



Factorial Gender Invariance and Psychometric Characteristics of the Childhood Trauma Questionnaire-Short Form (CTQ-SF) among Nigerian Young Adults.

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Abstract

Experiencing abuse and neglect in childhood have been associated with adverse psychological sequelae in adulthood. The objective of this study is to examine the factorial gender invariance and the reliability and validity of the Childhood Trauma Questionnaire-Short Form (CTQ-SF) among Nigerian young adults. Young adults (n = 1171, aged between 19 and 37 years) completed the CTQ-SF, the 12-items General Health Questionnaire (GHQ-12), the Rosenberg Self-Esteem Scale (RSES), the Suicidal Behaviors Revised (SBQ-R) and the Drug Abuse Screening Test (DAST). This study compared the fit indices of the original and two alternative (Swedish and Italian) CTQ-SF models using Confirmatory Factor Analysis (CFA). Concurrent validity of the CTQ-SF was assessed via correlational analyses with other measures. The reliabilities of the CTQ-SF and its subscales were reported with MacDonal's omega (ω) coefficients. Factorial gender invariance was evaluated with multiple-group CFA. The alternative Swedish CTQ-SF model exhibited more satisfactory fit indices (CFI=0.934, RMSEA=0.050 [90%CI: 0.047-0.054], SRMR=0.040). Its reliability and concurrent validity were satisfactory. It also exhibited configural, metric and scalar factorial gender invariance among Nigerian young adults. Among Nigerian young adults, the alternative Swedish CTQ-SF model captures the construct of childhood abuse and neglect.

Keywords: Childhood Trauma Questionnaire-Short Form; reliability; factorial gender invariance; young adults

INTRODUCTION

A report by the World Health Organization (WHO) showed that worldwide, 36% of those below the age of 18 years in the previous year reported that they had suffered emotional abuse and 16% attested that they have experienced physical neglect (WHO 2017). In this WHO's report (World-Health-Organization 2017), 8% of boys and 18% of girls, respectively, reported experiencing sexual abuse within the same period. The true prevalence of the different forms of childhood abuse is likely to be much higher (Institute-of-Medicine 2013). All common psychiatric disorders across all the stages of the human lifespan have been shown to correlate significantly with different types of childhood abuse (Zeanah and Humphreys 2018). The importance of a psychometrically valid and reliable instrument for the evaluation of childhood abuse is buttressed by the observation that 55% to 69% of adults who had suffered sexual abuse in childhood indicated that they never shared the traumatic experience with anyone (London, et al., 2008).

Three models of the Childhood Trauma Questionnaire-Short Form (CTQ-SF) have been described in literature (Bernstein, et al. 2003, Gerdner and Allgulander, 2009, Sacchi, et al., 2018). The first and original model (Bernstein, et al. 2003) consisted of a total of 28 items, which were extracted from the 70 items Childhood Trauma Questionnaire (CTQ) (Bernstein, et al., 1994). The original 28-items model was developed in a sample (n=1978) consisting of 1003 substance abuse patients (recruited from centers in New York and Texas), 396 adolescents receiving inpatient psychiatric care and 579 individuals recruited from the general American population (Bernstein, et al., 2003). The original model has five subscales; three abuse subscales (physical-PA, emotional-EA and sexual-SA) and two neglect subscales (physical-PN and emotional-EN) (Bernstein, et al., 2003). Each subscale has five items, making a total of 25 items. The remaining 3 items constituted the Minimization/Denial subscale, which contained items to identify respondents that are minimizing traumatic experiences in childhood (Bernstein, et al., 2003). Each of the CTQ-SF subscales' items is rated on a 5-point Likert scale (1 = 'Never true', 2= 'Rarely true', 3= 'Sometimes true', 4= 'Often true' and, 5= 'Very often true') (Bernstein, et al., 2003). The CTQ-SF is the most globally utilized instrument in the retrospective assessment of childhood abuse (Hernandez, et al., 2013).

The original five-factor structure proposed by Bernstein et al. (2003) has shown satisfactory psychometric properties among clinical and non-clinical samples (Thombs, et al., 2007, Thombs, et al., 2009). However, different factor structures have been reported by some authors (Gerdner and Allgulander, 2009, Sacchi, et al., 2018). The first alternative model was described in a Swedish sample of five clinical and two non-clinical student respondents (Gerdner and Allgulander, 2009). This model also consisted of the five subscales in the original sample, (Bernstein, et al., 2003) but differs in that two of the items (#2 and #26) on the PN subscale in the original model had better loadings on the EN subscale (Gerdner and Allgulander, 2009). Thus, in the alternative Swedish CTQ-SF model, the EN subscale had seven items; while the PN subscale has three items (Gerdner and Allgulander, 2009). The alternative Swedish CTQ-SF model has been subsequently shown to have better fit indices compared to the original model among Korean psychiatric patients, (Kim, et al., 2011) and Brazilian general population (Grassi-Oliveira, et al., 2014). The second alternative CTQ-SF model was recently described in a sample

of Italian college students (Sacchi, et al., 2018). In this model, the items on the PN and EN subscales were merged to constitute a single Neglect subscale, thus, this model has four factors (three abuse subscales and one neglect subscale). With all the identified models, less attention is given to the replication of the Italian CTQ-SF four-factor model in Nigeria.

Therefore, this study specifically examined the psychometric utility of a childhood trauma instrument among the young adult population with the use of this model that has not been replicated in Nigeria. The study thus aims, first, to identify which of the original (Bernstein, et al., 2003) and alternative Swedish (Gerdner and Allgulander, 2009) and Italian (Sacchi, et al., 2018) CTQ-SF models will yield the most satisfactory fit indices among Nigerian young adults. Second, it assessed the concurrent validity and reliability of the CTQ-SF model with the best fit indices, and thirdly, it examined for the factorial gender invariance of the selected CTQ-SF model.

METHODS

Design

A descriptive cross-sectional design was used.

Setting

The participants were consecutively recruited from the National Youth Service Corporation (NYSC) orientation camp in Osogbo, the capital city of Osun State in South-Western Nigeria. The NYSC program is a one-year exercise that every graduate of universities and colleges must mandatorily participate before they are eligible to be employed by the Federal or State governments. Participants were derived from all the regions of the country.

A total of 1375 young adults were approached for participation in this study. The respondents that returned completely filled study measures were 1170 (response rate of 86.7%).

Duration of study

Data were collected from 18th of February and 7th of March, 2019.

Procedure

The approval for the research protocol was granted by the Research and Ethics Committee of the Ladoke Akintola University of Technology Teaching Hospital, Osogbo (LAUTECH), Osun state, and permission was also obtained from the NYSC authorities. Inclusion criteria were; 1) aged between 18 years and 40 years; 2) no current or previous history of mental disorder; 3) consent must be given. Before giving the study measures to the respondents, the purpose and anonymity of their responses were explained to them.

Data collection tools

Childhood Trauma Questionnaire-Short Form (CTQ-SF)

All participants completed the 28 items CTQ-SF scale (Bernstein, et al., 2003), which quantifies the severity of five types of abuse and neglect experienced in childhood via five subscales: physical, emotional and sexual abuse, and physical and emotional neglect. Each item is scored on a 5-point rating scale (1 = *Never true*, 2 = *Rarely true*, 3 = *Sometimes true*, 4 = *Often true*, 5 = *Very often true*). Total score per subscale ranges from 5 to 25. Aggregate score on the whole questionnaire ranges from 25 to 125. Higher total and subscale scores are indicative of more severe childhood traumatic experiences.

General Health Questionnaire-12 (GHQ-12)

The severity of psychological distress was assessed with the GHQ-12 which is the most utilized generic instrument for the quick evaluation of general psychopathology and psychological distress (Goldberg 1978). The validity and reliability have been described to be satisfactory among the Nigerian general adult population (Gureje 1991). The cumulative score ranged from 0 to 12, with higher scores supporting higher levels of psychological distress and the possibility of screening positive for a mental disorder.

Rosenberg's Self-Esteem Scale (RSES)

The brief 10-item scale which measures self-esteem is scored using a 4-point Likert approach which ranges from 0 to 3 (0 = *Strongly Agree*, 1 = *Agree*, 2 = *Disagree*, and, 3 = *Strongly disagree*) or reversed scored from 3 to 0 (3 = *Strongly Agree*, 2 = *Agree*, 1 = *Disagree*, and, 0 = *Strongly disagree*). Higher scores indicate a greater sense of self-worth. Reliability and validity among Nigerian have been reported to be satisfactory among Nigerians (Oyefeso and Zacheaus 1990).

Suicidal Behaviours Questionnaire-Revised (SBQ-R)

It's 4 items assesses the different facets of suicidal behaviors (*Linehan 1981*). Item 1 inquires if the respondent in his/her lifetime has ever had thoughts of suicide or engaged in suicide related behaviors. The first item is scored on a modified Likert scale ranging from 1 (never) to 4a (I have attempted to kill myself, but did not want to die) and 4b (I have attempted to kill myself, and really hoped to die). Item 2 assesses the frequency of suicidal ideation in the previous 12 months. This item is rated on a Likert scale of 1 (never) to 5(very often). Item 3 asks the respondents about making threats to engage in suicidal behavior, while the fourth item evaluates the subjective likelihood of the respondent to report suicidal behaviors. Item 3 is rated on a scale of 1 (no) to 3a (Yes, more than once, but did not really want to die) and 3b (Yes, more than once, and really wanted to do it), while the fourth item is rated on 7-point Likert scale ranging from 0 (Never) to 6 (Very likely). Satisfactory properties as a suicide screening instrument have been demonstrated among Nigerian young adult population (Aloba, et al., 2017).

Drug Abuse Screening Test-10 (DAST-10)

The instrument evaluates the general abuse of psychoactive substances, without specifically referring to anyone in particular (*Skinner 1982*). The respondent to indicate a 'yes' or 'no' to each item. A response of 'yes' is scored 1 point on all the items with the exception of item 3 in which a 'no' response is scored 1. The total score ranges from 0 to 10. The DAST-10 has been previously employed to screen for substance abuse among the Nigerian young adult population (Okpataku 2016).

Statistical analysis

The Statistical Package for Social Sciences (Version 25; Armonk, NY: IBM Corp) was used for data analysis. Confirmatory factor analysis (CFA) was used to examine and compare the indices of fit of the three CTQ-SF models described in extant literature. CFA was executed with the 20th version of the SPSS Analysis of Moment Structure (AMOS) software utilizing the Maximum Likelihood Estimation of the covariance matrix imputation method. The three models were examined and compared with the following indices: the chi-square (χ^2) and its related degrees of freedom (df) ratio, the comparative fit index (CFI) (Bentler 1990), the root mean square error of approximation (RMSEA) (Steiger 1990), and the standardized root mean square residual

(SRMR). The tendency to reject a model due to sample size sensitivity is a major flaw of the χ^2/df ratio (Jöreskog 1993). The analysis focused on the CFI, RMSEA and the SRMR indices. CFI values closer to and above 0.95 are considered excellent (Marsh, et al., 2004). In addition, RMSEA and SRMR values between the range of 0.06 and 0.08 reflect acceptable fit while values below 0.06 indicate excellent fit (Kline 2005, Brown 2006). The CTQ-SF model with the best fit indices will be adopted for subsequent analyses.

Concurrent validity of the selected model was examined through correlational analyses with the other measures. The effect size of the significant correlations was reported according to Cohen's criteria (Cohen 1988), in which correlation coefficient values (r) of 0.10, 0.30 and 0.50 respectively reflect small, medium and large effect sizes. The reliability of the selected CTQ-SF model and its subscales were examined by calculating the MacDonal's omega coefficient (ω) values which in comparison to the Cronbach's alpha (α) is a statistically more accurate estimation of a scale's items reliability, especially if the scale has multiple latent factors (Crutzen and Peters 2017).

The selected model for factorial gender invariance was then examined. This stage is characterized by checking for changes in the fit indices after placing increasing restrictiveness on the invariance models (Byrne 2013). Multiple group CFA facilitates the comparison of constructs across groups (Raykov, et al., 2012). Before similarities and differences in a construct can be examined across the genders, certain variables such as item factor loadings and intercepts must be equivalent (invariant) across the genders.

There are three levels of invariance, and each level must be affirmed before the next: 1) Configural; 2) Metric, and 3) Scalar invariance. Configural invariance examines if the factor structure of the selected model is equal for both the genders. Configural invariance basically shows that the male and female respondents essentially have the same theoretical understanding regarding the latent constructs in the selected model. The configural model is unconstrained (i.e., no constraints are imposed on the CTQ-SF subscale factor loadings and item intercepts). Basically, it is like equivalently measuring an identical factor model separately between the two genders. After the affirmation of configural invariance, metric invariance was examined for by placing constraints on the factor loadings across the two genders simultaneously. Afterward, scalar invariance was checked for by placing constraints on the selected model's factor loadings and item intercepts. Affirmation of scalar invariance indicates that the Nigerian young adults who have the same cumulative score on the selected model's subscales will also have similar scores on the subscales' items irrespective of gender.

Alterations in the CFI, RMSEA and SRMR values (ΔCFI , $\Delta RMSEA$, and $\Delta SRMR$ respectively) were used to confirm the presence of factorial gender invariance. Compared to the configural invariance, metric invariance is buttressed by $\Delta CFI \leq - 0.01$, $\Delta RMSEA \leq 0.015$ and $\Delta SRMR \leq 0.03$. Scalar invariance is supported by $\Delta CFI \leq - 0.01$, $\Delta RMSEA \leq 0.015$ and $\Delta SRMR \leq 0.01$ compared to the metric model (Chen 2007). A ΔCFI between the metric and scalar invariance models exceeding 0.01 negates factorial gender invariance (Cheung and Rensvold 2002). Lastly, the subscale mean scores of the selected model between the genders was compared.

RESULTS

Table 1 shows that the sample consisted of 560 (47.8%) females, it also depicts the means scores for the alternative Swedish CTQ-SF (Gerdner and Allgulander, 2009) model and its subscales. Also shown in Table 1 are the mean scores on the other study measures. As shown in Table 2, a comparison of the fit indices of the three models of the CTQ-SF reveals that the alternative

Swedish model (Gerdner and Allgulander 2009) had the best fit indices (CFI=0.934, SRMR=0.040, RMSEA=0.050 / 90%CI = 0.047-0.054). Table 3 shows the standardized factor loadings of the items on the subscales of the alternative Swedish CTQ-SF model. The factor loadings ranged from 0.29 (#1 on the Physical Neglect subscale) to 0.80 (#24 and #27 on the Sexual Abuse subscale).

The intercorrelations between the alternative Swedish CTQ-SF model (Gerdner and Allgulander 2009) and the other study measures are shown in Table 4. The correlations among the subscales of the alternative Swedish model (Gerdner and Allgulander 2009) ranged from 0.39 (Emotional Neglect and Physical Neglect) to 0.82 (Total CTQ-SF and Emotional Abuse). These correlations reflected medium to large effect sizes. (Cohen 1988). The alternative Swedish CTQ-SF model and its subscales had significant ($p < 0.001$) correlations with all the other study measures (Table 4). The reliability (MacDonald's ω) of the alternative Swedish CTQ-SF model and its subscales were also satisfactory. The alternative Swedish CTQ-SF model exhibited acceptable fit indices for the male and female respondents. The gender invariance models (configural, metric and scalar) all demonstrated acceptable fit indices. The changes in the CFI, RMSEA and SRMR values between the metric and scalar invariance models indicate that the alternative Swedish CTQ-SF model has a factor structure that is gender invariant among Nigerian young adults (Table 5).

DISCUSSION

To the knowledge of the authors this is the first study to assess the psychometric utility of the CTQ-SF among the Nigerian young adult population. The alternative Swedish model (Gerdner and Allgulander, 2009) yielded the best fit indices to this data in comparison to the original (Bernstein, Stein et al. 2003) and alternative Italian (Sacchi, et al., 2018) models. In addition, this study has proven that the alternative Swedish CTQ-SF model (Gerdner and Allgulander, 2009) has factorial invariance among the male and female Nigerian young adults. The authors of the alternative Swedish CTQ-SF model were the first to point out the non-homogeneity of the items in the original PN subscale (Gerdner and Allgulander, 2009). Similarly, to the observation of the Swedish authors, this study noted that items 2 ("Someone to take care of me") and 26 ("Someone to take me to the doctor") were interpreted as reflective of emotional negligence rather than physical negligence by the Nigerian young adults. Gerdner and Allgulander (2009) argued that the better fit indices of their model are due to these two items evaluating more of emotional instead of physical negligence. In this sample, these two items (#2 and #26) had improved standardized loadings when they were removed from the PN subscale and included into the EN subscale. In addition, among the respondents, the alternative Swedish EN subscale (which consisted of the five items in the original EN subscale and two items (#2 and #26) from the original PN subscale) had a better reliability with an omega (ω) coefficient value of 0.83 compared to the original EN subscale value of 0.78.

The better fit indices of the alternative Swedish CTQ-SF model (Gerdner and Allgulander, 2009) compared to the original model (Bernstein, et al., 2003) has also been replicated by Korean, (Kim, et al., 2011) Brazilian, (Grassi-Oliveira, et al., 2014) and, German (Klinitzke, et al., 2012) authors. In this study, all the subscales of the alternative Swedish model had satisfactory reliability omega (ω) coefficient values with the exception of the PN subscale. The lowest reliability coefficient value of the PN subscale has consistently been observed in preceding studies that evaluated the factor structure of the alternative Swedish CTQ-SF model (Villano, et

al., 2004, Kim, et al., 2011, Grassi-Oliveira, et al., 2014). Relatedly, the SA subscale in the alternative Swedish CTQ-SF model has consistently demonstrated the highest reliability coefficient values in these studies (Villano, et al., 2004, Kim, et al., 2011, Grassi-Oliveira, et al., 2014). This study to showed evidence for the concurrent validity of the alternative Swedish CTQ-SF model among Nigerian young adults. The positive correlation noted with suicidality in this sample is supported by previous studies reporting that the experience of physical, emotional and sexual abuse, and physical neglect in childhood increased significantly the odd for suicide attempt in adulthood (Zatti, et al., 2017). The modest positive correlation with substance abuse is supported by previous studies that have demonstrated that childhood abuse has a higher prevalence among young adults who abuse alcohol and other psychoactive substances (Tucci, et al., 2010). Young adults exposed to childhood abuse have also been reported to have lower sense of sense worthiness (Shen 2009).

The configural, metric and scalar factorial gender invariances of the alternative Swedish CTQ-SF model were all supported. A comparison of the mean scores on the subscales of the alternative Swedish CTQ-SF model revealed that males have higher PA subscale (male-8.99/SD 3.98, female-8.47/SD 4.23, $t(df) = -2.197(1169)$, $p=0.028$), PN subscale (male-5.52/SD 2.52, female-4.91/SD 2.27, $t(df) = -4.390(1169)$, $p<0.001$) and EN subscale (male-17.34/SD 6.62, female-16.21/SD 6.82, $t(df) = -2.824(1169)$, $p<0.05$) scores.

The implication of this study is that researchers in Nigeria now have available a valid, reliable and gender invariant instrument for the assessment of childhood abuse and neglect among the young adult population. Since childhood abuse has been linked with physical and mental health problems, it would therefore be of immense benefit to have an instrument that will enable the assessment of such childhood experiences among Nigerian young adults.

There are some limitations to be considered in this study. First, the psychometric findings obtained may not be extendable to the young adult population in other geo-political regions of the country, since the recruited sample was from the south-western region. Another limitation is that this study retrospectively assessed childhood abuse and neglect, thus, recall errors and denials may have influenced some of the respondents' responses to the CTQ-SF items.

The construct of childhood abuse and neglect is best assessed with the alternative Swedish CTQ-SF model among Nigerian young adults. The availability of such an instrument will enable the epidemiology, pattern and risk factors of childhood abuse among Nigerian young adults to be properly studied.

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Table 1: Sociodemographic and study measures characteristics (*n* = 1171)

Variables	<i>N</i> (%) / Mean (<i>SD</i>) [Range]
Age	24.95 (2.48) [19-37]
Gender:	
Male	611 (52.2%)
Female	560 (47.8%)
Marital status:	
Single	1113 (95.0%)
Married	47 (4.0%)
Divorced	11 (0.9%)
Alternative Swedish CTQ-SF subscales:	
CTQ-SF-PA	8.74 (4.11) [5-25]
CTQ-SF-EA	9.01 (4.12) [5-25]
CTQ-SF-SA	9.01 (4.81) [5-25]
CTQ-SF-PN	5.23 (2.42) [3-15]
CTQ-SF-EN	16.80 (6.84) [7-35]
CTQ-SF-Total	48.79 (16.93) [25-111]
GHQ-12	2.43 (2.63) [0-12]
RSES	20.43 (4.31) [7-30]
SBQ-R	4.21 (2.54) [2-18]
DAST	1.91 (1.86) [0-10]

CTQ-SF-Childhood Trauma Questionnaire-Short Form; PA-Physical abuse; EA-Emotional abuse; SA-Sexual abuse; PN-Physical neglect; EN-Emotional neglect; GHQ-12- General Health Questionnaire-12; RSES-Rosenberg Self-Esteem Scale; SBQ-R-Suicidal Behaviors Questionnaire-Revised; DAST-Drug Abuse Screening Test

Table 2: Summary of fit indices for the original and alternative Swedish and Italian CTQ-SF models

Models	χ^2 (df)	CFI	SRMR	RMSEA [90% CI]
Original model (Bernstein et al., 2003)	1363.268 (253)	0.903	0.066	0.061 [0.058-0.064]
Alternative Swedish model (Gerdner & Allgulander, 2009)	1015.820 (256)	0.934	0.040	0.050 [0.047-0.054]
Alternative Italian model (Sacchi, Vieno, Simonelli, & Policy, 2018)	1328.873 (253)	0.906	0.071	0.060 [0.057-0.064]

χ^2 (df) - Chi-square (degree of freedom); CFI- Comparative Fit Index; SRMR- Standardized Root Mean Square Residual; RMSEA- Root Mean Square Error of Approximation

Table 3: Standardized factor loadings of the items on the alternative Swedish CTQ-SF model

Subscale	Items loadings
Physical Abuse (PA):	
PA9: Got hit so hard, needed to see doctor	0.63
PA11: Hit so hard it left bruises	0.71
PA12: Punished with belt or hard object	0.60
PA15: Believed was physically abused	0.70
PA17: Got beaten so badly, it was noticed	0.69
Emotional Abuse (EA):	
EA3: Family called me things like stupid	0.53
EA8: Parents wished I was not born	0.65
EA14: Family said hurtful things	0.64
EA18: Felt hated by someone in family	0.63
EA25: Believed was emotionally abused	0.69
Sexual Abuse (SA):	
SA20: Touched in a sexual way	0.72
SA21: Threatened to do something sexual	0.71
SA23: Forced to do or watch sexual things	0.76
SA24: Was molested by someone	0.80
SA27: Believed was sexually abused	0.80
Physical Neglect (PN):	
PN1: Didn't have enough to eat	0.29
PN4: Parent too drunk to care	0.69
PN6: Had to wear dirty clothes	0.64
Emotional Neglect (EN):	
EN5: Someone in family who helped*	0.58
EN7: Felt loved*	0.71
EN13: Family looked out for each other*	0.62
EN19: Family felt close to each other*	0.64
EN28: Family is source of strength*	0.69
EN2: Someone to take care of me*	0.59
EN26: Someone to take me to doctor*	0.61

*reverse scored items

Table 4: Correlations between the alternative Swedish CTQ-SF model subscales and other s

		1	2	3	4	5	6	7	8
1	CTQ-SF-PA	1							
2	CTQ-SF-EA	0.74	1						
3	CTQ-SF-SA	0.62	0.68	1					
4	CTQ-SF-PN	0.49	0.49	0.43	1				
5	CTQ-SF-EN	0.42	0.43	0.41	0.39	1			
6	CTQ-SF-Total	0.80	0.82	0.79	0.63	0.77	1		
7	SBQ-R	0.24	0.31	0.15	0.12	0.10	0.26	1	
8	RSES	-0.31	-0.35	-0.30	-0.32	-0.37	-0.43	-0.16	1
9	GHQ-12	0.29	0.31	0.26	0.25	0.22	0.34	0.21	-0.35
10	DAST	0.25	0.26	0.28	0.18	0.21	0.29	0.22	-0.20

All correlations were significant at $p < 0.001$.

CTQ-SF: Childhood Trauma Questionnaire-Short Form, PA: Physical Abuse, EA: Emotional Abuse, SA: Sexual Abuse; PN: Physical Neglect; EN: Emotional Neglect; GHQ-12: General Health Questionnaire-12; RSES: Rosenberg Self-Esteem Scale; DAST: Drug Abuse Screening Test; ω : MacDonal's omega coefficient

Table 5: Gender measurement invariance fit indices for the alternative Swedish CTQ-SF

Gender group CFA	χ^2 (df)	χ^2 /df	CFI	Δ CFI	SRMR	Δ SRMR	RMSEA
Males	639.145 (256)	2.50	0.933	-	0.0397	-	0.0397
Females	810.395 (256)	3.17	0.906	-	0.0529	-	0.0529
Model description							
M1: Configural model	1449.558 (512)	2.83	0.920	-	0.0529	-	0.0529
M2: Metric model	1483.125 (532)	2.79	0.918	-0.002	0.0531	0.0002	0.0531
M3: Scalar model	1581.170 (557)	2.84	0.912	-0.006	0.0533	0.0002	0.0533

χ^2 /df - Chi-square degree of freedom ratio; CFI- Comparative Fit Index; SRMR- Standardized Root Mean Square Residual; RMSEA- Root Mean Square Error of Approximation