

ADAPTATION AND VALIDATION OF THE CREATIVITY NURTURING BEHAVIOR OF SIBLINGS (CNBS) SCALE: AN EXPLORATORY FACTOR ANALYSIS (EFA)

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Abstract

This study aims to adapt and examine the initial psychometric properties of the Creativity Nurturing Behavior of Siblings (CNBS) scale in an Indonesian context. The CNBS, originally developed and validated by Sharma et al. (2026) using samples from India and Oman, measures eight dimensions of sibling behavior that foster creativity: admiration and affection, competition, maternal differential, conflict, nurturance of sibling, nurturance by sibling, paternal differential, and similarity and sharing. The adaptation process followed the International Test Commission (ITC, 2017) guidelines, encompassing forward translation, synthesis, expert judgment, back-translation, and readability testing. A total of 320 participants aged 18-25 years who had at least one sibling and had lived together with that sibling participated in this study. Data were analyzed using Exploratory Factor Analysis (EFA) with the Principal Axis Factoring method and Varimax rotation. Results indicated very good internal reliability (Cronbach's $\alpha = .914$) and adequate data suitability for factor analysis (KMO = .899; Bartlett's test, $\chi^2(496) = 5362.905$, $p < .001$). The EFA yielded an eight-factor structure explaining 58.08% of the total variance, consistent with the original scale. Two items (I12 and I13) did not load satisfactorily and require revision. Future research involving Confirmatory Factor Analysis (CFA) and tests of convergent and discriminant validity is strongly recommended to establish more comprehensive psychometric evidence for the Indonesian version of the CNBS.

Keywords: instrument adaptation, creativity-nurturing behavior, siblings, exploratory factor analysis, psychometric properties

Abstrak

Penelitian ini bertujuan untuk mengadaptasi dan menguji properti psikometri awal skala Creativity Nurturing Behavior of Siblings (CNBS) dalam konteks Indonesia. CNBS dikembangkan dan divalidasi oleh Sharma et al. (2026) menggunakan sampel dari India dan Oman, mengukur delapan dimensi perilaku saudara kandung yang mendukung kreativitas: admiration and affection, competition, maternal differential, conflict, nurturance of sibling, nurturance by sibling, paternal differential, dan similarity and sharing. Proses adaptasi mengacu pada panduan International Test Commission (ITC, 2017) yang mencakup translasi maju, sintesis, expert judgment, translasi balik, dan uji keterbacaan. Sebanyak 320 partisipan berusia 18-25 tahun yang memiliki minimal satu saudara kandung dan pernah atau sedang tinggal satu rumah bersama saudara kandung tersebut berpartisipasi dalam penelitian ini. Data dianalisis menggunakan Exploratory Factor Analysis (EFA) dengan metode Principal Axis Factoring dan rotasi Varimax. Hasil menunjukkan reliabilitas internal yang sangat baik (Cronbach's $\alpha = 0.914$) dan kelayakan data yang

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memadai untuk analisis faktor ($KMO = 0.899$; Bartlett's Test $\chi^2(496) = 5362.905$, $p < .001$). EFA menghasilkan struktur delapan faktor yang menjelaskan 58.08% total varians, konsisten dengan skala versi asli. Dua aitem (I12 dan I13) tidak memuat secara memuaskan dan perlu direvisi. Penelitian lanjutan dengan Confirmatory Factor Analysis (CFA) serta pengujian validitas konvergen dan diskriminan sangat direkomendasikan untuk membangun bukti psikometri yang lebih komprehensif bagi CNBS versi Indonesia.

Kata kunci: adaptasi alat ukur, perilaku pengembangan kreativitas, saudara kandung, analisis faktor eksploratori, properti psikometri

INTRODUCTION

Creativity is one of the most important cognitive and psychological abilities in individual development, both in academic contexts and in daily life. Research indicates that the family environment plays a central role in shaping the creative potential of children and adolescents (Hennessey & Amabile, 1987). Although the impact of parents on the development of creativity has been extensively studied, the role of siblings as a source of social influence on creativity remains largely overlooked in the developmental psychology literature.

Sibling relationships are among the longest-lasting types of interactions and have a significant impact on a person's life. Unlike parent-child relationships, which are hierarchical and authoritative, sibling relationships are equal, reciprocal, and span the entire lifespan (Whiteman et al., 2015). In daily activities, siblings engage in collaborative play, informal teaching, negotiation, and conflict resolution, which naturally foster cognitive flexibility and creative ideas key elements of creativity (LeBouef & Dworkin, 2021). Sibling behaviors that support creativity, such as admiration and affection, nurturance, constructive conflict, similarity and sharing, have been identified as factors contributing to the development of creativity (Sharma et al., 2026).

Historically, several instruments have been developed to measure sibling relationships and creativity. For measuring creativity, widely used instruments include the Torrance Tests of Creative Thinking (TTCT) (Torrance, 1974) and the Wallach-Kogan Creativity Tests (WKCT) (Wallach & Kogan, 1965), both of which assess divergent thinking abilities such as fluency, flexibility, and originality at the individual level. However, these instruments do not account for relational factors that influence creativity development (Kim, 2006). For sibling relationships specifically, the Sibling Relationship Questionnaire (SRQ) (Furman & Buhrmester, 1985) measures dimensions such as warmth, relative power, conflict, and rivalry among children and adolescents, while the Adult Sibling Relationship Questionnaire (ASRQ) evaluates similar dimensions during early adulthood (Deviarga et al., 2025; Safitri, 2023). Additionally, the Lifespan Sibling Relationship Scale (LSRS) measures affective, cognitive, and behavioral attitudes toward siblings across the lifespan (Murti & Pandoi, 2025).

However, to date, there is no standard measurement tool specifically designed to assess these behaviors in the context of sibling relationships, particularly within the Indonesian population. Sharma et al. (2026) developed and validated the Creativity Nurturing Behavior of Siblings Scale (CNBS) as an instrument to measure sibling behaviors that foster creativity. The scale

consists of 32 items across eight factors, namely: Admiration and Affection, Competition, Maternal Differential, Conflict, Nurturance of Sibling, Nurturance by Sibling, Paternal Differential, dan Similarity and Sharing. The initial validation was conducted on a sample from India and Oman, which reflect collectivist cultures with large families. The results of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) indicated a good model fit ($\chi^2 = 764.7$, $df = 464$, $CFI = 0.95$, $RMSEA = 0.03$) with an overall reliability of $\alpha = 0.84$.

Compared to previously available instruments, the CNBS offers several advantages that justify its selection for adaptation in the present study. Unlike creativity-specific instruments such as the TTCT (Torrance, 1974) and the WKCT (Wallach & Kogan, 1965), which assess an individual's divergent thinking capacity in isolation, the CNBS captures the relational and family-based mechanisms through which creativity is nurtured an aspect increasingly recognized as central to creativity development (Kim, 2006). Compared to general sibling-relationship measures such as the SRQ (Furman & Buhrmester, 1985), the ASRQ (Deviarga et al., 2025; Safitri, 2023), and the LSRS (Murti & Pandoi, 2025), which primarily assess overall relationship quality (e.g., warmth, conflict, rivalry), the CNBS is more specific in targeting behaviors theoretically linked to creativity, such as reciprocal nurturance and similarity and sharing. This specificity, together with its grounding in an integrative theoretical framework, makes the CNBS a more appropriate instrument for the present study's aim of understanding sibling contributions to creativity within Indonesian families.

Although the CNBS was developed within the cultural contexts of India and Oman, Indonesian cultural characteristics exhibit many significant similarities. Indonesia is a collectivist society with strong family values, where sibling relationships play a crucial role in individual development (Hofstede, 2011). These similarities in cultural orientation provide a strong foundation for adapting the CNBS to the Indonesian context. However, cross-cultural adaptation remains necessary to ensure the semantic, conceptual, and psychometric validity of the instrument so that it aligns with the linguistic and cultural characteristics of Indonesia.

Research on the adaptation of psychological assessment tools to the Indonesian context remains essential, particularly for instruments related to family dynamics and cognitive development. To date, there are no instruments that specifically measure sibling behavior in relation to the development of creativity in the Indonesian population, resulting in a significant gap in the Indonesian developmental psychology literature.

Based on the above description, this study aims to adapt and validate the Indonesian version of the CNBS scale, focusing on testing its factor structure through Exploratory Factor Analysis (EFA). This study is expected to provide a preliminary psychometric foundation for the CNBS in the Indonesian context, particularly regarding its factor structure and internal reliability.

METHODS

This study employs a quantitative approach with a psychometric design, specifically the adaptation and validation of a measurement instrument. This design was chosen because the primary objective of the study is to examine the psychometric properties of the Indonesian version of the CNBS, including the instrument's factor structure, reliability, and validity. The adaptation process followed the guidelines of the International Test Commission (ITC, 2017),

which included the stages of translation, back-translation, expert judgment, synthesis, readability testing, and statistical testing via Exploratory Factor Analysis (EFA).

Participants

The participants in this study were individuals aged 18-25 who had at least one biological sibling either an older or younger sibling and who had lived or were currently living in the same household with that sibling. These criteria were established to ensure that participants had sufficient experience interacting directly with their siblings so that they could respond to the CNBS items accurately and meaningfully.

The sampling technique used was purposive sampling, which involves selecting a sample based on criteria established in accordance with the research objectives (Creswell, 2014). The target sample size was 320 participants. This number meets the minimum recommendation for factor analysis, namely a ratio of 5 to 10 respondents per item (Hair et al., 2016), and is sufficient for conducting SEM/CFA (Hair et al., 2021). Participants will be recruited through the distribution of an online questionnaire using Google Forms to individuals who meet the criteria.

Instruments

The instrument used in this study was the Indonesian version of the CNBS, which is an adaptation of the Creativity Nurturing Behavior of Siblings Scale (CNBS) developed by Sharma et al. (2026). The original scale consists of 32 items that measure eight dimensions of sibling behavior that support creativity, as presented in Table 1.

Table 1. Original CNBS Factor Structure (Sharma et al., 2026)

Factor	Item Number	Number of Items
<i>Factor 1 Admiration and Affection</i>	1, 2, 3, 4, 5, 6, 7	7
<i>Factor 2 Competition</i>	8, 9, 10	3
<i>Factor 3 Maternal differential</i>	11, 12, 13	3
<i>Factor 4 Conflict</i>	14, 15, 16, 17	4
<i>Factor 5 Nurturance of sibling</i>	18, 19, 20	3
<i>Factor 6 Nurturance by Sibling</i>	21, 22, 23, 24	4
<i>Factor 7 Paternal differential</i>	25, 26	2
<i>Factor 8 Similarity and sharing</i>	27, 28, 29, 30, 31, 32	6
TOTAL		32

Each item was rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The original version of the CNBS demonstrated a good model fit in CFA ($\chi^2 = 764.7$, $df = 468$, $CFI = 0.94$, $RMSEA = 0.03$) with an overall reliability of $\alpha = 0.84$ (Sharma et al., 2026).

The process of adapting the CNBS into Indonesian was conducted in several stages: (1) forward translation by three bilingual translators fluent in both English and Indonesian; (2) synthesis of the translation results to produce an initial Indonesian version; (3) expert judgment to assess content, semantic, and cultural equivalence; (4) synthesis of the expert judgment results to produce a revised version; (5) back-translation by an independent translator into English; (6) readability testing on a small group of participants prior to full-scale field testing.

Data Collection

In line with the ITC (2017) guidelines outlined in the adaptation process above, the study was conducted in several sequential phases. The first phase was preparation, which included adapting the instruments as described above, developing an online questionnaire, and obtaining research ethics approval. The second phase was data collection, which was conducted online via Google Forms distributed to potential participants who met the inclusion criteria. At the beginning of the questionnaire, potential participants were provided with an explanation of the research objectives, assurances of data confidentiality, and a statement that participation was voluntary.

Before completing the questionnaire, each participant was asked to provide written informed consent online. The collected data were then verified to ensure the completeness and consistency of responses. Responses that were incomplete or exhibited invalid response patterns for example, where all items were answered with the same value were excluded from the analysis. The third stage was data analysis, as described in the following section

Data Analysis

Data analysis in this study was performed using JASP software. Prior to factor analysis, data assumption tests were conducted, including the Kaiser-Meyer-Olkin (KMO) test for sample adequacy with an acceptable value of ≥ 0.60 , as well as Bartlett's Test of Sphericity to ensure the correlation matrix is not an identity matrix (Hair et al., 2016).

EFA was performed using the Principal Axis Factoring method with Varimax rotation. The number of factors retained was determined based on eigenvalues > 1 , the scree plot, and factor interpretability. Items with factor loadings < 0.40 or high cross-loadings (difference < 0.10) will be considered for exclusion from the scale. Internal reliability was estimated using Cronbach's alpha, with a value of ≥ 0.70 as the acceptance threshold (Nunnally, 1978).

RESULTS

Reliability Analysis Results

Before conducting the EFA, the overall reliability of the scale was tested. The CNBS measurement tool covers eight dimensions of sibling behavior that support creativity, namely admiration and affection, competition, maternal differential, conflict, nurturance of sibling, nurturance by sibling, paternal differential, and similarity and sharing. Reliability testing was conducted using the JASP software. The analysis results show a Cronbach's α coefficient of 0.914 (95% CI [0.899, 0.929]), indicating very good internal reliability and exceeding the required minimum threshold ($\alpha \geq 0.70$) (Nunnally, 1978; Hair et al., 2016). This value indicates high consistency among items in measuring the construct of sibling behavior that supports creativity.

Table 1. Frequentist Scale Reliability Statistics

Frequentist Scale Reliability Statistics

Coefficient	Estimate	Std. Error	95% CI	
			Lower	Upper
Cronbach's α	0.9140	0.007872	0.8985	0.9294

KMO and MSA Test Results by Item

The results of the Kaiser-Meyer-Olkin (KMO) test showed an overall KMO value of 0.899, which falls into the “meritorious” category and indicates that the data is highly suitable for factor analysis (Hair et al., 2016). All MSA values per item fell within the range of 0.756 to 0.957, exceeding the required minimum threshold of 0.60.

Table 2. Kaiser-Meyer-Olkin Test*Kaiser-Meyer-Olkin Test*

	MSA
Overall MSA	0.899
I1	0.892
I2	0.928
I3	0.939
I4	0.917
I5	0.892
I6	0.943
I7	0.809
I8	0.756
I9	0.861
I10	0.840
I11	0.874
I12	0.781
I13	0.957
I14	0.897
I15	0.916
I16	0.880
I17	0.789
I18	0.906
I19	0.781
I20	0.903
I21	0.909
I22	0.942
I23	0.818
I24	0.838
I25	0.867
I26	0.873
I27	0.927
I28	0.953
I29	0.941

Kaiser-Meyer-Olkin Test

	MSA
I30	0.943
I31	0.932
I32	0.938

Barlett's Test

The results of Bartlett's Test of Sphericity showed $\chi^2(496) = 5362.905$, $p < .001$, confirming that the correlation matrix differs significantly from the identity matrix and that the data are suitable for EFA (Tabachnick & Fidell, 2019).

Table 3. Barlett's Test

Bartlett's Test

χ^2	df	p
5362.905	496.000	< .001

Factor Loading

EFA was conducted using the Principal Axis Factor Analysis method with Varimax rotation. Based on the criterion of eigenvalues > 1 and inspection of the scree plot, eight factors were identified that explained 58.08% of the total variance (Fabrigar et al., 1999). This is consistent with the eight-factor structure in the original version of the CNBS (Sharma et al., 2026). Table 4 presents the distribution of items across each factor along with their factor loadings.

Table 4. Factor Loading

Factor Loadings

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Uniqueness
I2	0.644								0.412
I3	0.622								0.463
I4	0.614								0.505
I32	0.515								0.493
I6	0.504								0.568
I1	0.496								0.615
I31	0.494	0.412							0.437
I15	0.493								0.480
I14	0.472								0.528
I5	0.432		0.451						0.507
I26		0.826							0.222
I25		0.794							0.260
I27		0.644							0.429
I30		0.540							0.472

Factor Loadings

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Uniqueness
I28		0.521							0.419
I29		0.467							0.432
I16			0.680						0.417
I18			0.651						0.400
I22			0.433						0.460
I20				0.758					0.270
I21				0.722					0.253
I8					0.891				0.139
I7					0.749				0.355
I9					0.540	0.523			0.331
I19						0.652			0.518
I17						0.628			0.512
I23							0.844		0.185
I24							0.737		0.344
I11								0.661	0.373
I10								0.654	0.466
I12									0.595
I13									0.552

Note. Applied rotation method is varimax.

Note: F1 = Admiration & Affection; F2 = Similarity & Sharing; F3 = Conflict/Nurturance; F4 = Nurturance by Sibling; F5 = Competition; F6 = Nurturance of Sibling; F7 = Paternal Differential; F8 = Maternal Differential. I12 and I13 do not load on any factor (loading < 0.40)

Hypothesis Testing

The main hypothesis of this study was that the Indonesian version of the CNBS scale would demonstrate adequate psychometric properties and replicate the original eight-factor structure. The results of the Exploratory Factor Analysis (EFA) using Principal Axis Factoring with Varimax rotation extracted eight distinct factors that cumulatively explained 58.08% of the total variance. Bartlett's Test of Sphericity showed highly significant results $\chi^2(496) = 5362.905$, $p < .001$, and the KMO measure was classified as meritorious (0.899). This empirical data strongly supports the main hypothesis of the study. Further analysis of the factor loadings shows that 30 out of 32 items significantly loaded onto their respective factors (> 0.40). This indicates that the Indonesian adaptation of the CNBS is a structurally valid and reliable instrument for measuring creativity-nurturing behaviors among siblings, although two items (I12 and I13) related to the Maternal Differential dimension require further qualitative review.

DISCUSSION

The results of the analysis indicate that the Indonesian version of the CNBS demonstrates excellent internal reliability, exceeding both the minimum standard recommended by Nunnally (1978) and Hair et al. (2016) and the reliability reported in the original study (Sharma et al., 2026). This finding indicates that the items in the Indonesian version of the CNBS are able to

consistently measure the construct of sibling behavior that supports creativity, even after undergoing a process of cross-linguistic and cross-cultural adaptation. This finding is consistent with research on the adaptation of psychological measurement tools in Indonesia, which generally maintains or even improves the reliability of the original instruments (Lubis et al., 2024; Faisal et al., 2023). This is likely attributable to a meticulous adaptation process guided by the ITC (2017) and Beaton et al. (2000), as well as the cultural similarities between Indonesia's collectivist orientation and the Indian and Omani contexts in which the CNBS was originally validated. The high reliability also supports the proposition that sibling behavior supporting creativity is a stable and consistent construct across cultural contexts with a strong family orientation (Hofstede, 2011).

The KMO value obtained falls into the “meritorious” category, indicating that the correlations among items are sufficiently strong to support factor analysis (Kaiser, 1974), and exceeds the value reported in the original study (Sharma et al., 2026). This result is consistent with the range reported in studies on the adaptation of family assessment instruments in Indonesia (Lubis et al., 2024). Bartlett's Test further confirms that the correlation matrix is not an identity matrix and that the existing correlation patterns are sufficiently meaningful for factor analysis (Tabachnick & Fidell, 2019; Field, 2018).

The EFA identified an eight-factor structure consistent with the original CNBS (Sharma et al., 2026). The replication of this factor structure in the Indonesian context indicates that the dimensions of sibling behavior that support creativity admiration and affection, competition, maternal differential, conflict, nurturance of sibling, nurturance by sibling, paternal differential, and similarity and sharing are relatively universal and can be operationalized across cultures within a collectivist society (Hofstede, 2011; Whiteman et al., 2015).

The consistency of this factor structure can be explained through the framework of Social Learning Theory (Bandura, 1977), which posits that observational learning and modeling of creative behavior within sibling relationships are mechanisms that generalize across cultures. In the Indonesian context, strong family values reinforce the intensity of sibling interactions, making the behaviors measured by the CNBS such as providing guidance, sharing interests, and constructively resolving conflict more prominent and easily identifiable by participants (Riany et al., 2016).

Compared to previous instruments, the CNBS offers several significant advantages. First, unlike individual creativity instruments such as the TTCT (Torrance, 1974) and the WKCT (Wallach & Kogan, 1965), which directly measure an individual's capacity for divergent thinking, the CNBS measures the relational dimensions of creativity development. This is important because research shows that creativity is not merely an individual cognitive ability but is also significantly influenced by the social environment and interpersonal interactions (Kruse et al., 2023; Guilford, 1956). Kim (2006) also criticized the TTCT's limitations in capturing the social context of creativity, which is, in fact, the primary focus of the CNBS.

Second, compared to the Sibling Relationship Questionnaire (Furman & Buhrmester, 1985), which measures the overall quality of sibling relationships through the dimensions of warmth, conflict, hostility, and relative status, the CNBS has greater specificity in measuring behaviors that are theoretically linked to the development of creativity. The SRQ is not designed to measure dimensions such as reciprocal “nurturance of/by siblings,” “similarity and sharing” as

vehicles for collaborative learning, or differential parental influences that can affect the dynamics of creativity within the family (Sharma et al., 2026). Thus, the CNBS fills a gap that has long been absent in family-based creativity research.

Third, the CNBS has a more integrative theoretical foundation than previous instruments. The CNBS simultaneously integrates three theoretical frameworks: Social Learning Theory (Bandura, 1977) to explain the mechanisms of creative behavior learning; Attachment Theory (Bowlby, 1969) to explain the role of emotional security in fostering creative exploration; and Creative Cognition Theory (Finke et al., 1992) to explain the cognitive processes stimulated by sibling interactions. The integration of these three theoretical perspectives provides a more robust conceptual foundation than instruments that focus on only a single dimension.

This pattern of findings is broadly consistent with other recent instrument-adaptation studies conducted within the Indonesian psychological literature. For example, adaptations such as the General Self-Efficacy Scale (Faisal et al., 2023) and the Family Function Scale (Lubis et al., 2024) similarly report that a rigorous, culturally sensitive translation and validation process tends to preserve or even strengthen the psychometric properties of the original instrument. Taken together with the present findings, this suggests that the ITC (2017) framework provides a robust methodological basis for adapting psychological instruments developed in other collectivist cultural settings into the Indonesian context.

Two items (I12 and I13) did not load satisfactorily on any factor (loading < 0.40). Based on the item content, I12 and I13 measure a mother's neutral treatment of her biological children (the Maternal Differential factor). A possible reason for the poor loading of these two items is a difference in semantic understanding within the Indonesian context, where the concept of parental "neutrality" may carry different connotations than in the original context India and Oman. In Indonesian culture, parental treatment is often viewed as part of a collective obligation that is not always explicitly perceived as "neutral" or "non-neutral" (Riany et al., 2016). Therefore, revising or reformulating these two items within the Indonesian cultural context is highly recommended before proceeding to the CFA stage of scale development.

In addition, two items showed cross-loading: I31 loaded on F1 (0.494) and F2 (0.412), and I9 loaded on F5 (0.540) and F6 (0.523). This cross-loading indicates that both items contain overlapping content across two different factors. Item I31, which measures the sharing of secrets among siblings (Similarity and Sharing), also appears to be perceived as an expression of admiration and affection (Admiration and Affection) in the Indonesian context, where emotional openness among siblings is often closely linked to affective bonds (Whiteman et al., 2015). Meanwhile, I9, which measures competition (Competition), appears to overlap with the nuance of nurturing (Nurturance of Sibling), reflecting cultural ambiguity in distinguishing between competitive and guiding impulses within the context of Indonesian families (Hofstede, 2011). Revisions to the content and/or wording of these two items are necessary to improve factor specificity in future research (Hair et al., 2016; Fabrigar et al., 1999).

CONCLUSION

Without clear Conclusions, reviewers and readers will find it difficult to judge the work, and whether or not it merits publication in the journal. Do not repeat the Abstract, or just list experimental results. Provide a clear scientific justification for your work, and indicate possible

applications and extensions. You should also suggest future experiments and/or point out those that are underway.

This study adapted and tested the preliminary psychometric properties of the Indonesian version of the CNBS among 320 participants aged 18-25 with biological siblings. Three main findings emerged: the Indonesian version demonstrated excellent internal reliability (Cronbach's $\alpha = .914$), exceeding both the original study ($\alpha = .84$; Sharma et al., 2026) and the recommended minimum (Nunnally, 1978); the data showed adequate suitability for factor analysis (KMO = .899; Bartlett's test, $\chi^2(496) = 5362.905$, $p < .001$); and EFA yielded an eight-factor structure explaining 58.08% of the total variance, consistent with the original scale, confirming that the construct can be validly operationalized in the Indonesian cultural context.

Compared to existing instruments such as the TTCT (Torrance, 1974), the WKCT (Wallach & Kogan, 1965), and the SRQ (Furman & Buhrmester, 1985), the CNBS offers a more specific, relational measure of sibling behaviors that support creativity, filling a longstanding gap in Indonesian family-based creativity research (Lubis et al., 2024).

Two items (I12, I13) failed to load satisfactorily, and two others (I9, I31) showed cross-loading; both require content revision before further use. Future research should conduct a CFA to confirm the factor structure, test convergent and discriminant validity (Fornell & Larcker, 1981), examine cross-gender measurement invariance (Putnick & Bornstein, 2016), and establish criterion validity against external creativity measures such as the TTCT or WKCT. Overall, this study provides an initial psychometric foundation for using the Indonesian CNBS in research and practice concerning sibling behaviors that nurture creativity within Indonesian families.

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