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Assessing Safe Haven and Secure Base Support in Preadolescence: A Cross-Cultural Validation of the 24-Item Security Scale Questionnaire in the United States, Italy, and Romania

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ABSTRACT

The 15-item version of the Security Scale Questionnaire (SSQ), primarily capturing parent's safe haven support, is the most valid self-report measure of attachment security for preadolescence. Recently, nine items assessing secure base support were added. This study aimed to further validate the 24-item version of the SSQ by evaluating measurement invariance across three cultures, child gender and age, and mother-child and father-child relationships. This study also evaluated the SSQ's item-level characteristics using item response theory (IRT). Participants were 1173 children 9–14 years old ($M(SD)$age = 11.29 [1.27]; 46.4% boys) from the United States, Italy, and Romania. The SSQ showed measurement invariance across the three countries, child gender and age, and mother-child and father-child relationships. Children rated mothers higher than fathers for safe haven support and rated both parents similarly for secure base support. Results underscore the SSQ's strong psychometric properties, the consistency of children's perceptions of secure attachment relationships across three cultural contexts, and the importance of evaluating attachment security with both parents.

1 | Introduction

Over the past 25 years, research on parent-child attachment in preadolescence (approximately ages 9–14 years old) has gained increasing attention (Brumariu and Kerns 2022). During this developmental period, the attachment system undergoes a shift: instead of focusing on maintaining physical proximity to caregivers, children become more concerned with their caregivers' availability. Attachment security at this stage reflects children's confidence that they can access support from caregivers when needed, even if the caregivers are not physically present (Kerns and Brumariu 2016). Concurrently, a supervisory partnership

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emerges between the parent and child, reflecting a more reciprocal and collaborative dynamic (Koehn and Kerns 2016, 2022). Despite these changes, parents remain children's primary attachment figures and continue to serve as both safe havens (SH) in times of distress and secure bases (SB) that facilitate autonomous exploration (Brumariu et al. 2020; Seibert and Kerns 2009). By preadolescence, advancements in social cognition enable children to reflect on their attachment experiences, articulate their perceptions with greater precision, and engage in more sophisticated discussions about their relationships (Brumariu and Kerns 2022). This study focused on preadolescence, a critical period for consolidating and stabilizing mental representations of attachment (Bowlby 1969/1982).

The 15-item Security Scale Questionnaire (SSQ; Kerns et al. 2001), developed to assess the secure base phenomenon, remains one of the most widely used and empirically validated questionnaires of attachment security in middle childhood and early adolescence (Gastelle and Kerns 2021). Brumariu et al.'s (2018) meta-analytic review further substantiated the SSQ's psychometric robustness, demonstrating its moderate stability over time, strong convergent validity through associations with other attachment measures, and significant correlations with key developmental outcomes, including emotional and peer social competence, self-esteem, school adaptation, and behavioral adjustment. While the original 15-item SSQ has been instrumental in assessing children's perceptions of attachment security to primary caregivers, a critical review of the items revealed a substantial imbalance, with 14 items primarily reflecting the safe haven function of attachment and only one item addressing the secure base for exploration (Kerns et al. 2015). Secure base behaviors, which foster exploration and engagement with the environment, are essential for children's cognitive and socio-emotional development (Bretherton 2010; Grossmann et al. 2008). To ensure that the SSQ adequately captures both the SB and SH functions of attachment relationships, Kerns et al. (2015) added six items specifically designed to assess children's perceptions of their caregiver's SB support, and Koehn and Kerns (2022) later supplemented the SSQ with an additional three items.

The revised SSQ has the potential to improve assessments of attachment security with fathers. Traditionally, mothers have been regarded as the primary sources of comfort and emotional regulation (i.e., SH), while fathers have been more closely associated with encouraging risk-taking, autonomy, and exploration (i.e., SB; Grossmann et al. 2008). The significance of attachments to fathers may have been underestimated, partly due to a historical measurement bias that prioritizes the SH role over the SB function (Kerns et al. 2015). Prior research on heterosexual two-parent families suggests that mothers and fathers may sometimes fulfill distinct yet complementary roles in providing SB and SH support, with mothers especially likely to provide SH support and fathers SB support (Grossmann et al. 2008; Kerns et al. 2015; Obeldobel and Kerns 2020). However, other research finds that mothers may be preferred by children for both SH and SB support (Fernandes et al. 2020). Contemporary research increasingly highlights the variability in paternal involvement across both attachment functions, reflecting broader shifts in parenting dynamics and gender roles (Deneault et al. 2024). These differing perspectives highlight the necessity of assessing children's SH and SB support-seeking toward mothers and fathers separately, as failing to do so may obscure meaningful differences in attachment relationships, including a more nuanced understanding of paternal contributions to attachment security (Grossmann and Grossmann 2020).

Despite these theoretical advancements, no study has systematically examined the psychometric properties of the 24-item SSQ, which underscores the need for its rigorous validation. Preliminary evidence supporting the inclusion of additional SB support items comes from Fernandes et al. (2020), who validated 21-item version of the SSQ—comprised of the original 15 items (Kerns et al. 2001) and the six SB support items added by Kerns et al. (2015)—in Portuguese and US samples of children aged 9–14 years old. Their findings provided support for measurement invariance across mothers and fathers, boys and girls, and Portuguese and United States samples, indicating that the measure functioned comparably across these groups (Fernandes et al. 2020). However, factor analytic results led Fernandes et al. (2020) to eliminate four items due to low factor loadings for one or both parental figures. These excluded items included three SH support items (i.e., "… do really need their mom/dad for a lot of things"; "… are happy with how close they are to their mom/dad"; "… think their mom/dad helps them enough with their problems"), as well as one SB support item (i.e., "… feel like their mom/dad lets them do things on their own"). The final validated 17-item version consisted of 11 SH support items and 6 SB support items.

Building on the findings of Fernandes et al. (2020), we aimed to validate the 24-item version of the SSQ cross-culturally in the United States, Italy, and Romania. This extended version (Koehn and Kerns 2022) offers a more comprehensive assessment of SB support. Given that the SB component is critical for understanding children's capacities for independent exploration and adaptive functioning (e.g., Grossmann and Grossmann 2020), validating the full 24-item SSQ across diverse cultural contexts is essential for broadening our conceptualization and measurement of attachment security in middle childhood and early adolescence.

This investigation is particularly relevant given cultural differences in parenting practices, attachment-related behaviors, and children's socio-emotional expectations of caregivers (Keller 2013). The United States emphasizes individualism, which is reflected in parenting that fosters autonomy and self-assertion (Bornstein et al. 2022). Italy is considered an individualistic society (Minkov and Kaasa 2022), but its historical family structures, characterized by close-knit, interdependent networks, resemble those found in collectivistic cultures, and there remains a strong emphasis on family obligations and parental protection/control (e.g., Bacchini et al. 2021). Historically, Romania also places greater value on interdependence and obedience toward parents/adults over self-expression (e.g., Gherasim et al. 2017; Minkov and Kaasa 2022). The country's status as a young democracy and significant social and economic changes following the fall of communism and joining the European Union may have impacted family structures, openness to Western values, and shifts in attitudes toward parenting such as relying more on an authoritative parenting style which values children's autonomy (e.g., Gherasim et al. 2017). However, evidence is mixed regarding changes in Romania's emphasis on autonomy in past decades, and relatedness continues to be a salient cultural value in the country (Mone and Benga 2018).

While attachment theory posits that the mechanisms underlying attachment security are universal (Mesman et al. 2016), cultural contexts can shape how attachment-related constructs are expressed, perceived, and interpreted (Posada et al. 2013). Cultural differences in autonomy, parental control, and involvement across these three regions may influence children's views of secure base support (SBS) and safe haven support (SHS). Therefore, validating the SSQ across these diverse geo-political contexts would provide crucial insights into both universal and culture-specific dimensions of attachment security, contributing to a more nuanced understanding of attachment processes in preadolescence. Further, most SSQ research has used United States or Western European samples, with only two studies from Eastern Europe (Hungary and Romania; Barcsi et al. 2017; Brumariu et al. 2020). Both of these studies used the original 15-item version, which highlights the need to validate the expanded 24-item version in this context.

Previous meta-analytic evidence shows that the SSQ's relations with conceptually relevant constructs and other attachment measures are largely independent of child gender and age, supporting its validity across boys and girls and across early and late preadolescence (Brumariu et al. 2018). Building on these findings, we are interested in replicating evidence of the SSQ's consistency in terms of its interpretation/factorial structure across boys and girls (Fernandes et al. 2020), as well as evaluating invariance across age.

2 | The Present Study

This study aimed to evaluate the psychometric properties of the 24-item SSQ across samples from the United States, Italy, and Romania by:

1. Assessing the two-factor structure—specifically, safe haven support and secure base support.
2. Examining measurement invariance across multiple dimensions: cultural region, child gender and age, and parent gender.
3. Analyzing item-level characteristics and performance to identify potentially poor-performing items and assess the scale's reliability along the latent dimensions of safe haven support and secure base support.

3 | Method

3.1 | Participants and Procedure

Participants were 1320 children 9–14 years old from three studies in the United Studies (n = 357), one study in Italy (n = 563), and a 4-wave longitudinal study in Romania. In the Romanian sample, new participants were allowed to join at each time point (total N = 1330). Thus, for the current study, we randomly selected 100 non-overlapping participants from each wave (n for analyses = 400) to ensure children who participated at different waves had a chance to be included and to minimize risks of selection bias. After obtaining IRB approvals (US: #050816; #110818; #16-432; #18-401; Italy: #178.24; Romania: #2151), participants in the United States were recruited from the local community and schools using flyers, newspapers, and online advertisements, as well as from previous participation in other studies, and were compensated $20–$40 for their participation. In Italy, participants were recruited from the local community and schools in Central and Southern Italy without compensation. In Romania, participants were recruited from public schools and compensated with small tokens (e.g., school supplies). Across all samples, parents who were interested in participating contacted the labs (United States and Romania) or the principal researcher (Italy) directly by email. After obtaining parental consent and child assent, children and parents completed questionnaires and interviews as part of the larger studies. US families attended a lab visit. Romanian children filled out measures administered by a trained research assistant during class time. Similarly, Italian children could fill out measures administered by a trained research assistant during class time (n = 358; 64.6%) following the school principal's permission, or they could complete the measures through an online link accessed at home (n = 205; 36.4%).

We were interested in comparing children's attachment security with mothers and fathers. Consistent with previous studies (e.g., Fernandes et al. 2020), we excluded participants from non-intact families or who did not report on both biological parents (11.1%; n = 147). This resulted in a final included sample of 1173 participants, M (SD)age = 11.29 (1.27), of whom 46.4% identified as boys (n = 544) and 53.6% identified as girls (n = 629). In the US sample, 75.8% of participants identified as white (n = 185), 3.3% identified as African American (n = 8), 0.8% identified as Native American (n = 2), 4.1% identified as Asian/Pacific Islander (n = 10), 14.3% selected "other" (n = 35), and 0.8% did not report on their race (n = 2). Further, 0.8% of participants identified their ethnicity as Hispanic or of Spanish Origin (n = 2). For the other two samples, participants were white, and their ethnicity was Italian and Romanian, respectively. Regarding the highest level of education completed by either parent across samples, 3.4% (n = 40) had less than a high school degree, 35.5% (n = 417) had completed high school, "some college" (including an associate's degree), or attended a trade school, 60.1% (n = 705) had an undergraduate degree or higher (i.e., Masters, PhD, JD, etc.), and 0.9% (n = 11) did not report on parental education.

3.2 | Measures

3.2.1 | Security Scale Questionnaire

Children reported on their attachment security with each parent using the 24-item version of the Security Scale (SSQ; Kerns et al. 2015; Koehn and Kerns 2022). The SSQ uses Harter's (1982) "some kids … other kids" format (e.g., "some kids find it easy to trust their mom BUT other kids are not sure if they can trust their mom") and asks children to choose which statement describes them better and rate their agreement with it on a 4-point scale, with higher scores indicating greater attachment security (Kerns et al. 2001). Specifically, the current version of the SSQ includes 10 items assessing children's perceptions of their parents' secure base support (mother SSQ α = 0.77 and father SSQ α = 0.78 in our sample) and 14 items capturing their perceptions of their parent's safe haven support (mother SSQ α = 0.83 and father SSQ = 0.86 in our sample).

3.2.2 | Demographic Variables

Children or their parents reported child gender, age, race/ethnicity, and parent education.

3.3 | Overview of Analyses

To address our first goal of extending support for the SSQ's two-factor structure, we performed two confirmatory factor analyses (CFAs) on children's SBS and SHS with their mothers and fathers. Due to the SSQ's ordinal nature, we relied on the diagonally weighted least square (DWLS) estimator. DWLS estimation requires complete data, and thus, we used listwise missing handling (SSQ missingness = 3.15%, $n = 37$ and 2.13%, $n = 25$ when reporting on mothers and fathers, respectively). We evaluated model fit based on the following indices and cutoffs for good fit: comparative fit index (CFI) ≥ 0.95, root mean square error of approximation (RMSEA) < 0.05, and standardized root mean square residual (SRMR) < 0.05 (Hu and Bentler 1999). To test measurement invariance on the SSQ across the three countries (United States, Italy, Romania), child gender (boys and girls), child age (children 9–10 and 11–14 years old), and parent gender (children's attachment security with mothers and fathers), we first conducted individual CFAs by group for diagnostic purposes (e.g., CFAs using only participants from each country) before conducting multigroup CFAs assessing the overall factor structure across groups (configural), models constrained to have equal factor loadings (metric), and models constrained to have equal loadings and item intercepts (scalar invariance). We considered a given level of measurement achieved when ΔCFI < 0.01 and ΔRMSEA < 0.015, compared to the previous, less restrictive level (see Chen 2007). When data did not meet a given level of measurement invariance, we assessed partial measurement invariance by freeing constraints on individual items. To assess whether children preferentially rely on mothers or on fathers as a SB/SH, we assessed latent mean differences by comparing mother-child and father-child SBS and SHS factor intercepts. When the SSQ met the necessary scalar invariance for these analyses, we also tested latent mean differences in SBS and SHS across the three countries, child gender, and child age for exploratory purposes.

We addressed the goal of testing the SSQ's item-level characteristics using item response theory (IRT) models for SBS and SHS scales. We evaluated item performance based on Baker's (2001) benchmarks for very low (0.01–0.34), low (0.35–0.64), moderate (0.65–1.34), high (1.35–1.69), and very high (>1.70) item discrimination parameters. We conducted all CFA and IRT analyses in the "lavaan" (Rosseel 2012) and "ltm" R packages (Rizopoulos 2006).

4 | Results

4.1 | Descriptive Statistics

Descriptive statistics for all items, as well as SBS and SHS scores by group (i.e., region, gender, age group) are presented in Table S1.

4.2 | Confirmatory Factor Analyses for the SSQ Two-Factor Model

Table 1 presents the results of CFAs for the two-factor models of the SSQ. For mother-child relationships, model fit for the SSQ ranged from good (CFI = 0.96) to adequate (RMSEA = 0.08,

TABLE 1 | Results for CFA on 2 factor model of the security scale (Mother; $N = 1136$; Father; $N = 1148$).

	Mother	Father
SBS	λ	λ
SSQ2	0.30***	0.17***
SSQ5	0.60***	0.70***
SSQ8	0.50***	0.65***
SSQ11	0.59***	0.61***
SSQ14	0.49***	0.48***
SSQ17	0.73***	0.78***
SSQ20	0.80***	0.79***
SSQ22	0.56***	0.49***
SSQ23	0.77***	0.79***
SSQ24	0.57***	0.62***
SHS		
SSQ1	0.75***	0.79***
SSQ3	0.73***	0.81***
SSQ4	0.58***	0.64***
SSQ6	0.56***	0.55***
SSQ7	0.26***	0.32***
SSQ9	0.41***	0.48***
SSQ10	0.70***	0.76***
SSQ12	0.78***	0.79***
SSQ13	0.62***	0.74***
SSQ15	0.65***	0.67***
SSQ16	0.75***	0.75***
SSQ18	0.63***	0.64***
SSQ19	0.46***	0.51***
SSQ21	0.66***	0.72***
SBS ~~ SHS	0.94***(0.76***)	0.95***(0.78***)
CFI	0.96	0.97
RMSEA (90% CI)	0.08 (0.07, 0.08)	0.08 (0.08, 0.09)
SRMR	0.08	0.08

Note: SSQ = security scale questionnaire item, SBS = secure base support, SHS = safe haven support, SBS ~~ SHS = factor correlation between SBS and SHS; correlation between observed (mean scores) for SBS and SHS are presented in parentheses.

*$p < 0.01$.

**$p < 0.01$.

***$p < 0.001$.

90% CI = 0.07, 0.08; SRMR = 0.08). Using a cutoff of 0.40 (see Stevens 1992), all indicators loaded onto their respective factors except items 2 ("some kids feel like their mother butts in a lot…") and 7 ("some kids do not really need their mother for much…"). Notably, item 9 ("some kids wish they were closer to their mother…") was just above the cutoff ($\lambda = 0.41$) and had the lowest factor loading on SHS after item 7. When reporting on father-child relationships, the SSQ's model fit ranged from good (CFI = 0.97) to adequate (RMSEA = 0.08, 90% CI = 0.08, 0.09; SRMR = 0.08). Items 2 and 7 did not load, and item 9 had the second lowest factor loading on SHS. Item 9 also did not load in a previous sample, along with items 2 and 7 (Fernandes et al. 2020). To be conservative, we fit additional models excluding these three items, which improved model fit when reporting on mothers and fathers (CFI = 0.97, RMSEA = 0.07, 90% CI = 0.06, 0.07, SRMR = 0.07, and CFI = 0.98, RMSEA = 0.08, 90% CI = 0.08, 0.08, SRMR = 0.08, respectively; Table S2). Thus, we excluded items 2, 7, and 9 in all subsequent factor analyses. In models for both parents, the SBS and SHS latent factors were strongly positively associated (Table 1). However, as seen in Table 1, correlations between observed SBS and SHS scores, for mothers and fathers, were similar to those reported in previous studies (e.g., Fernandes et al. 2020; Koehn and Kerns 2022). Due to the high factor correlations, we tested a one-factor solution combining SBS and SHS items, and the fit was similar to the two-factor solution when reporting on mothers and fathers (CFI = 0.96, RMSEA = 0.08, 90% CI = 0.07, 0.08, SRMR = 0.08 and CFI = 0.97, RMSEA = 0.08, 90% CI = 0.08, 0.09, SRMR = 0.08; Table S3 for full model results). Thus, we proceeded with the two-factor solution due to the theoretical relevance of retaining separate SBS and SHS factors (e.g., the relevance of these functions to distinct circumstances—exploration in novel situations and safety/regulation when experiencing distress; Bowlby 1969/1982; Kerns and Brumariu 2016; Waters and Cummings 2000) and due to previous studies also showing that the two-factor model performs as well as a single-factor model that combines both subscales (e.g., Fernandes et al. 2020).

4.3 | Measurement Invariance on the SSQ

4.3.1 | Measurement Invariance Across Countries

When assessing mother-child attachment security, factor loadings and fit measures for the SSQ were similar across the United States, Italy, and Romania (Tables S4–S6). Two exceptions were items 8 ("some kids are sure their mother wants to hear what they think, even when they disagree…"; $\lambda = 0.37$) and 14 ("some kids feel like their mother lets them decide enough things by themselves…"; $\lambda = 0.36$), which did not load on the SBS factor in the Italian sample (Table S5). Table 2 presents the results for all measurement invariance analyses.[1] Results showed that the SSQ's overall factor structure was invariant across the three countries (i.e., configural invariance) but did not have equal item loadings (i.e., metric invariance). However, the scale achieved partial metric invariance after freeing equality constraints on either of the two items that did not load in the Italian sample. We could not compare latent mean SBS and SHS from mothers across the three countries due to the lack of scalar invariance.

When assessing father-child attachment security, items 14 ($\lambda = 0.36$) and 22 ("Some kids think their father doesn't let them have enough say in choosing what activities they want to do outside school…"; $\lambda = 0.39$) did not load in the Italian sample. However, the SSQ achieved invariance at the scalar level, indicating that these differences were not large enough to reject that the item loadings and intercepts were invariant across the three countries. Table 3 summarizes all latent mean comparisons. US children reported significantly lower SHS from their fathers than Romanian children, though these differences were small. Compared to children in the United States, children in Italy rated their fathers significantly lower in SBS and SHS. Romanian children also reported higher SBS and SHS from their fathers than Italian children. Differences in SBS and SHS between Italy and the other two countries ranged from small to moderate (Table 3).

4.3.2 | Measurement Invariance Across Boys and Girls

Factor loadings and fit indices were similar in CFAs across boys and girls (Tables S7 and S8). However, item 19 ("some kids wish their mother would help them more with their problems…"; $\lambda = 0.36$) did not load in the sample of boys reporting on mother-child SHS. These differences were not large enough to reject that item loadings and intercepts were consistent across boys and girls. As seen in Table 2, the SSQ was invariant across gender at the scalar level when reporting on both mother-child and father-child attachment security. Boys and girls did not differ in their reports of SBS and SHS from their mothers. Girls reported significantly less SBS and SHS from their fathers than boys, although these differences were small (Table 3)

4.3.3 | Measurement Invariance Across Child Age

We assessed invariance across children ages 9–10 years old and children ages 11–14 years old. Fit and item loadings were similar across age groups (Tables S9 and S10). Items 8 ($\lambda = 0.38$) and 14 ($\lambda = 0.39$) on SBS and item 19 ($\lambda = 0.38$) on SHS did not load onto mother-child factors in the sample of 9–10 year olds. However, the differences were not large enough to reject that item loadings and intercepts were consistent across developmental periods, as results showed that, for reports on both parents, the SSQ is invariant across these two age groups at the scalar level (Table 2). As seen in Table 3, there were small differences in latent means across child age. Children 9–10 years old reported significantly less SBS from mothers and fathers and more SHS from mothers than children 11–14-years old.

4.3.4 | Measurement Invariance Across Parent Gender and Mean Comparisons of Child Perceptions of Mother and Father SBS and SHS

The SSQ was invariant across parent gender at the scalar level, which allowed for comparisons of latent means (Table 2). As summarized in Table 3, there were no significant differences between mothers and fathers regarding the SB role. However, children rated their mothers more highly than their fathers for the SH role.

TABLE 2 | Results of measurement invariance tests across country, gender, age, and mothers and fathers.

	Mother					Father				
Model	**CFI**	**RMSEA**	**SRMR**	**ΔCFI**	**ΔRMSEA**	**CFI**	**RMSEA**	**SRMR**	**ΔCFI**	**ΔRMSEA**
Country										
Configural	0.978	0.065	0.08	—	—	0.978	0.079	0.08	—	—
Metric	0.968	0.075	0.09	−0.01	0.010	0.972	0.086	0.09	−0.006	0.007
Metric_Partial8	0.970	0.072	0.09	−0.008	0.007	—	—	—	—	—
Metric_Partial14	0.969	0.074	0.09	−0.009	0.009	—	—	—	—	—
Scalar	—	—	—	—	—	0.975	0.077	0.08	0.003	−0.009
Gender										
Configural	0.973	0.070	0.08	—	—	0.978	0.079	0.08	—	—
Metric	0.972	0.070	0.08	−0.001	0.000	0.974	0.082	0.08	−0.004	0.003
Scalar	0.973	0.065	0.08	0.001	−0.005	0.977	0.075	0.08	0.003	−0.007
Age										
Configural	0.973	0.068	0.08	—	—	0.977	0.080	0.08	—	—
Metric	0.972	0.069	0.08	−0.001	0.001	0.975	0.080	0.08	−0.002	0.000
Scalar	0.971	0.066	0.08	−0.001	−0.003	0.976	0.076	0.08	0.001	−0.004
Parent										
Configural	0.975	0.074	0.07	—	—	0.975	0.074	0.07	—	—
Metric	0.973	0.075	0.08	−0.002	0.001	0.973	0.075	0.08	−0.002	0.001
Scalar	0.973	0.071	0.07	0.000	−0.004	0.973	0.071	0.07	0.000	−0.004

4.4 | Item Level Properties of the SSQ Using Item Response Theory

We conducted IRT analyses to address our goal of evaluating the SSQ's item-level characteristics and performance. For mother-child and father-child relationships, items had moderate to very high discrimination parameters (range = 0.74–2.91; see Table 4 for IRT results), with three exceptions. Items 2 ($a = 0.46$) and 7 ($a = 0.50$) showed low discrimination for mother-child SBS and SHS, respectively. Items 2 ($a = 0.34$) and 7 ($a = 0.64$) were also in the low range for father-child SBS and SHS. The majority of threshold/location parameters (i.e., level of a latent trait where a response is most likely to be endorsed) were adequately spaced, indicating good coverage in capturing varying levels of SBS and SHS. Thresholds for endorsing the highest rating were close to or slightly below the mean, suggesting the highest response option is relatively "easy" to endorse and reflects at least average provision of SB and SH support. In contrast, there was greater gradation in responses on the opposite end of the scale, with the lowest response options reflecting very poor SBS and SHS (Table 4). Further, plots of total information (Figure 1) show that the SSQ appears to be most precise at approximately 1.5–2.0 standard deviations below the mean for SBS and SHS.

5 | Discussion

This study addressed the critical need to better represent the secure base function, in addition to the safe haven function, in current measures of attachment security in late middle childhood and early adolescence by examining the psychometric properties of the 24-item SSQ across three distinct cultural contexts: the United States, Italy, and Romania. Specifically, we aimed to validate the two-factor structure of the SSQ that differentiates between safe haven and secure base support, to assess its measurement invariance across cultural regions, child gender and age, and parent gender, and to evaluate its item-level performance to ensure its reliability and applicability across cultures.

The CFAs supported a well-fitting two-factor model across all three cultural samples. The SBS and SHS factors were highly correlated, suggesting that they could measure the same underlying construct, which aligns with the notion that both reflect functions of parent-child attachment security (Bowlby 1969/1982). However, consistent with Fernandes et al. (2020), one-factor models showed a comparable fit to the two-factor solutions, and we retained the two factors due to the conceptual basis for distinguishing between SB and SH. Specifically, SB and SH are relevant to distinct situations (i.e., exploration in novel contexts and safety/regulation when experiencing distress; e.g., Bowlby 1969/1982; Waters and Cummings 2000; Kerns and Brumariu 2016), and children may rely more on their mothers for the SH role and more on their fathers for the SB role (e.g., Bretherton 2010; Grossmann et al. 2008; Kerns et al. 2015). Our finding that SBS and SHS showed slightly different patterns of results in terms of differences across parent gender and child age (see below) further highlights the value of evaluating these functions separately.

These findings are consistent with the previously validated 21-item SSQ, which confirmed its two-factor structure among Portuguese and US children of the same age as in the present

TABLE 3 | Comparison of latent mean SBS and SHS across groupings that reached scalar invariance.

Intercept	Estimate	SE	Std. Est.	*Z*	*p*	Cohen's *d*	Comparison	*N*
Parent gender							Mother* vs. Father	1115
SBS	−0.02	0.02	−0.02	−0.86	0.39	−0.02		
SHS	−0.19	0.02	−0.25	−11.62	<0.001	−0.25		
Mother								
Intercept	Estimate	SE	Std. Est.	*Z*	*p*	Cohen's *d*	Comparison	*N*
Child gender							Boys* vs. Girls	530, 611
SBS	−0.01	0.03	−0.01	−0.20	0.84	−0.01		
SHS	−0.01	0.03	−0.01	−0.40	0.69	−0.01		
Child age							11–14* vs. 9–10	823, 308
SBS	−0.06	0.03	−0.13	−2.47	0.01	−0.10		
SHS	0.07	0.03	0.10	2.19	0.03	0.09		
Father								
Intercept	Estimate	SE	Std. Est.	*Z*	*p*	Cohen's *d*	Comparison	*N*
Country							US* vs. Italy	238, 563
SBS	−0.41	0.03	−0.69	−13.16	<0.001	−0.66		
SHS	−0.27	0.03	−0.30	−9.07	<0.001	−0.32		
SBS	0.06	0.05	0.06	1.15	0.25	0.07	US* vs. Romania	238, 350
SHS	0.10	0.04	0.09	2.34	0.02	0.10		
SBS	0.53	0.05	0.49	10.81	<0.001	0.62	Italy* vs. Romania	563, 350
SHS	0.32	0.03	0.33	9.53	<0.001	0.37		
Child gender							Boys* vs. Girls	533, 618
SBS	−0.08	0.03	−0.11	−3.20	0.001	−0.12		
SHS	−0.16	0.03	−0.16	−6.22	<0.001	−0.18		
Child age							11–14* vs. 9–10	836, 306
SBS	−0.09	0.03	−0.14	−3.18	0.001	−0.12		
SHS	0.01	0.03	0.02	0.55	0.58	0.02		

Abbreviations: SBS, secure base support; SHS, safe haven support.

*Indicates the reference group on which the other latent mean (intercept) is scaled. A positive intercept reflects a higher latent mean than the reference group, and a negative intercept reflects a lower latent mean than the reference group. We were unable to test differences across countries when reporting on mothers due to a lack of scalar invariance.

study (Fernandes et al. 2020). However, our study extends previous research by demonstrating that the 24-item version of the SSQ, which incorporates additional SB support items (Koehn and Kerns 2022), maintains this structure across two additional cultural contexts (i.e., Italy and Romania). Thus, our findings suggest that the same two latent constructs of SB and SH underlie children's perceptions of attachment security with their parents across the three cultures.

While most items exhibited strong factor loadings, some low-loading items were identified (e.g., items 2, 7, and 9). These results align with Fernandes et al. (2020), who removed four low-performing items from their final validated 17-item version, including items 2, 7, and 9. Although maintaining a balanced representation of SH support and SB support items is conceptually essential, future research should continue to evaluate whether specific items contribute meaningfully to the construct and whether alternative items could enhance the scale's reliability and validity.

Historically, the United States and Italy have been seen as more individualistic cultures (Minkov and Kaasa 2022), while Romania has been viewed as a more collectivistic culture (Mone and Benga 2018). Our findings provided evidence of configural invariance of the two-factor structure of the SSQ across all three cultural groups, suggesting that children in these different geo-politically Western countries conceptualize SH support and SB support in a comparable manner. While full scalar invariance was achieved for security with fathers, metric invariance was partially established for security with mothers, suggesting cultural variations in how children interpret and respond to specific SSQ items. Notably, items 8 and 14 in the Italian sample exhibited weaker factor loadings and may have been interpreted differently in the Italian parenting context. There is some evidence that Italian

TABLE 4 | Item discrimination and location parameters for secure base and safe haven support scales of the security scale.

SBS		Mother				Father			
Item		***b1***	***b2***	***b3***	***a***	***b1***	***b2***	***b3***	***a***
SSQ2	Feel like their mother/father butts in a lot…	−3.63	0.61	4.20	0.46	−5.76	−0.90	3.19	0.34
SSQ5	Feel more confident trying new things after talking to their mother/father…	−2.68	−1.60	0.04	1.39	−2.44	−1.42	0.25	1.58
SSQ8	Sure their mother/father wants to hear what they think, even when they disagree with their mother/father…	−2.85	−1.50	0.09	1.13	−2.21	−1.12	0.22	1.57
SSQ11	Feel like their mother/father encourages them when they try new things…	−2.63	−1.48	−0.20	1.08	−2.21	−1.21	−0.13	1.17
SSQ14	Feel like their mother/father lets them decide enough things by themselves…	−2.50	−1.15	0.60	1.15	−2.89	−1.57	0.38	1.12
SSQ17	Think their mother/father encourages them to be themselves…	−2.38	−1.59	−0.61	2.13	−2.12	−1.44	−0.42	2.67
SSQ20	Really sure their mother/father is proud of them…	−2.29	−1.47	−0.49	2.04	−2.17	−1.46	−0.52	2.28
SSQ22	Mother/father doesn't let them have enough say in choosing what activities they want to do outside school…	−2.42	−1.03	0.29	1.04	−2.91	−1.40	0.09	0.89
SSQ23	Feel like their mother/father always encourages them to follow their interests…	−2.31	−1.48	−0.45	2.61	−2.11	−1.42	−0.40	2.91
SSQ24	Practice with their mother/father when they are trying to get better at something…	−2.24	−0.95	0.50	1.13	−2.01	−1.00	0.51	1.22
SHS		**Mother**				**Father**			
Item		***b1***	***b2***	***b3***	***a***	***b1***	***b2***	***b3***	***a***
SSQ1	Find it easy to trust their mother/father …	−2.52	−1.85	−0.83	2.08	−2.28	−1.62	−0.59	2.25
SSQ3	Find it easy to count on their mother/father for help…	−2.72	−1.84	−0.85	1.97	−2.24	−1.40	−0.51	2.36
SSQ4	Think their mother/father spends enough time with them…	−2.54	−1.40	−0.26	1.28	−1.93	−1.03	0.17	1.46
SSQ6	Do not really like telling their mother/father what they are thinking…	−1.45	−0.07	1.22	1.30	−1.58	0.06	1.40	1.23
SSQ7	Do not really need their mother/father for much…	−4.10	−0.61	2.19	0.50	−3.30	−0.73	1.80	0.64
SSQ9	Wish they were closer to their mother/father…	−2.22	−1.17	−0.22	0.74	−1.55	−0.54	0.32	0.94
SSQ10	Worry that their mother/father does not really loves them…	−2.51	−1.62	−1.01	1.65	−2.28	−1.41	−0.80	2.04
SSQ12	Feel like their mother/father really understands them…	−2.04	−1.10	−0.05	2.04	−1.99	−1.08	0.07	2.11
SSQ13	Are really sure their mother/father would not leave them.…	−3.02	−1.97	−1.33	1.42	−2.53	−1.59	−0.91	1.84
SSQ15	Worry that their mother/father might not be there when they need them…	−2.22	−1.17	−0.29	1.42	−1.94	−0.95	−0.09	1.61
SSQ16	Mother/father does not listen to them.…	−1.98	−1.03	−0.14	1.99	−1.90	−0.93	0.02	2.01
SSQ18	Go to their mother/father when they are upset…	−1.87	−0.93	0.30	1.33	−1.62	−0.58	0.92	1.33
SSQ19	Wish their mother/father would help them more with their problems…	−2.26	−1.11	0.18	0.93	−1.95	−0.72	0.53	1.07
SSQ21	Feel better when their mother/father is around…	−2.74	−1.75	−0.22	1.47	−2.50	−1.56	−0.20	1.76

Note: SSQ = security scale questionnaire item, SBS = secure base support, SHS, *b* = location, *a* = discrimination.

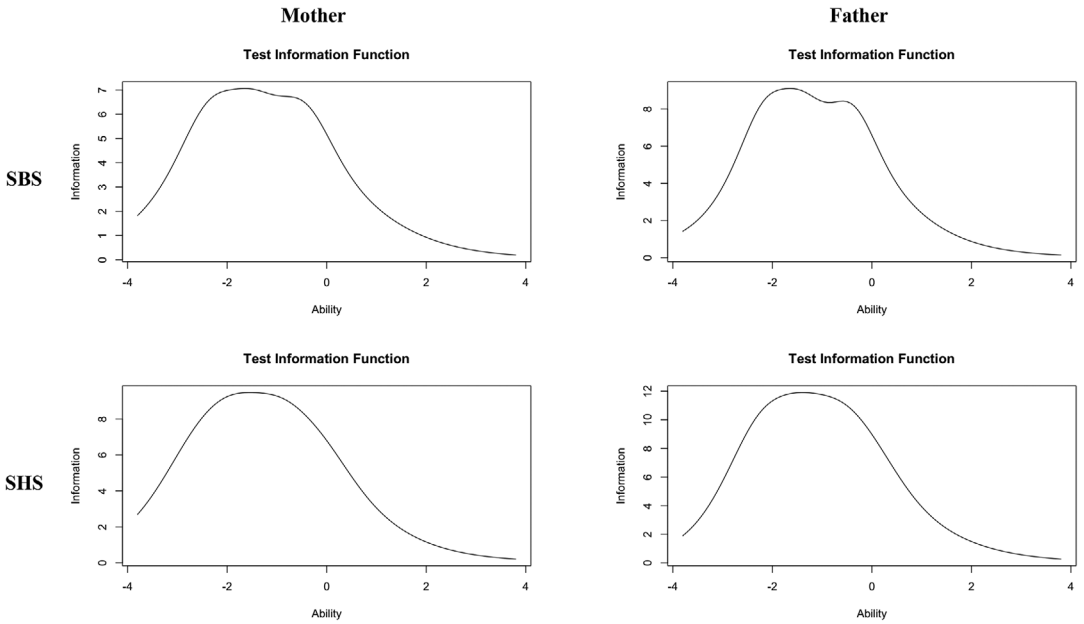

FIGURE 1 | Test of information plots for secure base and safe haven support scales of the security scale with mothers and fathers. SBS, secure base support; SHS, safe haven support. Information = overall information (i.e., precision/reliability) of the scale. Ability = level of the latent trait (i.e., secure base or safe haven support).

caregivers engage in more control and monitoring than other Western countries (e.g., Claes et al. 2011; Raudino et al. 2013). Some children, for example, may have seen the response option, "Other kids think their mother usually lets them choose their activities…" from item 14 as supportive of their autonomy, while others may have interpreted the same response option as negative due to cultural expectations for greater parental oversight (e.g., parent not facilitating structure in their after-school activities).

These speculations also align with previous research indicating that, although attachment behaviors are universally present, attachment-related constructs are shaped by cultural norms and caregiving expectations (Fernandes et al. 2020; Keller 2013; Posada et al. 2013). Future research should further explore how cultural norms influence attachment, particularly the SB function. While we believe that the SBS items capture the accessibility and availability of the parent *from the child's perspective* (i.e., their conscious representation of their parent as an available resource to support their exploration), some items (e.g., item 14 "some kids feel like their mother lets them decide enough things by themselves") could also resemble parental autonomy support. Items may not be interpreted equivalently across different cultural contexts, and cultural values regarding autonomy and individuation may influence how SBS items are understood. Thus, additional studies across diverse cultural contexts would further our understanding of the extent to which the SSQ captures universal attachment functions.

We also investigated whether the SSQ's factorial structure was consistent across child gender. Our results align with previous findings (i.e., Fernandes et al. 2020), indicating that the SSQ was invariant across boys and girls at the scalar level (i.e., the underlying factor structure of SSQ has the same meaning for boys and girls). Further, our analyses supported invariance between younger (9–10 years) and older (11–14 years) age groups. Overall, these results support the SSQ's psychometric properties and show that children's understandings of SB and SH support may be largely unaffected by gender socialization and changes due to developmental transitions during preadolescence.

The SSQ was also invariant across mother-child and father-child attachment relationships. Children rated mothers higher in SH support, but there was no difference in SB support between mothers and fathers. This aligns with research indicating that both fathers and mothers serve as attachment figures (Bowlby 1969/1982; Bretherton 2010) and that mothers are typically perceived as primary sources of emotional comfort. However, this finding also contradicts the idea that fathers play a greater role in fostering exploration/autonomy (Bretherton 2010; Grossmann et al. 2008). Contemporary parenting roles appear to be increasingly fluid, shaped by cultural expectations, individual differences in parenting style, and broader socioeconomic and familial dynamics (Deneault et al. 2024). As caregiving responsibilities continue to evolve, future research should examine whether these patterns shift over time and how socioeconomic factors, household structures, and cultural norms influence children's perceptions of parental SH and SB support. Future research on the SSQ in diverse family structures, including lesbian and gay parents, single parents, and co-parenting arrangements where caregiving roles and parent gender do not overlap, will be crucial in elucidating how these interactions shape SH and SB functions (Carone 2022; Carone et al. 2020). Such studies could provide a more nuanced understanding of how attachment security is perceived across different family constellations and how caregiving roles, rather than gender alone, influence attachment dynamics.

A strength of the current study is that we were able to directly test differences in latent SBS and SHS across three countries (when reporting on fathers), child gender, and child age after establishing that the SSQ measured the same constructs in these

contexts. While most differences in SBS and SHS were negligible based on their small effect sizes, some further nuance our results and warrant comment. Italian children reported lower SBS and SHS support from their fathers, with particularly strong effects for SBS when compared to the United States and Romanian children. This finding may reflect the transitional phase Italian heterosexual parent families are currently experiencing as fathers gradually take on more active roles in childrearing (Bacchini et al. 2024). Despite these changes, traditional views of fatherhood remain influential. Italian heterosexual fathers are still often perceived as more distant authority figures whose primary role is to instill discipline and enforce family and societal norms, rather than to provide emotional availability or secure base support (Crespi et al. 2016). Regarding child age, older children reported more SBS from mothers and fathers and less SHS from mothers. These results are consistent with the notion that as children enter middle childhood, they are increasingly able to regulate their distress independently and coordinate with their caregiver to receive support for exploration as their social world expands (Brumariu and Kerns 2022; Kerns and Brumariu 2016). Future prospective studies would provide a more powerful test of whether there are slight shifts across development in children's perceptions of SBS and SHS.

Last, we evaluated the SSQ's item-level characteristics using IRT. Results provided additional insight into low-performing items (e.g., items 2 and 7), indicating that children with varying levels of latent attachment security with their parents may endorse similar response options, making these items less informative. However, the remaining items differentiated children in terms of SBS and SHS well. Further, location parameters and test information indicated that normative provision of SBS or SHS was sufficient for children to endorse the highest response option on the scale. These results also suggested that the SSQ is especially reliable at measuring extreme deviations from this norm by distinguishing children with more difficulties in relying on their parents as a SB or SH. These results are consistent with the notion that secure parent-child attachments are relatively common in the general population (Madigan et al. 2023).

Replication in the attachment literature is crucial for the effective translation of science into policy and practice (Van IJzendoorn and Bakermans-Kranenburg 2021). Thus, it is essential to guide decisions regarding attachment assessments based on reproducible findings rather than single studies (Kerns and Seibert 2021). Our paper replicates Fernandes et al.'s (2020) findings regarding the SSQ's two-factor structure, high correlations between the SBS and SHS factors, poorer performing items, and measurement invariance across different cultural contexts, parent gender, and child gender. We also extended the literature in several ways. To our knowledge, our study is the first to compare latent means for SBS and SHS across different countries, child gender, child age, and parent gender, providing a clear picture of "true differences" across these contexts not attributable to measurement error. Further, building on factor analytic results, our IRT analyses also provide a more granular assessment of SSQ item quality and offer novel insights into where along latent attachment security dimensions the SSQ best differentiates children. We also tested a longer version of the SSQ, including three newly added SBS items. The strong discrimination of these items and consistent loadings across CFAs advance support for a version of the SSQ that gives greater content coverage for SBS and addresses the need to better represent SB functions in attachment security measures.

Overall, results indicate that both a one-factor and two-factor solution for the SSQ are viable. The choice to use separate SBS and SHS scales or to collapse them into a single scale representing attachment security may depend on the research question. While the existing 21-item version of the SSQ may be sufficient in most applications, and both are currently used in the literature, the 24-item version has the added advantage of additionally sampling the SB domain. Across populations, researchers may be tempted to use a trimmed version of the 24-item SSQ by removing the three items that have consistently performed poorly (i.e., items 2, 7, and 9) and the two items that were non-invariant across three countries when reporting on mothers (i.e., items 8 and 14). The disadvantage is that adapted versions may lack validity data. Some items did not load in individual CFAs, separated by country (items 8, 14, and 22), child gender (item 19), and child age (items 8, 14, and 19). However, it is essential to note that some differences in item loadings based on cut-offs are expected due to sampling variation, and invariance is tested at the level of the overall model (i.e., changes in model fit when imposing increasingly stringent constraints; Chen 2007; Putnick and Bornstein 2016). Thus, we encourage caution in removing items based on these individual CFAs without replication, especially since most of these differences were not large enough to reject metric or scalar invariance.

This study has several limitations that qualify our findings. First, relying on self-report measures may have introduced social desirability biases. The SSQ is easy to administer and has validity as a measure of child perceptions of attachment security, but questionnaire measures of attachment are not necessarily equivalent to interview-based or observational measurements (Gastelle and Kerns 2021). Future research should incorporate multi-method approaches, including observational measures and interview-based assessments of SHS and SBS (Bosmans and Kerns 2015; Kerns et al. 2011), to further validate the 24-item SSQ and to test the two-factor model using different methods. Second, the cross-sectional design limits our ability to draw conclusions about the developmental invariance of attachment functions in mother-child and father-child relationships. Longitudinal studies are needed to examine how SH and SB support evolve over time, particularly in response to shifting family dynamics and developmental transitions. Third, future research should expand to a broader range of cultural contexts/regions (e.g., Asian and African countries) to provide a more comprehensive understanding of how sociocultural norms shape attachment expectations (Keller 2013; Posada et al. 2013) and how the 24-item version of SSQ performs. Addressing these limitations in future research will enhance the generalizability of our findings and contribute to a more culturally sensitive framework for understanding attachment.

This study provides evidence for the 24-item SSQ's robust psychometric properties across three countries as indicated by good fit for its two-factor structure, measurement invariance across culture, child and parent gender, and child age groups, and moderate to very high item discrimination, suggesting questions are able to differentiate children along dimensions of attachment security

well. These results underscore the importance of separately assessing SH support and SB support for mothers and fathers. More generally, our findings contribute to the growing body of research on attachment in preadolescence devoted to identifying promising conceptual and methodological approaches to assessing parent-child attachment (Bosmans and Kerns 2015; Brumariu and Kerns 2022; Gastelle and Kerns 2021)—an important step in efforts to test the contributions of attachment in older children.

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Data Availability Statement

Data is available from the corresponding author upon reasonable request. The data are not publicly available due to privacy/ethical restrictions. Analysis code for the main analyses is available on the Open Science Framework at https://osf.io/695ce/?view_only=8e75b86401c54393b9144163dcd46eeb

Endnotes

[1]With ordinal data, multigroup CFA analyses require each response category to have data. For items 10 and 13, US children did not endorse response option 1 at all when reporting on mothers, preventing the model from running. Thus, we excluded these items from this analysis (see Table S11 for results including items 10 and 13 comparing Romania and Italy).

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.

Supporting file 1: sode70017-sup-0001-SuppMat.docx