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DEVELOPMENT OF A TRAUMA-SENSITIVE SCHOOL SCALE: VALIDITY AND RELIABILITY STUDY

Erhan BOZDEMİR
Teacher, Çanakkale Onsekiz Mart University, Education Faculty, Çanakkale, Turkey
ORCID: https://orcid.org/00009-0003-6886-0568
erhn.bozdemir@gmail.com

Nejat İRA
Prof. Dr. Çanakkale Onsekiz Mart University, Education Faculty, Çanakkale, Turkey
ORCID: https://orcid.org/0000-0002-2271-9353
nejat.ira@gmail.com

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Abstract

This study aims to develop a valid and reliable scale to measure teachers' and school administrators' perceptions of trauma-informed school practices at the secondary education level. Using a deductive scale development approach grounded in the trauma-informed school literature, an initial item pool consisting of 116 items was generated based on the six core principles identified by SAMHSA and related theoretical models. Following expert panel review and content validity analysis, the scale was reduced to 63 items and administered to 424 teachers and administrators working in public secondary schools in Çanakkale. After data screening, analyses were conducted using 398 valid responses. Confirmatory factor analysis supported a six-factor structure with acceptable model fit indices (χ^2/df = 2.63; RMSEA = .064). Internal consistency analyses indicated high reliability for both the overall scale (Cronbach's α = .97) and its subdimensions (α values ranging from .80 to .92). The findings demonstrate that the Trauma-Informed School Scale is a psychometrically sound instrument that can be used to assess trauma-informed practices in secondary schools. The scale may support future research, policy development, and professional development initiatives aimed at promoting trauma-informed school environments.

Keywords: Trauma-informed schools, scale development, confirmatory factor analysis, secondary education, teacher perceptions.

INTRODUCTION

Trauma, particularly when experienced during childhood, can have long-lasting effects on individuals' cognitive, emotional, and behavioral development. Schools are institutions where children spend a significant portion of their daily lives and where their developmental, social, and academic processes are shaped. For this reason, structuring the school ecosystem with trauma-informed knowledge has become a critical necessity that contributes not only to students' well-being but also to the well-being of teachers and families (SAMHSA, 2014). Supporting students who have experienced trauma constitutes a highly complex and multidimensional responsibility for school staff. Alisic's (2012) study reveals that teachers—particularly at the primary school level—often experience uncertainty regarding how to intervene with students following trauma. In that study, teachers reported receiving insufficient guidance from school administrators on balancing the needs of students who have experienced trauma with those of other students in the classroom; consequently, they emphasized the need for school principals to establish structures that enhance knowledge and skills related to post-trauma support (Alisic, 2012, p. 51). Given the increasing prevalence of trauma among children, the development of the Trauma-Informed Schools (TIS) approach, which can guide school personnel, has become an essential requirement. The literature highlights six core guiding principles for the effective implementation of this approach.

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The first core principle of trauma-informed schools is that school staff recognize childhood trauma and understand how trauma affects children's development and learning processes (Cole, Eisner, Gregory, & Ristuccia, 2013; SAMHSA, 2014). This responsibility is not limited to teachers and principals but encompasses all school personnel. Teachers' understanding of how trauma influences children's relationships with peers and adults plays a critical role in developing meaningful relationships with students. Similarly, recognizing the impact of these relationships on academic performance lies at the center of the trauma-informed school approach (SAMHSA, 2014).

The second guiding principle involves teachers' and administrators' ability to recognize signs and symptoms of trauma (SAMHSA, 2014). Because the effects of trauma can vary significantly depending on a child's age, developmental level, and gender, identifying trauma-related symptoms is often challenging. The context in which the trauma occurs (e.g., caregiver neglect or natural disasters) also shapes how children express their experiences. Therefore, school principals are expected to collaborate with district administrators to allocate time and resources that enable staff to receive training on recognizing trauma symptoms.

The third guiding principle emphasizes the necessity of establishing a holistic and responsive system within trauma-informed schools that considers four critical domains of functioning. These domains are defined as: (1) relationships with peers and adults (communication), (2) regulation of emotions, behavior, and attention (self-regulation), (3) academic and non-academic achievement (achievement), and (4) physical and emotional health (health) (Cole et al., 2013, p. 22). Scott (2016) notes that these four domains are closely interconnected and provide a structured framework that enables teachers and administrators to respond appropriately to all students (p. 53). Focusing solely on observable social or behavioral reactions may cause teachers to overlook students' internal and less visible trauma-related indicators.

Early intervention processes constitute an important component of school sensitivity to trauma. While traditional school structures have generally relied on crisis-oriented plans, the trauma-informed school approach enables schools to identify students who have experienced trauma beyond temporary stress at an early stage (Ko et al., 2008). Accordingly, developing intervention plans that conceptualize students' behaviors as reflections of trauma rather than intentional misconduct represents a key component of the trauma-informed approach (Scott, 2016). These plans include explicit and systematic instructional practices that help children recognize their emotions and understand emotional triggers (Hodas, 2006). In this context, early intervention serves as a preventive mechanism against reactive crisis management.

The fourth guiding principle involves the regular provision of meaningful collaboration opportunities among teachers. Ronfeldt, Farmer, McQueen, and Grissom (2015) demonstrate that well-structured collaborative practices significantly enhance teacher development in school settings (p. 498). Trust- and support-oriented working environments enable teachers to respond more effectively to students' needs (Day, 2014, p. 642). Cole et al. (2013) emphasize that time, shared planning, and collaboration are essential for sustaining school-wide trauma-informed practices (p. 79). Supporting students after trauma is not solely the responsibility of school counselors or social workers; rather, it is a shared responsibility of all school personnel, including principals.

The fifth guiding principle involves creating environments in which all students can feel physically, emotionally, socially, and academically safe. Cole et al. (2013) and SAMHSA (2013) indicate that a safe school climate forms the foundation for restorative and reasonable disciplinary processes. Academic safety is particularly important for sustaining learning processes, as students must be able to take learning risks without fear of making mistakes. Creating such a safe atmosphere depends largely on principals' development of fair and reasonable school procedures.

The sixth and final principle requires establishing strong and open communication channels among students affected by trauma, their families, and the school community (Cole et al., 2013, p. 63).

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Strengthening school–family collaboration helps parents feel valued and accepted within the school environment, which serves as an important source of support in both daily routines and crisis situations (Masten, Cutuli, Herbers, & Reed, 2009). When principals create mechanisms that allow families to safely share their knowledge and observations about their children, trust increases for both students and families (Cole et al., 2013). Teachers' collaboration with families can have a protective effect for students coping with challenging life experiences. Moreover, trauma-informed schools can strengthen the professional support capacity of the school ecosystem by developing policies that encourage collaboration with external professionals and stakeholders (Hodas, 2006). Within this framework, all staff members are expected to acknowledge the importance of establishing meaningful connections to ensure that students affected by trauma can access experiences of success.

Trauma undermines students' sense of safety, leading them to feel disconnected from their surroundings, a condition that often manifests as oppositional or defiant behaviors (Scott, 2016; Alisic, 2012). Children who have experienced trauma may display reactions such as anger, fear, or anxiety, and these behaviors may be mistakenly interpreted by adults as disciplinary problems (Ford, 2002). For this reason, it is a critical approach for school staff to recognize trauma and to interpret students' behaviors as indicators rather than as intentional misconduct. School leadership and staff should collaborate to create a safe environment that helps students cope with these behaviors. In addition, providing opportunities for students to practice their developing skills within appropriate contexts constitutes an important component of trauma-informed practices (Cole et al., 2013). Moreover, school personnel's efforts to establish a positive school climate provide essential support for the academic and social development of students who have experienced trauma (Wright, 2017). Teachers' implementation of consistent classroom rules, predictable structures, non-threatening and non-intimidating communication, and activities that strengthen safety-related skills are effective in building trauma-informed learning environments (Wright, 2017). Such approaches reduce students' emotional burden and increase their engagement in learning (Walkley & Cox, 2013).

Establishing a trauma-informed school requires a systematic transformation of the organization at the levels of policies, procedures, and practices (SAMHSA, 2014; Scott, 2016). As illustrated in Scott's (2016) model, addressing these three domains in an interconnected manner creates a sustainable structure that provides continuous support for the entire school community. The trauma-informed school approach has the potential to exert a protective effect, particularly for vulnerable students, by positively altering their life trajectories (McInerney & McKlindon, 2014). Therefore, it is expected that all school personnel develop a shared commitment to understanding the effects of trauma, ensuring student safety, supporting social relationships, and demonstrating consistency in intervention processes. The literature also emphasizes that school principals can assume important roles in embedding a trauma-informed school culture by engaging in coaching, modeling desired practices, and allocating time for teacher collaboration.

Overall, the literature indicates that trauma can have long-term negative effects on secondary school students across academic, emotional, and social domains and may even lead to neurobiological consequences that affect brain development (Perry, 2006; Van der Kolk, 2014). Research demonstrates that students who have experienced trauma face significant difficulties in attention, memory, executive functioning, and learning processes, which in turn negatively affect school achievement and classroom adjustment (Shonkoff et al., 2012; Perfect, Turley, Carlson, Yohanna, & Saint Gilles, 2016). In contrast, the Trauma-Informed Schools (TIS) approach offers a holistic framework that minimizes these effects and strengthens students' healthy development based on safety, belonging, and consistent support (Cole et al., 2013; Brunzell, Waters, & Stokes, 2016). Accordingly, the adoption of this approach by all school staff is emphasized as a necessity that not only enhances students' academic and social success but also strengthens school climate and community well-being (Bath, 2008; Blitz, Andersen, & Saastamoinen, 2016).

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In Türkiye, children face a heightened risk of exposure to traumatic experiences due to disasters, migration processes, socioeconomic inequalities, and societal stressors (Şimşek, Kocabaş, & Yalçın, 2021). Therefore, adapting the trauma-informed school approach to the national context represents both a current need and a developmental area aligned with international best practices. Addressing trauma-informed school principles holistically in relation to school climate, teacher attitudes, and school–family collaboration offers a sustainable structure that strengthens not only the safety, sense of belonging, and academic success of students who have experienced trauma, but also those of all students. Teachers are the stakeholders who most directly experience the effects of trauma within schools through their classroom observations, their capacity to evaluate students' emotional–behavioral patterns, and their daily interactions. Consequently, teachers' perspectives are of critical importance for

- assessing the school's level of trauma sensitivity,
- identifying challenges in practice,
- determining teachers' training and support needs, and
- guiding the development of school policies
  (Herman, Reinke, & Eddy, 2020; Eklund, Olinger Steeves, Kilpatrick, & Bailey, 2018).

Accordingly, this study, which is based on the perspectives of teachers working at the secondary education level, has the potential to make an original contribution to the existing body of knowledge and to guide both practice and policy development processes.

METHOD

Research Design

This study was conducted using a descriptive survey design. Descriptive survey designs are among the fundamental quantitative research approaches that aim to describe existing characteristics of a phenomenon, attitude, or situation as they naturally occur (Cohen, Manion, & Morrison, 2018). Accordingly, in this study, a questionnaire was administered to administrators and teachers working in public secondary schools to determine their perceptions regarding the subdimensions of trauma sensitivity and to examine whether these perceptions differ significantly according to staff position (principal, vice principal, teacher) and various personal and demographic variables. The literature emphasizes that descriptive survey designs allow for the systematic analysis of current conditions based on data obtained from large samples (McMillan & Schumacher, 2010).

Population and Sample

The population of this study consists of administrators and teachers working in secondary education institutions located in the province and districts of Çanakkale, Türkiye. As of the 2024–2025 academic year, administrators and teachers employed in public secondary schools in Çanakkale were defined as the study population. Numerical data related to the population were obtained through the databases of the Turkish Statistical Institute (TÜİK) and the Ministry of National Education Information Systems (MEBBİS). A stratified sampling method was employed to determine the sample. In order to classify the 12 districts of Çanakkale into more homogeneous sub-strata, the "Socio-Economic Development Index of Districts (SEGE)" study conducted by the General Directorate of Development Agencies (KAGM, 2022) was used as a reference. According to this classification, the districts of Çanakkale are categorized into four levels based on their level of development (KAGM, 2022). In determining the sample size, commonly accepted criteria in quantitative research were taken into account. Following the guidelines proposed by Tabachnick and Fidell (2007), a sample size of 100 is considered "poor," 200 "fair," 300 "good," 500 "very good," and 1,000 or more "excellent." Proportional stratified sampling was used in selecting the sample. In this method, the number of participants selected from each stratum is determined proportionally (at

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least 30%) based on the size of the stratum within the population, thereby increasing the representativeness of the sample.
Within this framework, the sample size for each stratum was calculated using the formula
nh = (Nh / N) × n**,**
ensuring that each stratum was included in the sample in proportion to its weight in the population (Kish, 1965; Groves et al., 2009).

Where:
nh = number of participants selected from stratum *h*
Nh = population size of stratum *h*
N = total population size
n = total sample size

Example:
nh = (838 / 2355) × 424 = 134 (Central District)

Table 1. Distribution of the Sample in Secondary Education Institutions in Çanakkale Province

Level	District	Number of Schools (Population)	Number of Teachers (Population)	Number of Teachers (Sample)	Questionnaires Distributed	Collected/Cleaned Forms
I	Central	17	838	134	256	150 / 118
	Bozcaada	1	14	0	0	0
	Biga	10	355	66	130	115 / 102
II	Gelibolu	7	198	40	60	50 / 44
	Gökçeada	3	53	0	0	0
	Ezine	4	107	26	50	40 / 32
	Çan	8	208	42	80	70 / 44
III	Lâpseki	3	93	0	0	0
	Ayvacık	7	142	32	75	60 / 49
	Eceabat	1	25	0	0	0
IV	Bayramiç	4	118	30	60	45 / 35
	Yenice	4	111	0	0	0
Total	**12 Districts**	**69**	**2355**	**370**	**761**	**530 / 424**

As shown in Table 1, the study population consists of 69 secondary education institutions and a total of 2,355 administrators and teachers. At the district level, the sample included the Central District (50%) from Level I; Biga and Gelibolu (66%) from Level II; Ayvacık, Çan, and Ezine (80%) from Level III; and Bayramiç (50%) from Level IV. Based on the formula above, the sample distribution was determined as follows: Central District (134), Biga (66), Gelibolu (40), Ezine (26), Çan (42), Ayvacık (32), and Bayramiç (30).

In addition, according to the literature, it is assumed that a sample size at least five times the number of scale items (5 × 74 = 370) is sufficient for representation (Tavşancıl, 2010). To account for potential data loss during analysis (e.g., outliers, missing or invalid responses), it was targeted to collect approximately 15% more data than the minimum required sample size. Accordingly, a total of 761 questionnaires were distributed, 530 were returned, and 424 were deemed valid and included in the analysis.

Demographic characteristics of participants
The demographic characteristics of the 424 participants included in the study are summarized below. The largest age group consisted of participants aged 41–50 (41.04%), followed by those aged 31–40 (28.77%) and 51 years and above (24.53%). The 21–30 age group constituted the smallest proportion (5.66%). Overall, the sample was predominantly composed of middle-aged and older participants,

suggesting that age may be a relevant factor in variables related to professional experience. In terms of marital status, the majority of participants were married (83.02%), while 16.98% were single. Regarding gender distribution, males (58.73%) were more represented than females (41.27%), indicating a relatively balanced distribution. In terms of teaching fields, verbal subjects (39.62%) and vocational subjects (34.91%) had the highest representation, whereas artistic/physical subjects (5.90%) constituted the least represented group. With respect to educational attainment, participants holding a bachelor's degree (75.71%) outnumbered those with postgraduate degrees (24.29%). In terms of professional seniority, participants with 21 years or more of experience formed the largest group (45.05%), while those with five years or less constituted the smallest proportion (6.84%). This dominance of experienced teachers suggests that the sample is suitable for examining the effects of seniority. Regarding tenure at the current school, participants with 0–5 years of service constituted the largest group (49.76%), whereas those with 21 years or more accounted for only 9.67%. In terms of school type, vocational high schools were the most represented (67.92%), while social science and science high schools accounted for a relatively small proportion (4.48%). At the district level, the Central District (27.83%) and Biga (24.06%) were the most represented, whereas Ezine (7.55%) and Bayramiç (8.25%) had lower representation.

Data Collection Instruments

In this study, a personal information form developed by the researcher and the Trauma-Informed School Scale, also developed by the researcher, were used as data collection instruments.

Scale Development Process

The personal information form was developed by the researcher in accordance with the purpose of the study and consists of nine (9) items designed to identify the demographic characteristics of secondary school administrators and teachers included in the study group. These characteristics include age, gender, marital status, teaching field, educational attainment, professional seniority, length of service at the current school, type of high school, and district of employment. In this study, the Trauma-Informed School Scale**,** developed by the researcher and consisting of a total of 74 items, was used. The scale was developed to determine the perceptions of teachers working in public high schools regarding the concept of trauma sensitivity. Karasar (2009) identifies the fundamental steps to be followed in the scale development process and emphasizes that validity and reliability studies constitute the core components of this process. Although various types of validity are discussed in the literature, content validity and construct validity are reported to be the most frequently employed forms of validity in scale development studies (Erişen, 2001; Güleş, 2013; Akgül, 2017). Based on these common principles and adopting a deductive approach, a comprehensive model of the scale development process followed in this study was established. This model included obtaining expert opinions to ensure content validity and conducting confirmatory factor analyses to establish construct validity. When a scale is grounded in a well-defined theoretical framework and there is strong prior knowledge regarding which items load onto which factors, researchers may directly employ Confirmatory Factor Analysis (CFA) without the necessity of Exploratory Factor Analysis (EFA) (Kline, 2016). For this reason, CFA was directly applied in the present study. In addition, internal consistency analyses were conducted to ensure the reliability of the items, and following the necessary revisions, the scale was finalized for implementation. All normality and reliability analyses were conducted using IBM SPSS 25, while Confirmatory Factor Analysis was performed using IBM AMOS 26**.**

Development of the Item Pool

The deductive approach was preferred in this study because the trauma-informed school (TIS) framework has been theoretically well established in the international literature and is structured around clearly defined principles, dimensions, and implementation models. Strong theoretical frameworks—such as Bath's (2008) *three pillars* model, SAMHSA's (2014) trauma-informed school framework, Brunzell et al.'s (2016) school-based trauma-informed model, and Scott's (2016) work examining the relationship between school policies, procedures, and practices and the six guiding

principles of trauma-informed schools—make it both possible and necessary to derive conceptual dimensions directly from theory when developing a scale. Accordingly, the deductive approach facilitates the development of items and dimensions based on existing theoretical foundations, thereby enhancing the conceptual coherence and theoretical validity of the scale (DeVellis & Thorpe, 2021). In structures where the theoretical framework is clearly defined in advance, the deductive method provides a more systematic item development process that strengthens construct validity. In this study, the six guiding principles identified for trauma-informed schools constitute the dimensions of the scale. Furthermore, the items comprising these dimensions were developed based on school policies, procedures, and practices (Ministry of National Education [MoNE], 2019).
The principles defined as scale dimensions are as follows:

- Principle 1: Instructional staff understand how childhood trauma may affect students' learning (Dimension 1).
- Principle 2: Instructional staff recognize the signs and symptoms of trauma (Dimension 2).
- Principle 3: Trauma-Informed Schools maintain a responsive school climate that addresses the following four core domains of functioning (Dimension 3):
    1. Relationships with peers and adults (communication),
    2. Self-regulation of behavior, emotions, and attention (self-regulation),
    3. Achievement in academic and non-academic domains (achievement),
    4. Physical and psychosocial well-being (health).
- Principle 4: A team-based approach is adopted at the school level for all students before, during, and after crises or traumatic events, and responsibility is shared among all staff (Dimension 4).
- Principle 5: School environments support all students in feeling physically, socially, emotionally, and academically safe (Dimension 5).
- Principle 6: Open connections are established among students exposed to trauma, their families, and school staff (Dimension 6).

Before writing the scale items, documents and practices related to crisis management within the Turkish education system were examined. Fieldwork was conducted and interviews were held with experts working at the Çanakkale Guidance and Research Center regarding implemented curricula. Following these consultations, feedback on the drafted items was obtained and incorporated. Accordingly, while the subdimensions were derived from international research, the items were developed based on the crisis management curricula implemented in the schools where the study was conducted. Drawing on both theoretical frameworks and practice-based data in the development of the Trauma-Informed School Scale strengthens the content and construct validity of the measurement instrument. While the theoretical foundation ensures the scientific definition of core dimensions such as safe school climate, relational trust, regulation skills, and understanding trauma responses (Brunzell et al., 2016; Cole et al., 2013), practice-based data reveal context-specific behavioral patterns and needs encountered by teachers in daily classroom interactions. In this way, the items not only reflect trauma-informed principles defined in the literature but also become meaningful and functional within real school settings (Tay & Jebb, 2017). Based on these sources, an initial item pool consisting of 116 items was generated.

Expert Review / Panel

The draft version of the scale was distributed for expert review to a total of 15 individuals, including 11 faculty members conducting research in the fields of guidance and counseling and educational administration and supervision at various universities (5 Professors, 1 Associate Professor, and 5

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Assistant Professors), as well as 4 guidance and psychological counseling teachers working at Guidance and Research Centers affiliated with the Ministry of National Education.

According to researchers, obtaining objective results in calculations related to content validity is directly dependent on both the number and the qualifications of the experts involved. In this context, it is recommended that the number of experts included in content validity studies range from a minimum of 5 to a maximum of 40 (Ayre & Scally, 2014; Lawshe, 1975). In the present study, the content validity process was conducted based on the Lawshe technique (1975). Accordingly, a three-point evaluation form consisting of the options "Essential," "Needs Revision," and "Should Be Removed**"** was sent to the experts in order to obtain their judgments regarding each item. The experts were asked to evaluate each item in terms of content validity and to mark the option they considered appropriate. In addition, space was provided between items to allow experts to suggest revisions or provide written feedback for each item. The Content Validity Ratio (CVR) is an item-level statistic based on content validity that reflects expert judgments regarding whether an item should be retained in the scale. CVR values are calculated using the formula proposed by Lawshe (1975).

$$KGO = \frac{Nu - N \div 2}{N \div 2}$$

Based on the evaluations obtained from the 15 experts consulted in this study, the critical **Content Validity Ratio (CVR)** required for an item to be retained in the scale was determined to be **.600 or higher** (Ayre & Scally, 2014). Items with CVR values below this threshold were considered insufficient in terms of content validity and were therefore deemed appropriate for removal from the scale. Accordingly, the **Content Validity Index (CVI)** was calculated by taking the arithmetic mean of the CVR values of the items that were decided to be retained in the scale. In other words, the CVI represents an overall indicator reflecting the scale's content validity based on expert judgments regarding the appropriateness of the retained items (Lawshe, 1975).

$$\text{KGİ} = \frac{\text{Toplam KGO}}{\text{Madde Sayısı}}$$

Following expert evaluations, CVR values were calculated for each item and assessed against the critical value. As a result of this evaluation, a total of 42 items (M1, M3, M6, M7, M8, M16, M18, M20, M21, M22, M23, M25, M27, M30, M31, M32, M33, M34, M37, M39, M41, M44, M47, M50, M62, M74, M75, M77, M78, M81, M87, M91, M92, M93, M97, M100, M102, M105, M106, M109, M113, M114) were removed from the scale because their CVR values fell below the critical threshold (.600).

Among the remaining items, 11 items (M4, M40, M45, M53, M55, M57, M64, M67, M102, M104, M107) met the critical CVR value (.600); however, because a considerable number of experts (three experts) recommended their removal, these items were discussed during the expert panel meeting and ultimately removed from the scale based on consensus. Conversely, some items (M83, M108) did not reach the critical CVR value (.467), but because a significant number of experts (three experts) recommended revision rather than removal, these items were revised by the panelists and retained in the scale. Additionally, several items (M15, M19, M24, M49, M85, M86) were revised in terms of wording and clarity following panel discussions.

After these revisions, expert panel members also indicated that certain items would be more appropriately represented under different dimensions than initially assigned. The changes made based on panel recommendations are summarized below:

- Item M9 was initially categorized under Dimension 1 but was reassigned to Dimension 2 following expert panel feedback.
- Item M10 was moved from Dimension 1 to Dimension 3.

- Item M11 was reassigned from Dimension 1 to Dimension 4.
- Item M26 was moved from Dimension 2 to Dimension 4.
- Item M38 was reassigned from Dimension 3 to Dimension 1.

In addition, the overall Content Validity Index (CVI) of the scale was calculated as .749 and compared with the critical CVR value. Since the CVI (.749) exceeded the critical CVR threshold (.600), this finding indicates that the retained items demonstrate statistically adequate and meaningful content validity (Lawshe, 1975; Yeşilyurt & Çapraz, 2018).

Furthermore, the expert panel reached a unanimous agreement regarding the appropriateness of the predefined six-dimensional theoretical structure of the scale and the use of a five-point Likert-type response format ranging from *(1) Strongly Disagree* to *(5) Strongly Agree*. As a result of incorporating expert feedback and panel decisions, the initial item pool of 116 items was reduced to 63 items, and the draft scale was finalized and deemed ready for administration to the study sample.

RESULTS

Construct Validity and Reliability Analysis

Normality test of the trauma-ınformed school scale

Prior to conducting the Confirmatory Factor Analysis (CFA), the distribution of the scores obtained from the Trauma-Informed School Scale was examined to determine whether the assumption of normality required for multivariate analyses was met. Within this scope, descriptive statistics, skewness and kurtosis coefficients, and distribution graphs were evaluated collectively.

Before the normality analysis, skewness and kurtosis values were examined at the item level using the ±2 criterion. It was found that the kurtosis values of several items (M37 = 2.306, M52 = 2.041, M59 = 2.047, M63 = 2.151, M73 = 2.707, M74 = 2.551) exceeded the +2 threshold. Although the skewness values of these items were within acceptable limits (±2), the elevated kurtosis coefficients indicated a leptokurtic distribution.

The maximum likelihood (ML) estimation method, which is commonly used in CFA, requires that variables approximate a normal distribution at least at the univariate level. Excessive kurtosis may lead to biased parameter estimates and inaccurate standard errors (Kline, 2016; Hair et al., 2019). High kurtosis suggests that a large proportion of participants selected similar response categories, thereby reducing item variance and weakening the item's ability to discriminate between different levels of the measured construct (DeVellis, 2017). Removing items that violate normality assumptions contributes to more stable factor loadings, improved fit indices, and more reliable error variances in CFA results (Brown, 2015; Tabachnick & Fidell, 2019). Based on these considerations, items M37, M52, M59, M63, M73, and M74 were removed from the scale prior to CFA. Consequently, CFA was conducted using 57 items**.**

Following the removal of 26 outliers identified during the normality assessment, the analyses were carried out with 398 valid cases**.** According to the descriptive statistics, the mean score of the scale was calculated as 3.91, the median as 3.95, and the 5% trimmed mean as 3.93. The close proximity of these measures of central tendency indicates that the distribution approximates symmetry (Tabachnick & Fidell, 2019). The standard deviation of 0.58 suggests that the scores are moderately dispersed around the mean, while the narrow 95% confidence interval supports the reliability of the sample mean.

The skewness coefficient was found to be −0.624 and the kurtosis coefficient 0.541. These values fall within the ±1 range, indicating no substantial deviation from normality (George & Mallery, 2010). Moreover, the ratios of skewness and kurtosis values to their respective standard errors did not exceed ±2, further supporting the assumption of normality (Hair, Black, Babin, & Anderson, 2019). Examination of the histogram revealed that the observed score distribution closely aligned with the

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normal distribution curve and exhibited a unimodal structure. The minimum (1.96) and maximum (5.00) values fell within the theoretical limits of the scale, indicating that extreme values did not pose a threat to the normality assumption.

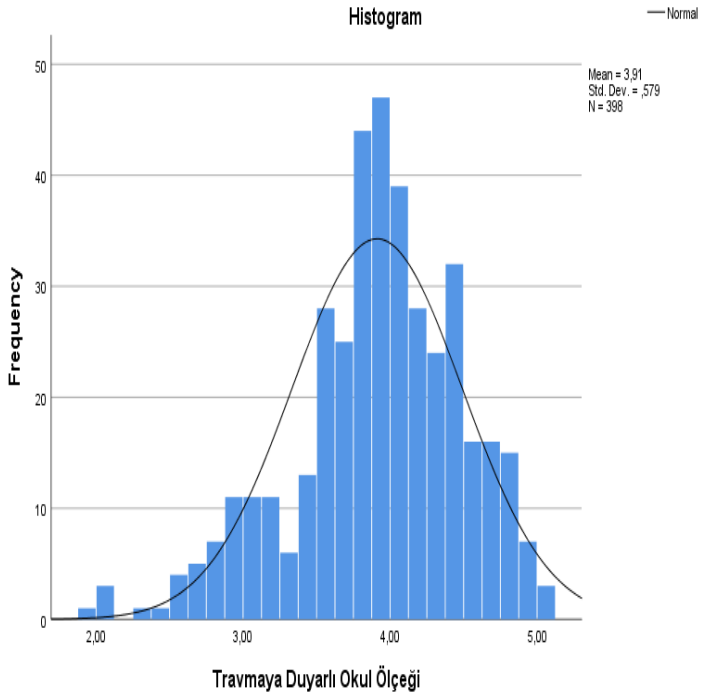

Figure 1. Descriptives and histogram graph.

Considering the sample size (N = 398), the minor deviations in skewness and kurtosis were not deemed problematic for CFA. Based on the central limit theorem, the data were considered sufficiently normal for multivariate analyses (Field, 2018). Accordingly, it was concluded that the data obtained from the Trauma-Informed School Scale satisfied the normality assumption required for CFA, and the use of parametric statistical methods was deemed appropriate.

Confirmatory factor analysis (CFA) of the trauma-ınformed school scale

This analysis was conducted to confirm the factor structure of the scale, test its construct validity, and evaluate the statistical usability of the measurement model, particularly in scale development studies. Decisions regarding the adequacy of model–data fit were based on fit indices obtained from CFA.

The model analyzed in Figure 2 was constructed within a predefined multidimensional theoretical framework based on the trauma-informed school literature. This indicates that the factor structure was theory-driven rather than data-driven, aligning with the theory-confirming function of CFA (Brown, 2015). The majority of items exhibited factor loadings of .70 or higher, suggesting that the items meaningfully represent their respective latent constructs. Although some items had factor loadings approaching 1.00, this was considered a statistical limitation rather than a systematic issue across the model (Kline, 2016). Similarly, low error variances observed in a limited number of items were not deemed sufficient to compromise the overall integrity of the factor structure.

Moderate inter-factor correlations within theoretically expected ranges support the notion that trauma-informed school constructs are related yet distinct dimensions (Hair et al., 2019).

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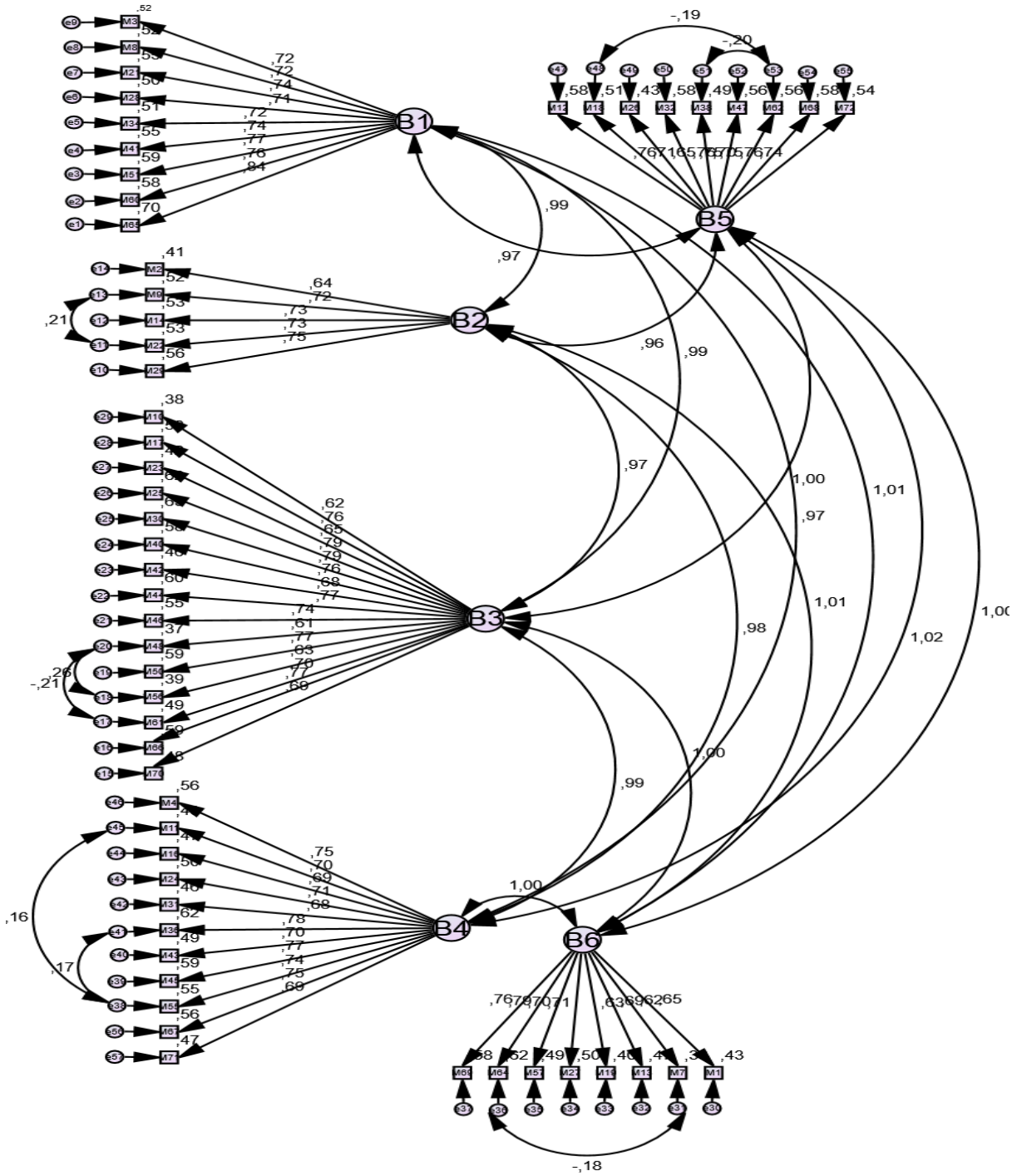

CMIN=3993,229; DF=1516; CMIN/DF=2,634; RMSEA=,064; CFI=,838; GFI=,722

Figure 2. Confirmatory factor analysis results of the trauma-informed school scale.

Overall, CFA results indicated that the model demonstrated generally acceptable fit. However, some fit indices (GFI = 0.697, AGFI = 0.585, CFI = 0.720, NFI = 0.645, NNFI/TLI = 0.745, RFI = 0.644, IFI = 0.730) did not meet recommended criteria. Based on modification indices, model modifications were applied to improve fit by reducing model–data discrepancies (Kline, 2016). After these modifications, the model was reanalyzed, and improved fit values were obtained, as presented in Table 2.

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Table 2. Goodness-of-Fit Indices of the Trauma-Informed School Scale (CFA)

Index	Model Value	Excellent Fit	Acceptable Fit	Interpretation
X2	3993.229			
Sd	1516			
P değeri	.00			
X2/sd	2.634	X2/sd≤3	3<X2/sd≤8	Excellent fit
RMSEA	.064	0≤RMSEA≤.05	.05<RMSEA≤.08	Acceptable Fit
GFI	.722	.95 ≤GFI ≤ 1.00	.90 ≤ GFI< .95	Acceptable
AGFI	.697	.90 ≤ AGFI ≤ 1.00	.85≤ AGFI < .90	
CFI	.838	.97 ≤ CFI ≤ 1.00	.95≤ CFI <.97	Acceptable
NFI	.763	.95 ≤ NFI ≤ 1.00	.90 ≤ NFI < .95	Acceptable
NNFI(TLI)	.829	.97 ≤ NNFI(TLI) ≤1.00	.90≤NNFI(TLI)<.95	Acceptable
RFI	.751	.95 ≤ RFI ≤ 1.00	.90 ≤ RFI < .95	Acceptable
IFI	.839	.95 ≤ IFI ≤ 1.00	.90 ≤ IFI < .95	Acceptable
PNFI	.725	.95 ≤ PNFI ≤ 1.00	.50 ≤ PNFI < .95	Acceptable Fit
PGFI	.662	.95 ≤ PGFI ≤ 1.00	.50 ≤ PGFI < .95	Acceptable Fit

As shown in Table 2, the CFA results indicate that the tested measurement model demonstrates an overall acceptable level of fit. Although the chi-square statistic was significant (χ^2 = 3993.229; df = 1516; p < .05), this is common in large samples and is not considered sufficient grounds for model rejection on its own (Kline, 2016; Schermelleh-Engel et al., 2003).

The χ^2/df ratio of 2.634 meets the recommended ≤3 criterion, indicating excellent model fit (Carmines & McIver, 1981; Kline, 2016). The RMSEA value of 0.064 falls within the acceptable fit range (.05–.08) (Browne & Cudeck, 1993; Hu & Bentler, 1999).

Although GFI and AGFI values were below ideal thresholds, these indices are known to produce lower values in models with many items and complex multidimensional structures and should not be used as sole decision criteria (Sharma et al., 2005; Schermelleh-Engel et al., 2003).

Incremental fit indices (CFI, NFI, NNFI/TLI, RFI, IFI) did not meet excellent fit criteria; however, values above .80 are considered acceptable in scale development and theory-driven models (Bentler, 1990; Marsh et al., 2004). Parsimony fit indices PNFI (0.725) and PGFI (0.662) exceeded the .50 threshold, indicating an appropriate balance between model fit and complexity (Mulaik et al., 1989).

Overall, although the model did not demonstrate perfect fit across all indices, it represents a valid measurement model that adequately reflects the theoretical structure and is suitable for use within the scope of the study.

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Reliability analysis of the trauma-ınformed school scale

Table 3. Reliability Analysis of the Trauma-Informed School Scale (Post-CFA)

Scale Dimensions	N	Cronbach's Alpha	Standardized Alpha	Number of Items
Dimension 1		.898	.899	9
Dimension 2		.804	.807	5
Dimension 3		.924	.926	15
Dimension 4	398	.907	.907	11
Dimension 5		.894	.895	9
Dimension 6		.852	.852	8
Total Scale		.979	.980	57

Table 3 presents the reliability coefficients of the Trauma-Informed School Scale and its subdimensions following CFA. Cronbach's alpha values for all subdimensions exceeded .80, indicating high internal consistency.

Specifically, Cronbach's alpha coefficients were .898 for Dimension 1, .804 for Dimension 2, .924 for Dimension 3, .907 for Dimension 4, .894 for Dimension 5, and .852 for Dimension 6. All values are well above the commonly accepted .70 threshold, demonstrating reliable measurement across dimensions (Nunnally & Bernstein, 1994).

The overall Cronbach's alpha for the scale was .979 (standardized alpha = .980), indicating very high internal consistency. The close similarity between standardized and unstandardized alpha values suggests balanced item variances and strong measurement consistency. These reliability findings confirm that the Trauma-Informed School Scale is a highly reliable measurement instrument both at the dimensional level and as a whole.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

The primary aim of this study was to develop a valid and reliable measurement instrument capable of assessing the perceptions of administrators and teachers working in secondary education institutions regarding trauma-informed school practices. The findings indicate that the theoretically grounded six-factor structure of the Trauma-Informed School Scale (TISS) is largely supported through confirmatory factor analysis (CFA) and reliability analyses.

Although the CFA results did not demonstrate perfect model fit across all fit indices, the χ^2/df ratio and RMSEA values were within acceptable limits. Considering that the chi-square statistic is highly sensitive to sample size and is often found to be significant in large samples (Kline, 2016; Schermelleh-Engel et al., 2003), relying solely on this index for model rejection would be inappropriate. Therefore, the evaluation of model fit based on alternative fit indices represents a more appropriate approach. In this respect, the findings are consistent with the literature indicating that theoretically predefined, multidimensional measurement models often yield relatively conservative fit indices in CFA applications (Marsh, Hau, & Wen, 2004; Brown, 2015).

The strong correspondence between the six-factor structure of the scale and the core principles of trauma-informed schools described by SAMHSA (2014), Cole et al. (2013), Bath (2008), and Brunzell, Waters, and Stokes (2016) constitutes an important indicator supporting construct validity. In particular, the strong factor loadings observed in the dimensions related to *understanding the impact of trauma on learning*, *recognizing trauma-related symptoms*, and *creating a safe school climate* suggest that teachers conceptualize trauma not merely as an individual student issue, but as a

phenomenon influencing the school as a whole. This finding aligns with studies emphasizing that the trauma-informed school approach requires a school-wide and systemic transformation rather than isolated interventions (Scott, 2016; McInerney & McKlindon, 2014).

The reliability analyses revealed that all subscales demonstrated Cronbach's alpha coefficients above .80, and that the overall scale exhibited a very high internal consistency coefficient (.979). These results indicate that the instrument has a high level of internal consistency (Nunnally & Bernstein, 1994). However, an alpha coefficient exceeding .95 may also suggest potential conceptual overlap or redundancy among items (DeVellis, 2017). In the present study, the high reliability coefficient can be attributed to the comprehensive and multidimensional nature of the trauma-informed school construct, as well as to the theoretical coherence of the items clustered under a common higher-order framework. Similar findings reporting high internal consistency have been documented in trauma- and school climate-related measurement instruments in the literature (Blitz et al., 2016; Herman et al., 2020).

The deductive scale development approach employed in this study enhanced the conceptual coherence of the instrument by grounding it in a robust theoretical framework. The clear articulation of trauma-informed school principles prior to item development enabled precise alignment between items and their respective dimensions (DeVellis & Thorpe, 2021). Moreover, incorporating crisis management practices specific to the Turkish educational context and obtaining expert feedback from Guidance and Research Center (RAM) professionals strengthened the cultural and contextual validity of the scale (Tay & Jebb, 2017).

Finally, the finding that teachers' and administrators' perceptions of trauma-informed school practices were generally at a moderate to high level suggests that awareness of the trauma-informed school approach is gradually increasing within the Turkish context. Nevertheless, the literature consistently emphasizes that transforming awareness into effective practice requires systematic teacher training, supportive school policies, and strong institutional support mechanisms (Eklund et al., 2018; Herman et al., 2020).

The Trauma-Informed School Scale developed within the scope of this study can be considered a valid and reliable measurement instrument designed to assess the perceptions of administrators and teachers working in secondary education institutions regarding trauma-informed school practices. The findings obtained from the confirmatory factor analysis and reliability analyses indicate that the six-factor theoretical structure of the scale is largely validated and that its measurement power is high.

The trauma-informed school approach offers a holistic perspective that aims not only to support students who have experienced trauma but also to create a safe, inclusive, and supportive school climate for all students (SAMHSA, 2014; Cole et al., 2013). In this context, the developed scale has the potential to determine schools' current levels of trauma sensitivity, identify strengths and areas in need of improvement, and provide data-driven contributions to policy development processes.

Based on the findings of the study, the following recommendations are offered:

1. In terms of practice, the Trauma-Informed School Scale may be used by school administrators, guidance and counseling services, and provincial/district directorates of national education as a tool for evaluating school climate.
2. In terms of policy development, data obtained from the scale may guide the design and content of in-service teacher training programs.
3. In terms of research, it is recommended that the scale be administered across different provinces, school types, and educational levels to re-examine its construct validity.
4. In terms of further development, considering the high internal consistency values, future studies may focus on developing a shorter version (short form) of the scale.

At this stage, the present study makes a significant contribution to the limited body of quantitative research on the trauma-informed school approach in Türkiye. The Trauma-Informed School Scale, developed based on teachers' perceptions, emerges as a robust instrument that can be effectively utilized in both academic research and educational practice. Given the impact of trauma on students' academic and psychosocial development, the dissemination of trauma-informed school practices and the development of scientific tools capable of measuring this approach have become an increasingly critical necessity for education systems.

Ethics and Conflict of Interest
All the rules in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed in this study. None of the actions specified in the second section of the relevant directive titled "Actions Contrary to Scientific Research and Publication Ethics" were taken. The authors declare that they acted in accordance with ethical rules in all processes of the research. The authors declare that they have no conflict of interest.

Author Contribution
All authors contributed equally to the research.

Data availability
The data that support the findings of this study are available on request from the corresponding author.

Corresponding Author
Correspondence to Erhan BOZDEMİR, erhn.bozdemir@gmail.com

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