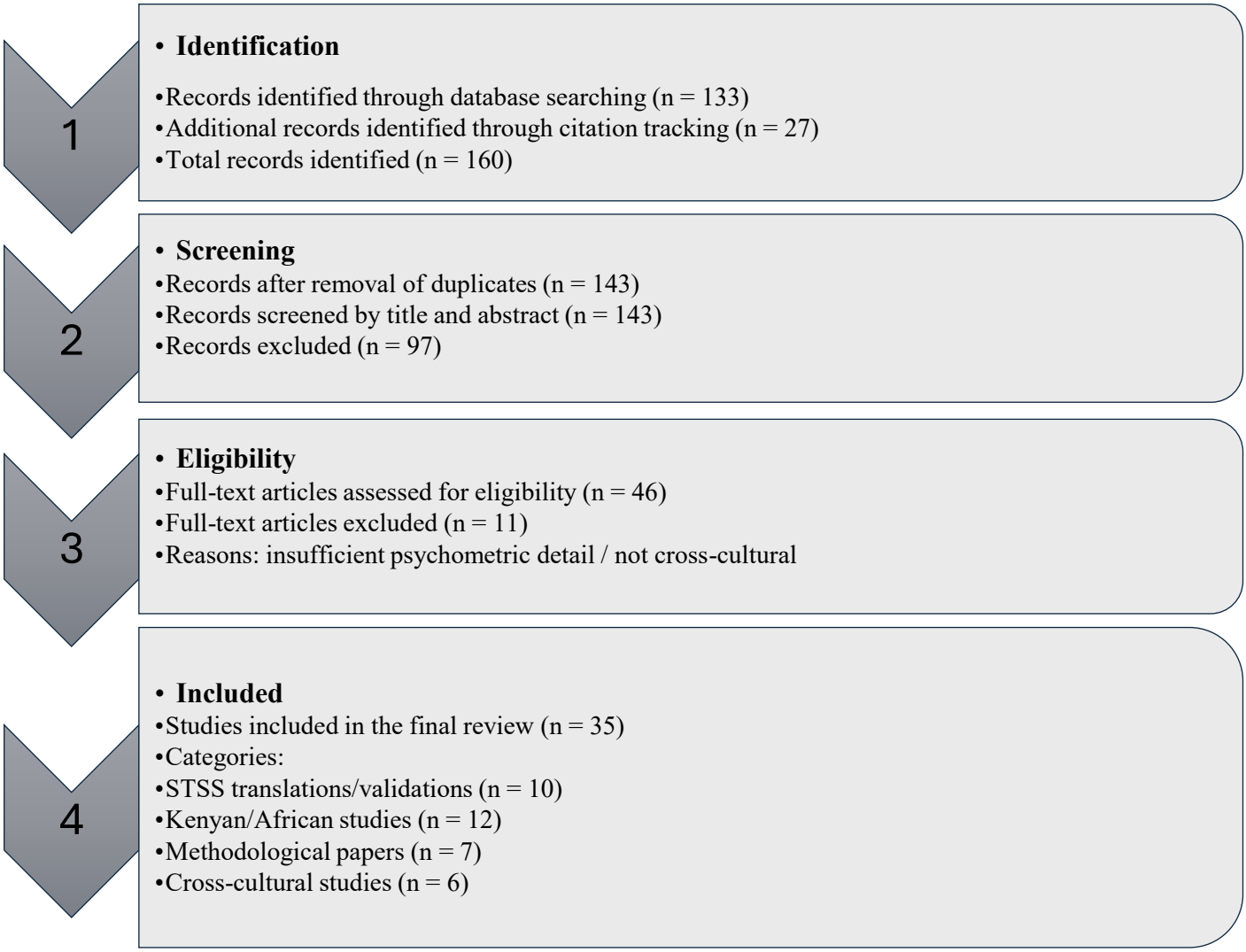
The inclusion criteria included peer-reviewed empirical papers; studies that provided psychometric data on the STSS; and studies that examined the cultural, linguistic or contextual adaptation of psychological assessment tools. Studies were excluded if they lacked empirical data; studies that did not report psychometric properties of the STSS, studies that were unavailable in full-text, and studies that focused on other forms of trauma aside from secondary trauma. The inclusion and exclusion criteria helped the study to remain focused on the task that it set out to achieve. With regards to the screening process, there were two stages: first, the titles and abstract were reviewed for their relevance to STSS. Secondly, studies which passed the first stage were reviewed fully, examining their suitability for the paper. After eligible studies were identified, a narrative synthesis approach was used to analyse and integrate the findings. This analysis and integration focused on accessibility, psychometric performance, linguistic adaptation, cultural relevance, and ethical considerations. The thematic and comparative approach aided the comprehensive critique of the STSS and especially with regards to the Kenyan context. Figure 1 below presents a flowchart outlining the process identifying, selecting, and categorizing the literature that were used in this paper.

Figure 1: Flowchart



The flowchart in Figure 1 details how an initial pool of 160 publications was gradually screened and narrowed to ultimately 35 publications which met the inclusion criteria. It went through the process of duplicate removal, title and abstract screening, and full-text evaluation. The 35 studies although diverse in nature present relevant information on psychometric assessment, STSS developments and validations, cross-cultural validation research, and Kenyan and African psychometric work. This process allowed for a coherent integration of all the publications that were relevant to this work.

DEVELOPMENT OF THE SECONDARY TRAUMATIC STRESS SCALE (STSS)

The STSS was developed by Bride et al. (2004) in response to the need for a tool that measured traumatic stress especially for those in the helping profession. The STSS was largely influenced by Figley's (1999) argument that those in the helping profession who consistently encounter people with trauma may also face some emotional disruptions thereby becoming indirect victims of the traumatic event witnessed (Figley, 1995). The compassion fatigue theory as expounded by Figley argues that those who secondarily experience trauma also tend to exhibit symptoms which are parallel to those who have directly witnessed trauma. With this understanding and the lack of appropriate tools in measuring STS, Bride et al. (2004) developed the STSS to specifically measure secondary trauma symptoms.

Secondary traumatic stress was operationalized as intrusion, arousal, and avoidance symptoms as stated in the DSM-IV Criteria B (American Psychiatric Association (APA), 1994). The initial tool consisted of sixty-seven Likert style items which was pilot tested among thirty-seven direct service providers. The tool was later revised to a Seventeen item Likert scale, with each item representing individual symptoms as stated in the DSM-V. This seventeen-item scale was tested among 294 master's level licensed social workers in a Southeastern state in the United States in the year 2001. The participants of the study were predominantly females (81.9%) and Caucasians (77.5%). The Likert scale tool ranges from never (1) to very often (5), and the subscales included intrusion (items 2, 3, 6, 10, 13), avoidance (1, 5, 7, 9, 12, 14, 17), and arousal (4, 8, 11, 15, 16). The STSS can be scored by summing up all items on the scale to get an overall score and summing up all the items on each subscale to get the scores for each subscale.

VALIDATION OF THE STSS

The validation process of the tool exhibited a Cronbach alpha coefficient of *.93,* for the total scores, and the intrusion, avoidance, and arousal scales had a reliability of .80, .87, and .83 respectively. The factorial validity of the STSS was achieved using confirmatory factor analysis (CFA), with structural equation modelling (SEM). The operationalized three factor model consisting of intrusion, avoidance, and arousal were all tested and they demonstrated an adequate to good model fit to the data (Goodness of fit index (GFI) = .90; comparative fit index (CFI) = .94; incremental fit index (IFI) = .94; and the root mean square error of approximation (RMSEA) = .069). Finally, the inter-factor relationships (*Intrusion–Avoidance* = .737 ($p < .001$); *Intrusion–Arousal* = .784 ($p < .001$); *Avoidance–Arousal* = .831 ($p < .001$)) supported the multidimensional understanding of secondary traumatic stress (Bride et al., 2004).

4.1 Global Validation of the STSS

Unlike the initial validation process of the STSS which was carried out among social workers in a Southeastern state, a study by Ting et al. (2005) sought to examine the reliability and validity of the STSS across a national sample of social workers. The study's participants consisted of 515 master's level social workers with a majority (75.6%) being female and Caucasian, and the mean age was 51 years. The results of this study indicated a reliability coefficient of .94 for all 17 items, and the intrusion, avoidance, and arousal subscales each scored .79, .85, and .87 respectively. A confirmatory analysis was further carried out and indicated very high correlation between all subscales (Intrusion-Avoidance $r = .96$, Intrusion-Arousal $r = .96$, Avoidance-Arousal $r = 1.0$). The three-factor model also demonstrated a good model fit (GFI = *.88*, CFI = .92, and IFI = .92, RMSEA = .80), indicating acceptable fit to the data. The findings from this study by Ting et al. (2005) supported the findings of the three-factor structure of the STSS.

Beyond the American context, there have been other validations of the STSS such as the Italian version (Fumagalli et al., 2025), the French version (Jacobs et al., 2019), the Turkey version, the Urdu version (Mazhar & Zaman, 2022), and the Chinese version (He et al., 2022). For instance, Fumagalli et al (2025) evaluated the psychometric properties of the Italian version of the STSS (STSS-I) which was translated and validated by Setti and Argentero (2021). The STSS-I was reduced to two subscales (arousal & intrusion) during its validation process, reducing the items from the initial 17 to 15 items. The validation of the STSS-I by Fumagalli et al. (2025) was carried out among 94 midwifery bachelor students at the University of Milano. Cronbach's alpha and confirmatory factor analysis were used to study the reliability and structural validity of the STSS-I. All the

parameters which were evaluated demonstrated a good fit of the tested model (RMSEA= .079, CFI= .992 and TLI= .991). The Cronbach alpha for both subscales also indicated high reliability with the arousal scale reporting an alpha of *.90*, and *.84* for the intrusion subscale. The restructuring of the STSS-I from a three-model structure to a two-model structure suggests that the Italian version of the STSS is more attuned to the lived experiences of healthcare workers as it concerns STS.

Secondly, another validation study worthy to note is the Chinese validation of the STSS by He et al. (2022). The lack of a valid tool in measuring STS within the Chinese context led to the translation and validation process of the STSS. The first step of the validation process was translating the STSS into Chinese with the help of bilingual experts, guided by Brislin's intercultural translation model. Data was collected from 678 clinical nurses, and Principal factor analysis was employed in extracting factors and two factors were extracted: 10 stress items (items 1, 4, 5, 7, 8, 9, 11, 15, 16, 17), and 7 invasion and avoidance factors (2, 3, 6, 10, 12, 13, 14). Furthermore, a confirmatory factor analysis was carried out and it demonstrated a moderate to good fit. The incremental indices (CFI = .93, IFI = .93, TLI = .92) all indicated acceptable model fit, although the GFI (.84) and RMSEA (.069) indicated marginal fit. Generally, these statistics are in support of the 2-factor structure of the Chinese version of the STSS. The study also revealed that the Chinese STSS exhibited a Cronbach coefficient alpha of .96 indicating that the tool has good internal consistency.

The validation process of the Italian version of the STSS (Fumagalli et al., 2025) and the Chinese version (He et al., 2022) emphasizes the importance of cultural adaptations, and how this enhances the outcomes of psychometric assessments. In the Italian context, there was a reduction of two items bring the total items from 17 to 15, and the factor was restructured reducing it from three (intrusion, avoidance, and arousal) to two (arousal and intrusion) enhancing conceptual clarity in line with the cultural context. Also, the reliance on linguistic, multidisciplinary teams, and culture specific models in the Chinese validation process also highlights the dynamic nature of psychometric assessments where different cultural realities shape the experience and manifestation of STS.

4.2 Validation of the STSS in the African Context

The STSS has been increasingly applied across several African studies. However, despite several numerous validation efforts of the tool in the United States, Europe, and Asia, there remains a gap in the evaluation of the psychometric properties of the STSS within the African context. For Instance, a study by Mashego et al. (2023) in South Africa examined the association between coping strategies and STS among forensic social workers. The study utilized the original STSS tool by Bride et al. (2004) and reported the Cronbach alpha for all three subscales (intrusion .75, avoidance .90, and arousal .88). The reliability coefficient demonstrated good internal consistency. However, no structural or cultural validation of the tool was carried out.

Similarly, another study in Nigeria by Kwaghgbah et al. (2024) examined STS and psychological wellbeing among humanitarian health workers in the Northwestern part of the country. The original STSS tool as developed by Bride et al. (2004) was used in assessing STS among the study population. According to the authors, the STSS demonstrated high reliability, with Cronbach's alpha of .87 for the total scale and .78, .73, and .86 for intrusion, avoidance, and arousal subscales, respectively. These studies report that the tool exhibits good internal consistency and reliability although no validation was carried out to assess the tool's factorial and cultural suitability for the population tested.

4.3 Validation of the STSS in Kenya

Within the Kenyan context, there is a growing recognition about the mental health of those in the helping profession, especially since they encounter traumatic clients and incidents. As a result of this, there is an increasing interest in studying secondary traumatic stress among this population (Kariuki et al., 2023; Wambua et al., 2023; Muiga et al., 2024). Although the interest in studying the phenomena of STS is increasing, there remains a gap in the local validation or adaptation of the STSS in Kenya. A recent study by Adie et al. (2024) in Kenya examined the relationship between STS and social support among healthcare personnel. The study utilized the STSS tool in assessing the levels of STS and reported a Cronbach alpha coefficient of .91 showing high

internal reliability and consistency. While the internal reliability of the STSS was satisfactory in this study, there was no factorial or cultural validation of the tool.

Another recent study by Muchemi and King'ori (2025) examined the levels of STS among Judicial officers in the Rift Valley Region of Kenya. They utilized the SPSS tool in assessing the levels of STS and they reported a Cronbach alpha coefficient of *.88* for the entire scale, whereas the subscales had alpha scores of .72 (intrusion), .76 (avoidance), and .71 (arousal). These numbers also indicate that the internal consistency of the tool was high. Despite the rising interest in the concept of STS, very few published studies use the STSS within Kenya. Overall, the studies presented so far have reported high internal reliability of the STSS, the absence of confirmatory analysis for the tool raises concerns about the STSS construct validity within Kenya.

CRITIQUE OF THE APPLICATION OF STSS IN THE KENYAN CONTEXT

A review on the available studies within the African and Kenyan context reveals that many studies which have utilized the STSS have reported high internal reliability (Masson & Moodley, 2020; Kanyanta et al, 2023; Adie et al., 2024; Muchemi & King'ori, 2025), but there is a noticeable absence of structural and cultural validation of the STSS. None of the studies have examined if the original three-factor model as developed by Bride et al. (2004) fit the local population by carrying out confirmatory factor analysis (CFA) or factorial variance. Another concern worthy of note is that all studies mentioned above have used the original English version of the STSS without any consideration of cultural or linguistic adaptation as considered by other studies such as He et al. (2022) in China. This is concerning because conceptualization of trauma or emotional distress may vary across socio-cultural settings. Hence the use of the STSS in the African setting without validation raises concern about cultural sensitivity and construct validity of the findings of such studies since the expression of symptoms may differ contextually or linguistically.

Assessment tools such as the STSS need to exhibit cultural sensitivity by capturing relevant health constructs across different cultures (Alavi et al., 2025). Cultural perceptions of health differ across different communities and cultures and hence an assessment tool that is not in tune with this tends to measure something totally different than intended. For instance, some items in the STSS might not exactly capture how Kenyans express distress. Two items from the tool worth mentioning are item 1 which says, "I felt emotionally numb" and item 8 which says, "I felt jumpy". The terms *emotionally numb* and *jumpy* may be misinterpreted wrongly, because they are not common words used in the daily vocabulary of the people. Professionals in the psychological field are not only concerned about what is happening with a client, we are also trying to articulate the underlying meanings, beliefs, and cultural frameworks that influence how distress is experienced and expressed (Wright, 2024). Hence the validation of the STSS will better capture how people in the Kenyan context understand and express traumatic stress.

Another concern is that the theoretical development of the STSS is influenced by Figley's (1999) argument that those in the helping profession who consistently encounter people experiencing trauma may also face some "emotional disruptions", thereby making them also traumatized. The emotional understanding of distress is influenced by Western philosophy and hence might not sufficiently capture how distress is expressed in Kenya. For instance, a study in Kenya by Ferrajao et al., (2024) states that psychological distress such as trauma and anxiety are often manifested through somatic symptoms. Another study in Kenya by Mutiso et al. (2024) states that children easily identify somatic symptoms of diseases compared to emotional symptoms. These studies highlight how the somatic expression of distress is more prominent within the Kenyan population rather than the recognition of emotional distress. Hence the STSS which leans more towards the recognition of emotional distress might under-recognize trauma symptoms within the Kenyan population.

A further emphasis on culturally sound tools also takes into consideration the language in which the tools are presented. Swahili is a national language spoken throughout Kenya as an official language, yet the STSS has not been adapted to the common language of the people. Some studies within Kenya (Chongwo et al., 2018; Duffy et al., 2022; Tele et al., 2023) have translated and validated assessment tools which is remarkable. Many Kenyans express their distress in Swahili or their local dialects, and these expressions of stress, trauma, or emotions may not have direct English equivalent as captured in Western developed tools. Assessment tools which fail to account for linguistic and cultural diversity run the risk of producing inaccurate diagnosis which negatively impact

treatment outcomes (Makuvaza, 2024). Tools like the STSS which are not translated may not capture the intended meaning. Hence, the translation of such tools increases the validity and reliability of assessment tools, and it also makes the tools accessible to rural and low-literacy population within the country.

Another area worth of mention is the clinical utility of the STSS, where the current cut-off scores might not truly be accurate for the Kenyan population. Tele et al. (2023) emphasizes that assessment tools need to be culturally adapted and clinically validated in different local contexts in order to get appropriate prevalence estimates and diagnosis. Tools which lack local validation and rely on the cut-off scores set in other cultural contexts might provide wrong results and waters down the clinical utility of such tools (Fu et al., 2022). The cut-off scores of the STSS used in the Kenyan studies (Adie et al., 2024, Muchemi and King'ori, 2025) were based on the original scores set by Bride et al. (2004), thereby raising issues of accuracy of the results presented. A validation process of the STSS within Kenya will help determine the appropriate cut-off scores in accurately identifying the prevalence and severity of STS.

Lastly, ethical consideration plays an important role in the development and application of assessment tools. Wright et al. (2021) reiterates the stance of the APA and its insistence on the importance and necessity of training and educating psychologists in applying psychological assessments and seven guidelines are given which include theory, psychometrics, psychological assessment processes, test and method, professionalism, ethics and legal issues. Hence professionals who use assessment tools such as the STSS should be competent in the application of psychometric assessments. Psychologists and mental health practitioners should be adequately trained about the technicalities and interpretation of assessment tools. Anything short of this might lead to overlooking culturally specific expressions, inappropriate labelling and misinterpretation of results.

RECOMMENDATIONS FOR PSYCHOMETRICS IN KENYA

The field of psychology is witnessing a formidable growth within Kenya, with an increase in the research and assessment of psychological conditions. For this growth to be cemented, the practice needs to be built on evidence-based practices which produce accurate therapeutic outcomes, thereby building more confidence in the profession. Hence, there is a need for professionals, regulatory authorities, researchers, and learning institutions to give precedence to the development of indigenous assessment tools attuned to the Kenyan context.

Secondly, attention should be given to validating already existing tools, and it is worth noting that few tools have already been validated within the Kenyan context such as the Primary Care PTSD care (although these validated tools make up a tiny fraction). Hence, it is important for researchers and professionals to undertake validation efforts in order to ground the mental health and psychological field within Kenya on evidence-based practices.

Therapeutic assessment and interventions are necessary for those who are not conversant with the English language. Hence, current tools should not only be validated but should be translated into the local dialects which Kenyans use when expressing distress. This endeavour will foster inclusiveness and build a formidable health system within the country. To develop a culture of psychometric tool development and validation, psychometrics needs to be included and encouraged in counselling psychology training syllables and curricula of academic institutions. This training will set a solid foundation for professionals and will make them appreciate the importance of basing their practice on evidence-based solutions. By extension, regulatory bodies (Kenya Counselling and Psychologist Board; Kenya Counselling and Psychology Association etc) should develop policies and frameworks that ground psychological research and psychometric assessments in scientific and ethical rigour.

It is important to note that the development of psychometric assessment tools is resource intensive, and this could explain why this area is less explored within Kenya and Africa in general. Therefore, for this gap to be bridged, it is important for the ministry of education and research institutes to allocate funding to the development and validation of psychological psychometric assessment tools. This funding will serve as means of motivation to researchers who are passionate about embarking on such projects. Lastly, ongoing professional training and development and supervision are essential in ensuring the sustainability of psychometric development in Kenya.

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