




BASIC RESEARCH ARTICLE



The perceived burden of working with traumatized youth: construction and psychometric investigation of the Trauma Professionals' Burden Scale (TPBS)

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ABSTRACT

Background: It is assumed that providing trauma-informed care for children and adolescents is a major challenge for professionals in child and youth welfare, psychiatric clinics and psychotherapy practices, yet studies are scarce. This is partly due to the fact that valid instruments that capture the specific stress caused by working with traumatized youths are missing. Our study aims to present the construction and results of the psychometric investigation of a scale that addresses the concerns, strains and needs of professionals, the Trauma Professionals' Burden Scale (TPBS).

Methods: In our cross-sectional survey with youth psychotherapists, welfare professionals and psychiatric care staff ($N = 834$), the psychometric properties of the TPBS were examined using standard item and reliability analyses, exploratory factor analysis and confirmatory factor analysis (CFA). Convergent validity was assessed by testing the hypothesis that two TPBS subscales show high positive correlations with two established scales.

Results: After deletion of eleven items, the remaining items of the TPBS show good discriminatory power, allowing to discriminate between participants with high or low scores, and high factor loadings. CFA results indicate fair model fit ($RMSEA = .081$, $CFI = .81$). Internal consistencies of the subscales range from $\omega = .76$ to $\omega = .89$. The expected correlations with the established scales are confirmed. A six-item short scale was created, showing excellent model fit ($RMSEA = .047$, $CFI = .99$) and good internal consistency ($\omega = .88$).

Conclusions: Although further validating research is required, the present study supports the psychometric validity of the TPBS enabling to assess professionals' stress associated with providing trauma-informed care for youth.

La carga percibida de trabajar con jóvenes traumatizados: construcción e investigación psicométrica de la Escala de Carga de los Profesionales del Trauma (TPBS)

Antecedentes: Se supone que brindar atención informada sobre el trauma a niños y adolescentes es un desafío importante para los profesionales en bienestar infantil y juvenil, clínicas psiquiátricas y prácticas de psicoterapia, pero los estudios son escasos. Esto se debe en parte al hecho de que faltan instrumentos válidos que capturen el estrés específico que provoca trabajar con jóvenes traumatizados. Nuestro estudio tiene como objetivo presentar la construcción y los resultados de la investigación psicométrica de una escala que aborda las preocupaciones, tensiones y necesidades de los profesionales, la Escala de Carga de los Profesionales del Trauma (TPBS por sus siglas en inglés).

Métodos: En nuestra encuesta transversal con psicoterapeutas juveniles, profesionales de bienestar social y personal de atención psiquiátrica ($N = 834$), se examinaron las propiedades psicométricas de la TPBS utilizando análisis de ítems y confiabilidad estándar, análisis factorial exploratorio y análisis factorial confirmatorio (CFA por sus siglas en inglés). La validez convergente se evaluó probando la hipótesis de que dos subescalas de la TPBS muestran correlaciones positivas altas con dos escalas establecidas.

Resultados: Después de la eliminación de once ítems, los ítems restantes de la TPBS muestran un buen poder discriminatorio, lo que permite discriminar entre participantes con puntuaciones altas o bajas y cargas factoriales altas. Los resultados del CFA indican un ajuste aceptable del modelo ($RMSEA = .081$, $CFI = .81$). Las consistencias internas de las subescalas varían de $\omega = .76$ a $\omega = .89$. Se confirman las correlaciones esperadas con las escalas establecidas. Se creó una escala corta de seis ítems, que muestra un ajuste excelente del modelo ($RMSEA = .047$, $CFI = .99$) y una buena consistencia interna ($\omega = .88$).

Conclusiones: Aunque se requiere más investigación de validación, el presente estudio respalda la validez psicométrica de la TPBS, lo que permite evaluar el estrés de los profesionales asociado con la prestación de atención informada sobre el trauma para jóvenes.

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Estrés profesional; estrés
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atención de salud mental;
construcción de escalas

HIGHLIGHTS

- We present a scale that captures specific concerns, strains and consequences of stress as well as structural needs of professionals working with traumatized youth is presented, the Trauma Professionals' Burden Scale (TPBS).
- A pragmatic short scale, the Professionals' Burden Short Scale (PBSS), allows the assessment of professionals' stress levels with six items.
- The results of our cross-sectional survey with professionals of mental health and youth welfare care confirm good psychometric properties.

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Many children and adolescents experience traumatic events such as physical, emotional or sexual violence or the experience of humanitarian or natural disasters. Prevalence rates according to representative surveys in German-speaking countries range from 21.4% to 56.1% of adolescents and young adults having experienced at least one traumatic event (Landolt et al., 2013; Perkonig et al., 2000). In the following, affected children and adolescents have a greater risk for developing mental disorders such as posttraumatic stress disorders (PTSD) (Alisic et al., 2014), depression (Vibhakar et al., 2019), and externalizing disorders (Carliner et al., 2017).

Providing trauma-informed care for children and adolescents is a major challenge for professionals from different disciplines. Among the different professions, three are highly relevant in the German mental health care system: (1) employees in residential child and youth welfare, (2) child and adolescent psychiatric care staff, including nurses and social workers, and (3) psychotherapists and psychiatrists providing trauma-specific mental health care. These professionals are confronted with the traumatic events of the youth for example when screening for adverse events in order to provide specific help or by conducting trauma-focused therapy. In addition, they have to deal with the often challenging behaviour of the children and adolescents. It is therefore not surprising that there are repeated reports of a severe strain on professionals working with traumatized children and adolescents (Armes et al., 2020; Beck, 2011; Hensel et al., 2015), although previous research results are rather inconsistent. In a sample of German psychotherapists, ratings on secondary traumatic stress, i.e. the development of PTSD symptoms in people who are close to trauma-affected individuals, were comparably low (Lups et al., 2012). Among pedagogical professionals working in child and youth welfare facilities in Switzerland, on the other hand, 7% reported symptoms of secondary trauma symptoms above a cut off and in 13% these symptoms lasted longer than four weeks (Steinlin et al., 2015). It is relevant to identify risk and protective factors for professionals' stress related to working with traumatized children and adolescents, in order to derive possible adjustments for prevention (Hensel et al., 2015). These might exist at a personal, structural, or organizational level, and could explain potential differences between professional groups. However, studies with representative samples in German-speaking countries and a prospective design are lacking.

Another highly relevant aspect that has constrained research efforts to date is the lack of reliable and valid instruments. Until now, no questionnaire exists that captures the specific challenges (e.g. concerns and strains), the associated burden and structural needs of professionals working with traumatized children

and adolescents. For this reason, we aim to present the construction and psychometric investigation of a scale that addresses the concerns, strains and needs of professionals, the *Trauma Professionals' Burden Scale* (TPBS). In addition to the extensive and multidimensional TPBS, we aim to create a pragmatic short scale assessing professionals' burden, the *Professionals' Burden Short Scale* (PBSS), based on the results of the item analyses.

We hypothesize that the results of our cross-sectional online survey indicate good psychometric properties of the TPBS and PBSS, including good discriminatory power and reliability. We assume that the TPBS is multidimensional with separable subscales assessing professionals' concerns, strains and consequences of stress, while at the same time there is an underlying common factor of total stress. The PBSS, on the other hand, is supposed to be unidimensional. Lastly, we hypothesize that the TPBS subscale assessing the consequences of stress and the total stress scale as well as the PBSS show high positive correlations with the General Health Questionnaire (GHQ-12) as well as the Professional Quality of Life (ProQoL) subscales assessing secondary traumatic stress and burnout. We hope that with the help of our scale, future research studies can contribute to the identification of burdened professionals as well as risk and protective factors of professional stress. Results of such investigations might inform prevention and intervention strategies.

1. Methods

1.1. Scale construction

The scale on concerns, strains and needs of professionals working with traumatized children and adolescents (*Trauma Professionals' Burden Scale*, TPBS) was drafted from the results of a qualitative interview study with youth psychotherapists, youth welfare professionals and psychiatric care staff ($N = 30$). A separate manuscript on the results of the qualitative study is in preparation (van der Meer et al., 2025a). Interview transcripts were analysed using qualitative content analysis (Kuckartz, 2012). Based on the resulting main and sub categories, the TPBS were created in a consensus meeting by two authors (KS, ASvdM). By means of this, the frequency of professionals' references to the categories was considered. The first version of the scale was then reviewed by a group of German clinical psychologists and researchers ($n = 26$) as well as a graduate linguist (HC) for comprehensibility and wording. Their revisions were discussed and considered by the authors in a second consensus meeting, resulting in a final version of the scale for psychometric investigation.

1.2. Ethics

The cross-sectional online survey study was approved by the Internal Review Board of Philipps University Marburg (approval number: 2021-90k). Participants received study information and provided written informed consent before they were able to access the survey. Data were collected anonymously. All raw data were stored securely at the Department of Clinical Child and Adolescent Psychology at Philipps University in Marburg, Germany.

1.3. Participants

Individuals were eligible to participate in the study if they belong to one of three professional groups:

- (1) Licensed psychotherapists and psychiatrists for children and adolescents as well as psychotherapists and psychiatrists enrolled in postgraduate training to obtain such a license, in brief referred to as *youth psychotherapists* or YP;
- (2) Pedagogical or psychological staff of residential child and youth welfare services, in brief referred to as *youth welfare professionals* or YWP;
- (3) Staff in inpatient child and adolescent clinics, including nurses and social workers, in brief referred to as *psychiatric care staff* or PCS.

No exclusion criteria were applied. Further information on the recruited sample are reported below.

1.4. Procedure

Data were collected from 23 March 2022 to 14 October 2022 via an openly accessible online survey, using the scientific survey platform SoSci Survey (www.soscisurvey.de). The link was widely distributed via e-mail lists of professional organizations, universities, training institutes, and psychiatric in- and outpatient institutions as well as social media. On the first page of the survey, potential participants received study information and were required to provide informed consent before they were able to proceed with the survey.

1.5. Instruments

Demographics and information on training and profession. Participants provided standard demographic information and professional information (e.g. educational degree, current occupation).

Trauma Professionals' Burden Scale (TPBS). Trauma professionals' concerns, strains and needs when working with traumatized children and adolescents were assessed with the created TPBS. It is not presumed that the children have a diagnosed trauma

disorder, instead, the encounter with traumatic events is judged by the professionals. The scale comprised a total of 39 items at first. These items comprise three subscales (items 1 to 11 *Concerns*, items 12 to 21 *Strains*, items 22 to 33 *Consequences*) and a separate scale *Needs* (items 34 to 39). The three subscales were created to comprise facets of professional stress: One subscale of 11 items refers to the professionals' *concerns* or fears (e.g. 'With regard to traumatized children and adolescents that you work with, to what extent do you fear that they are agitated by triggers?', '(...) that the children and adolescents attempt suicide?'). One subscale of 10 items refers to the professionals' *strains* (e.g. 'To what extent does it burden you when the children and adolescents show verbal violence, e.g. through insults?', '(...) when children and adolescents return to violent environments?'). Another subscale of 12 items assesses the *consequences* of professional stress that respondents have experienced in the past (e.g. 'When experiencing a high level of stress in the past, to what extent have you experienced severe difficulties sleeping?', '(...) experienced a higher level of inner restlessness?'). A second-order subscale *Total stress* can be calculated by creating the mean of the scores of the subscales *Concerns*, *Strains* and *Consequences*.

A separate subscale of 6 items refers to the professionals' *needs* and wishes (e.g. 'To what extent have you experienced the need with regard to traumatized children and adolescents for more supervision?', '(...) for more trauma-specific training?'). Respondents are asked to rate their agreement with statements on a 5-point Likert scale ranging from 0 ('not at all') to 4 ('to a very great extent'). Instead of calculating an overall score, this subscale is intended to evaluate the individual items in terms of content.

All items are worded in such a way that a higher score indicates a greater agreement with the stated concerns, strains and needs. After all subscales, respondents could report additional or alternative concerns, strains, consequences of stress and needs.

The 12-Item General Health Questionnaire (GHQ-12). The GHQ-12 is a brief instrument assessing mental distress (Goldberg & Williams, 1991). Respondents are asked to answer 12 questions with regard to the past weeks (e.g. 'Have you slept less in recent weeks due to worries?') using a 4-point Likert scale ranging from 1 ('not at all') to 4 ('much worse than usual'). In the present study, the German version by Linden et al. (1996) was used. The internal consistency in the current sample was good ($\omega = .87$).

Professional Quality of Life (ProQoL). The ProQoL is a widely used measure on the negative and positive effects of helping others who experience suffering and trauma (Stamm, 2010). Respondents are asked to rate their agreement with statements with regard to the past 30 days (e.g. 'I feel depressed

because of the traumatic experiences of the people I help') using a 5-point Likert scale ranging from 1 ('never') to 5 ('very often'). Three subscales can be created with sum scores of 10 items each: Compassion satisfaction (i.e. pleasure derived from helping others), burnout (i.e. negative effects of caring like hopelessness), and secondary traumatic stress (i.e. negative effects due to secondary exposure to stressful or traumatic events). Higher scores on the compassion satisfaction subscale indicate more positive feelings, while higher scores on the burnout and secondary traumatic stress subscales indicate higher burden. When calculating the burnout subscale, five items are scored in the reserve. In the present study, the German version was used (Gräßer et al., 2016). The internal consistency of the current sample was good ($\omega = .89$) for the compassion satisfaction subscale, adequate for the burnout subscale ($\omega = .75$) after exclusion of one item ('I am a very caring person') and adequate for the secondary traumatic stress subscale ($\omega = .79$).

1.6. Statistical analysis

The statistical analyses were performed using IBM SPSS 28 for Windows (Chicago, IL, U.S.A.) and R version 4.2.3 with R packages lavaan (Rosseel, 2012), lavaanPlot (Lishinski, 2021) GPArrotation (Bernaards & Jennrich, 2005), EFA.dimensions (O'Connor, 2023), and psych (Revelle, 2023). P values $< .05$ were set as thresholds for statistical significance in all analyses. In case of missing data on the relevant scale, respondents were excluded from the analyses of factorial validity.

To assess suitability of data for factor analysis, the Kaiser–Meyer–Olkin (KMO) test of sampling adequacy (Cerny & Kaiser, 1977) and Bartlett's test of sphericity (Bartlett, 1950) were conducted and both indicated suitability ($KMO = .872$, $\chi^2 = 2542.95$, $df = 435$, $p < .001$). Significant results of the Mardia's test statistics for multivariate skewness and kurtosis (Mardia & Foster, 1983) indicated multivariate normality deviation, leading to the use of robust estimation methods.

Standard item analyses were calculated. Item difficulties were calculated by dividing the sum of all participants' scores on an item by the maximum possible score, resulting in p_i between 0 and 1 (Dahl, 1971). Medium values of $0.20 < p_i < 0.80$ are regarded as ideal as they allow the optimal differentiation between participants (Moosbrugger & Kelava, 2020). The item discrimination index expresses how well one item discriminates between participants with high or low scores on the subscales. It is calculated as a correlation and can range between -1 and 1 . Values between $0.4 < r_{itc} < 0.7$ are regarded as good (Moosbrugger & Kelava, 2020). We decided to exclude items with r_{itc}

< 0.4 from all further analyses. Moreover, we extracted six items with the highest r_{itc} to create a pragmatic short scale to assess professionals' burden. This procedure was chosen to create a scale that allows the identification of those professionals experiencing the most occupational stress.

To assess construct validity, the factorial validity of the TPBS second-order subscale *Total stress* with the subscales *Concerns*, *Strains* and *Consequences* and the pragmatic short scale were examined by conducting an exploratory factor analysis (EFA), followed by a confirmatory factor analysis (CFA). The sample was randomly split into a sample of 200 for the EFA and a sample of 346 for the CFA. No differences were found between the split samples regarding age, gender, professional group or means on the TPBS subscales. To determine the number of components for the EFA, parallel analysis and Velicer's MAP test (O'Connor, 2000) were conducted and the results compared. Both parallel analysis and the original MAP test recommended the extraction of three factors. Three components were extracted using principal axis factoring analysis with promax correlated factors rotation method. Items with cross-loadings or factor loadings < 0.4 were excluded from further analysis.

Subsequently, a CFA was conducted with the other sample ($n = 346$) to test and compare the model fits of an independent cluster model of CFA (ICM-CFA), a second-order CFA, a bi-factor CFA, and a bi-factor exploratory structural equation modelling (ESEM). Maximum likelihood estimations with robust standard errors were used. As fit indices, the ratio of χ^2 to df (acceptable fit: < 2 or 3), the root mean square error of approximation (RMSEA, $< .06$ to $.08$ with confidence interval), the standardized root mean squared residual (SRMR, $\leq .08$), and the comparative fit index (CFI, $\geq .95$) were assessed (Schreiber et al., 2006). The Akaike Information Criterion (AIC) was computed for model comparison.

Omega ω (McDonald, 1999) was calculated to assess internal reliability coefficients of the scales and subscales using the total sample. Values should ideally be greater than 0.8 (Cheung et al., 2024). Pearson correlations were used to assess correlations between scales and subscales. According to Cohen's classification (Cohen, 1988), $r = .50$ indicates high, $r = .30$ medium and $r = .10$ low correlation effect sizes. To assess the convergent validity of the TPBS, the following hypothesis was tested by calculating Pearson correlation coefficients: the TPBS subscale *Consequences* shows high positive associations with the GHQ-12, and with the ProQoL subscales burnout and secondary traumatic stress. This holds true for the second-order subscale *Total stress* (total mean of all items of the subscales *Concerns*, *Strains* and *Consequences*).

2. Results

2.1. Participants

The link to the online survey was clicked 2.726 times. Overall, 898 participants read the study information. A total of 871 participants continued after informed consent. Of these, 836 met the inclusion criteria (profession). Two participants were excluded due to implausible answers (for example being 2 years old). Of the remaining 834 participants, 198 did not provide sociodemographic information, but were retained for data analysis. Of the participants that provided sufficient information on sociodemographic information ($n = 636$), 513 reported their gender to be female (80.7%), 114 (17.9%) male, 3 (0.4%) diverse, 6 (0.7%) chose to not disclose their gender. The age ranged from 20 to 73 years ($M = 40.42$, $SD = 12.22$). Roughly half of the sample (55.1%) stated working in the child and youth welfare system (YWP), followed by 29.7% working as youth psychotherapists (YP), and 15.1% working as psychiatric care staff (PCS). Further information on the samples' demographic information by professional group is presented in Table 1.

2.2. Item analysis

Detailed information on all item analyses is found in Table 2. Difficulties of all initially used items of the subscale *Concerns* ranged between $p_i = .30$ (items 8 and 9) and $p_i = .70$ (item 6). The mean inter-item correlation was $r = .283$. Values of the item discrimination index ranged from $r_{itc} = .393$ (item 6) to $r_{itc} = .534$ (item 10). Item 6 was excluded from further analysis due to insufficient discriminatory power. Item difficulties of the subscale *Strains* ranged between $p_i = .28$ (item 18) and $p_i = .71$ (item 12). Values of the item discrimination index ranged from $r_{itc} = .402$ (item 21) to $r_{itc} = .579$ (item 19). Item difficulties of the subscale *Consequences* ranged between $p_i = .11$ (item 31) and $p_i = .48$ (item 32). Values of the item discrimination index ranged from $r_{itc} = .339$ (item 31) to $r_{itc} = .737$ (item 30). Item 23 and item 31 were excluded from further analysis due to insufficient discrimination power.

A separate and pragmatic six-item *Professionals' Burden Short Scale* (PBSS) was created comprising the items with the most sufficient discriminatory power, namely items 25, 26, 27, 28, 30 and 33. All these items belong to the *Consequences* subscale, so the PBSS provides a pragmatic way of measuring professional stress.

Regarding the separate subscale *Needs*, the item difficulties ranged between $p_i = .53$ (item 3) and $p_i = .76$ (item 5). The mean inter-item correlation was $r = .432$. The item-total correlations of the individual

items with the subscale ranged from $r_{itc} = .532$ (item 6) to $r_{itc} = .617$ (item 4).

2.3. Factorial validity

EFA. The rotated factor pattern matrix can be found in the Supplemental Material 1. The three-factor solution explained overall 39.1% of the variance. The first factor ('Concerns') explained 10.4% of the variance. After exclusion of item 7 due to a loading $< .40$, 8 items (all from the original *Concerns* subscale) load on this factor with loadings ranging from .47 to .71. Item 11 was excluded due to the highest loading on the third factor. The second factor ('Strains') explained 10.0% of the variance. After exclusion of items 15, 18 and 21 due to loadings $< .40$, 7 items (all from the original *Strains* subscale) load on this factor with loadings ranging from .40 to .74. The third factor ('Consequences') explained 18.7% of the variance. After exclusion of items 22, 24 and 32 due to a loading $< .40$, 7 items (all from the original *Consequences* subscale) load on this factor with loadings ranging from .63 to .89. The final instrument after item reduction during item analysis and EFA can be found in Supplemental Material 2 (German version) and Supplemental Material 3 (English version).

The six items of the *Professionals' Burden Short Scale* (PBSS) all load on one factor that explain 59.1% of the variance. Item loadings range from .65 to .82.

CFA. The model fits for both the ICM-CFA and Second-Order CFA were fair; $\chi^2 = 675.52$, $df = 206$, $\chi^2/df = 3.28$, $p < .001$, RMSEA [90% CI] = .081 [.075; .088], SRMR = .075, CFI = .81. The variance-covariance matrices of the estimated parameters for the bifactorial CFA and ESEM were not positive definite, probably indicating non-identified models. Diagrams of the identified models with standardized regression coefficients can be found in Figures 1 and 2.

Regarding the PBSS, the model fit indices for the ICM-CFA indicate excellent fit; $\chi^2 = 17.88$, $df = 9$, $\chi^2/df = 1.98$, $p = .037$, RMSEA [90% CI] = .047 [.011; .078], SRMR = .021, CFI = .99.

2.4. Subscale reliability and correlations

The reduced TPBS subscales showed acceptable to good internal consistencies in the total sample of $\omega = .76$ (*Concerns*, 8 items), $\omega = .77$ (*Strains*, 7 items), $\omega = .89$ (*Consequences*, 7 items). A good internal consistency of $\omega = .88$ emerged for the items of the higher-order scale that comprise these subscales (*Total stress*, 22 items). This holds true for the short scale PBSS with $\omega = .88$ and for the separate subscale *Needs* with $\omega = .80$.

Pearson correlation coefficients between the TPBS subscales are presented in Table 3. All subscale

Table 1. Samples' demographic information.

Demographic information	Total (n = 636)	YP (n = 195)	YWP (n = 341)	PCS (n = 99)
Gender				
Female (%)	513 (80.7)	159 (81.5)	285 (83.6)	69 (69.0)
Male (%)	114 (17.9)	33 (16.9)	52 (15.2)	29 (29.0)
Diverse (%)	3 (0.4)	0	2 (0.6)	1 (1.0)
No answer (%)	6 (0.9)	3 (1.5)	2 (0.6)	1 (1.0)
Age				
Mean (SD)	40.42 (12.22)	45.53 (11.65)	37.25 (11.40)	41.25 (12.61)

Notes: YP: Youth psychotherapists. YWP: Youth welfare professionals. PCS: Psychiatric care staff.

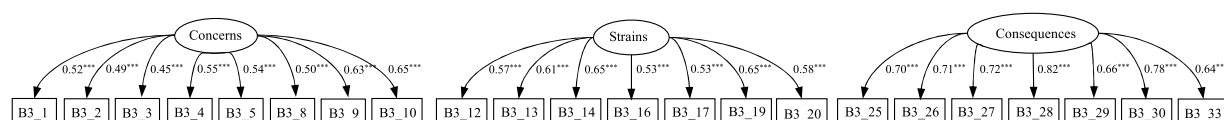
Table 2. Item analyses of the TPBS.

Item	M (SD)	p_i	r_{itc} subscale	ω_{subscale} if deleted	valid n
Subscale Concerns					
1 Agitated by triggers	3.31 (0.97)	.58	.451	.79	580
2 Aggressive behaviour	2.26 (0.90)	.32	.483	.79	580
3 Will never recover	2.87 (1.01)	.47	.503	.79	579
4 Self harming behaviour	3.28 (1.00)	.57	.493	.79	579
5 Suicidal behaviour	2.99 (0.98)	.50	.462	.80	579
(6) Inadequate support at home	3.80 (0.99)	.70	.393	.80	580
(7) Difficulties with caregivers	2.75 (0.91)	.44	.458	.79	578
8 No sustainable relationship	2.18 (0.92)	.30	.467	.79	580
9 Trigger by touching	2.21 (0.96)	.30	.508	.79	579
10 Burden by addressing trauma	2.63 (0.94)	.41	.534	.78	580
(11) One's own burden	2.53 (0.99)	.38	.476	.79	580
Subscale Strains					
12 Go back to violent homes	3.82 (0.91)	.71	.521	.80	560
13 Verbal aggressive behaviour	2.35 (0.86)	.34	.509	.80	560
14 Physical aggressive behaviour	3.22 (1.01)	.56	.537	.80	558
(15) Confronted with trauma	2.57 (0.84)	.39	.533	.80	560
16 High demands caregivers	3.13 (0.99)	.53	.487	.80	559
17 Caregivers are perpetrators	3.64 (1.09)	.66	.535	.80	559
(18) Reminded of own experiences	2.11 (0.94)	.28	.420	.81	560
19 Feel highly responsible	2.86 (1.02)	.47	.579	.79	560
20 Inadequate support or care	3.76 (0.89)	.69	.553	.80	560
(21) Other professional's behaviours	3.77 (0.96)	.69	.402	.81	560
Subscale Consequences of stress					
(22) Dissociation	1.86 (1.02)	.22	.416	.89	559
(23) Worries about own children	1.88 (0.99)	.22	.368	.89	559
(24) Feeling helpless	2.71 (1.00)	.43	.496	.89	560
25 Increased irritability	2.55 (1.03)	.39	.708	.88	559
26 Problems with sleeping	2.31 (1.17)	.33	.688	.88	559
27 Need for social withdrawal	2.63 (1.22)	.41	.687	.87	559
28 Decreased concentration	2.21 (1.10)	.30	.727	.87	559
29 Reduced job motivation	2.23 (1.17)	.31	.619	.88	559
30 Feeling restless	2.48 (1.14)	.37	.737	.87	559
(31) Drink more alcohol	1.42 (0.81)	.11	.339	.89	559
(32) Think about children at leisure	2.90 (1.09)	.48	.534	.88	559
33 Somatic symptoms	1.98 (1.12)	.25	.632	.88	559
Separate Subscale Needs					
1 Trauma-specific education	3.58 (1.11)	.65	.585	.79	554
2 Strategies to reduce burden	3.32 (1.20)	.58	.605	.79	554
3 Supervision	3.13 (1.21)	.53	.583	.79	554
4 Interdisciplinary cooperation	3.72 (1.15)	.68	.617	.78	554
5 Better structural conditions	4.05 (1.17)	.76	.587	.79	554
6 More qualified colleagues	3.59 (1.23)	.65	.532	.80	554

Notes: p_i : Item Difficulty. r_{itc} : Corrected item-whole correlation. TPBS: Trauma Professionals' Burden Scale.

correlations were significant and medium to high. The highest correlation was found between the second-order subscale *Total stress* and the subscale *Consequences* ($r = .836$, $p < .001$), the lowest between *Concerns* and *Consequences* ($r = .366$, $p < .001$).

The separate subscale *Needs* showed medium to high correlation coefficients with the second-order subscale *Total stress* ($r = .488$), the subscale *Concerns* ($r = .356$), *Strains* ($r = .369$), and *Consequences* ($r = .348$), all $p < .001$. The Pragmatic Burden Short Scale showed

**Figure 1.** Model diagram: ICM-CFA.

Notes: Standardized regression coefficients are shown.

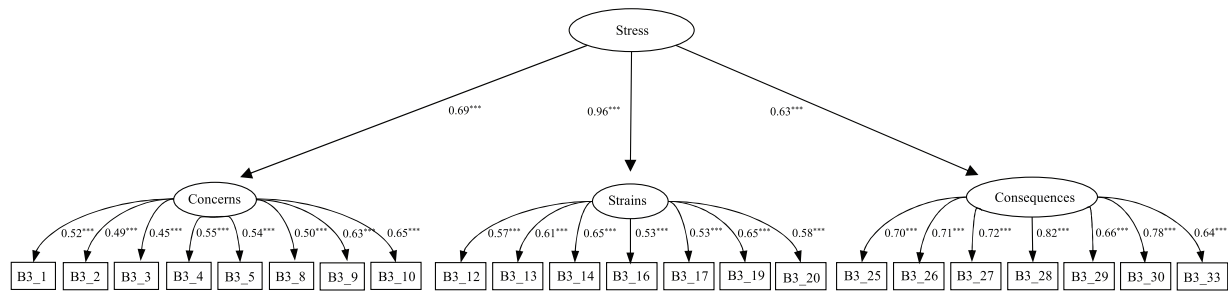


Figure 2. Model diagram: Second-order CFA. Notes: Standardized regression coefficients are shown.

Table 3. Pearson correlations of TPBS subscales, GHQ-12 and ProQoL.

	2	3	4	5	6	7	8	9	10
1 TPBS Total Stress	.722**	.784**	.836**	.488**	.833**	.494**	-.243**	.579**	.641**
2 TPBS Concerns	–	.446**	.366**	.456**	.363**	.233**	-.168**	.316**	.359**
3 TPBS Strains		–	.461**	.369**	.470**	.301**	-.075**	.333**	.442**
4 TPBS Consequences			–	.348**	.989**	.559**	-.292**	.637**	.650**
5 TPBS Needs				–	.344**	.291**	-.051**	.304**	.304**
6 Pragmatic Burden Short Scale					–	.547**	-.242**	.614**	.651**
7 GHQ-12						–	-.347**	.673**	.543**
8 ProQoL Compassion satisfaction							–	-.595**	-.258**
9 ProQoL Burnout								–	.668**
10 ProQoL Secondary traumatic stress									–

Notes: $n = 522-546$. TPBS: Trauma Professionals' Burden Scale. GHQ-12: General Health Questionnaire. ProQoL: Professional Quality of Life.

* $p < .05$. ** $p < .001$.

medium to high correlation coefficients with the second-order subscale *Total stress* ($r = .833$), the subscale *Concerns* ($r = .363$), *Strains* ($r = .470$), and *Consequences* ($r = .989$), all $p < .001$.

2.5. Convergent validity

As expected, significant high positive associations of the TPBS subscale *Consequences* were found with the GHQ-12 ($r = .559$, $p < .001$) as well as the ProQoL subscales burnout ($r = .637$, $p < .001$) and secondary traumatic stress ($r = .650$, $p < .001$, see Table 3). High positive correlation coefficients emerged between the TPBS second-order subscale *Total stress* and the GHQ-12 ($r = .494$), and the ProQoL subscales burnout ($r = .579$) and secondary traumatic stress ($r = .641$), all $p < .001$.

This holds true for the short scale PBSS: Significant high positive associations of the PBSS were found with the GHQ-12 ($r = .547$) as well as the ProQoL subscales burnout ($r = .614$) and secondary traumatic stress ($r = .651$), all $p < .001$.

3. Discussion

The present study reports on the construction of the Trauma Professionals' Burden Scale (TPBS) based on qualitative interviews with youth psychotherapists, youth welfare professionals and psychiatric care staff. The TPBS comprises three subscales assessing different facets of professional stress associated with working with traumatized youth, namely concerns, strains and consequences of stress. In addition, a separate subscale

allows the assessment of professionals' needs and wishes, e.g. structural conditions that they perceive in need of change. Our study examined the scales' psychometric properties in a cross-sectional survey in a sample of German mental health and social care staff.

Item analyses included the calculation of item difficulties and the item discrimination indices. Based on the results, three items with insufficient discriminatory power were excluded in order to optimize the TPBS. All other items allowed ideal differentiating between respondents. Cross-loadings or low factor loadings that were identified by the EFA led to the exclusion of further eight items from the scale. The remaining 22 items of the final scale show high factor loadings on their respective subscales. Moreover, the results of our study indicate potential factorial validity with fair model fit for a ICM-CFA and a second-order CFA. With acceptable to good internal consistencies, reliability of the subscales and total scale can be assumed. Lastly, convergent validity is supported by confirming the expected high positive correlations between both the TPBS subscale *Consequences* and the TPBS second-order subscale *Total stress* and the GHQ-12 as well as the ProQoL subscales burnout and secondary traumatic stress. All in all, the three subscales assessing facets of professional stress and the second-order subscale *Total stress* show good psychometric properties.

Based on the item analyses, a pragmatic short scale with six items that assess professionals' burden was created, named *Professionals' Burden Short Scale* (PBSS). The PBSS shows high factor loadings and excellent model fit, good internal consistency and high positive associations with the GHQ-12 and with

the ProQoL subscales burnout and secondary traumatic stress, indicating convergent validity. The use of the TPBS is particularly suitable for the detailed assessment of professionals' experiences of concerns and fears, burden and desired improvements of structural conditions, for example in the context of quality management processes. The PBSS, on the other hand, is suitable as a screening instrument that allows the identification of those professionals that show particular high levels of occupational stress.

Until now, few studies examine the specific burden of professionals associated with providing trauma-informed care for children and adolescents (Lups et al., 2012; Steinlin et al., 2015). Such studies are important to identify risk and protective factors for professionals' stress (Hensel et al., 2015) and derive potential conclusions about the identification of burdened professionals as well as potential prevention and intervention strategies. For this reason, we hope that our instrument can make an important contribution to future research efforts. A separate manuscript on the results of our study in terms of professionals' reported concerns, strains and needs as well as differences between the professional groups is in preparation (van der Meer et al., 2025b). In addition, we used an adapted version of the TPBS to assess the burden and needs of school personnel when dealing with traumatized pupils. Hereby, we aim to inform about the views of different stakeholders on potential adjustments at a personal, structural, or organizational level in order to prevent professional stress and optimize trauma-informed care for children and adolescents in Germany.

Limitations. When interpreting the results of our study, some limitations should be considered. First, we report on a convenience sample which may not be representative of all professionals of their respective professional group. Moreover, the sample is self-selected and might thus be particularly interested in the subject. Future studies should aim to recruit more representative samples. Second, the bifactorial CFA and the ESEM models did not converge. Moreover, we were unable to assess the measurement invariance between groups based on their gender and professional group as the models did not converge. Studies with larger sample sizes may be able to extend our analyses in the future, as recommended by Goretzko et al. (2021). Third, to investigate the convergent validity of the TPBS, we employed the widely used ProQoL. However, the German translation of this scale has not yet been psychometrically tested. In view of the results regarding internal consistency in the present sample, further analyses should be conducted, for example on the scale's factorial validity. Lastly, it should be taken into account that the measurement of the consequences of professional stress does not exclusively refer to the burden of

working with traumatized youth and does not have a time anchor.

4. Conclusion

In order to provide the best possible care for traumatized children and adolescents, professionals should not be excessively strained. It is therefore important to assess the stress levels, stress factors and needs of professionals from different disciplines. The TPBS is a psychometrically strong measure assessing different facets of professionals' stress associated with providing trauma-informed care for children and adolescents, including concerns or fears, strains and consequences of stress. As a short scale, the PBSS enables a particularly pragmatic assessment of the stress level, and thus allows the low-threshold use of the instrument. Additionally, needs or wishes of professionals, e.g. at a structural or organizational level, can be assessed with a separate subscale. Although further validating research is required, the present study confirms good psychometric properties for the scales in an online recruited convenience sample of youth psychotherapists, youth welfare professionals and psychiatric care staff.

List of abbreviations

AIC	Akaike information criterion
CFA	Confirmatory factor analysis
CFI	Comparative fit index
EFA	Exploratory factor analysis
ESEM	Exploratory Structural Equation Modelling
GHQ-12	12-Item General Health Questionnaire
ICM	Independent Cluster Model
PCS	Psychiatric care staff
ProQoL	Professional Quality of Life
RMSEA	Root mean square error of approximation
TPBS	Trauma Professionals' Burden Scale
PBSS	Professionals' Burden Short Scale
SRMR	Standardized root mean residual
YP	Youth psychotherapists
YWP	Youth welfare professionals

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Authors' contributions

KS and ASvdM designed the study. KS and ASvdM created the interview questions, scale and online questionnaire. HC provided feedback on the items of the scale. JF conducted the interviews and collected the data of the online survey. ASvdM analysed the qualitative data, KS analysed the quantitative data and drafted the manuscript. ASvdM, HC and JF commented on the initial draft and critically revised it. All authors have read and approved the final version of the manuscript.

Ethics approval and consent to participate

The study was approved by the Internal Review Board of Philipps University Marburg (approval number: 2021-90k). Participants received study information and provided informed consent. Data were collected anonymously.

Data availability statement

The data that support the findings of this study are openly available in figshare at <https://figshare.com/s/b70389bbafbf1cf09f86>.

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