Adaptation and Validation of the Indonesian Version of The Iowa-Netherlands Comparison Orientation Measure (INCOM) Among Primiparous Mothers Who Use Social Media

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The present cross-sectional study aimed to adapt and validate the Indonesian version of the Iowa-Netherlands Comparison Orientation Measure (INCOM) among primiparous mothers who actively use social media. Using purposive sampling, data were collected from 304 first-time mothers with infants under 12 months of age across multiple provinces in Indonesia, through both online and in-person Likert-scale questionnaires. Confirmatory factor analysis (CFA) with Maximum Likelihood (ML) estimation was conducted to examine the factor structure, while reliability was assessed using Cronbach's α and McDonald's ω, and construct validity was evaluated through composite reliability (CR) and average variance extracted (AVE). The results supported a two-factor structure of social comparison orientation, comprising ability and opinion comparison. The model demonstrated acceptable to good fit (RMSEA = 0.083; CFI = 0.969; TLI = 0.941; SRMR = 0.052; GFI = 0.972). Both factors exceeded recommended thresholds for construct reliability and convergent validity (CR > 0.70; AVE > 0.50), and the scale showed satisfactory internal consistency (α = 0.732; ω = 0.734) despite its brief six-item format. These findings indicate that the Indonesian version of the INCOM is a valid and reliable instrument for assessing social comparison orientation among primiparous mothers, particularly in the context of social media exposure. As an initial adaptation study, future research should examine measurement invariance across subgroups, assess temporal stability through longitudinal designs, and evaluate clinical utility, including sensitivity, specificity, and cut-off values. Overall, the instrument shows strong potential as a standardized tool for research and the development of evidence-based interventions targeting primiparous mothers in Indonesia.

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INTRODUCTION

Social comparison orientation (SCO) refers to the relatively stable individual disposition to seek, attend to, and use social information about others for self-evaluation (Gibbons & Buunk, 1999; Schneider & Schupp, 2014; Zell & Strickhouser, 2020). Unlike situational comparison, which arises momentarily in specific contexts, SCO represents a trait-like tendency that varies across individuals and shapes how frequently and intensely they compare themselves with others. Experiencing motherhood for the first time involves a multifaceted developmental transition characterized by rapid biological, psychological, and social changes from pregnancy through the early postpartum period (Moe et al., 2018; Reisz et al., 2015; Tani & Castagna, 2016). During this transition, primiparous mothers must establish a maternal identity (Kalomiris & Kiel, 2016; Saharoy et al., 2023), meet societal expectations (Fayyaz & Rani, 2025; Hennekam et al., 2019), and develop essential caregiving skills such as feeeding, understanding, infant sleep patterns, and regulating their own emotions (Cao et al., 2018; Martini et al., 2017; Petzoldt et al., 2015). Throughtout this process, meaning-making frequently occurs through comparison with others — family members, peers who have recently become mothers, public figures, and parenting communities on social media (Amaro et al., 2019; Coyne et al., 2017; Kirkpatrick & Lee, 2022). Because primiparous mothers lack prior parenting experience to serve as an internal reference, they may rely more heavily on external social comparison than experienced mothers, making SCO a particularly salient disposition during this developmental window (Egmose et al., 2022; Onishi et al., 2024; Tate, 2023).

In the Indonesian context, SCO operates within a distinctive social ecology comprising communal kinship structures, intense involvement of the extended family in childrearing, and widespread penetration of social media (Erfina et al., 2022; Harahap et al., 2024). Recent national data indicate that Indonesia has more than 185 million internet users and approximately 139 million active social media accounts(Tewu et al., 2025), creating a landscape that multiplies reference sources for new mothers, drawn both from local role models and global "momfluencers" (Chee et al., 2024; Dewi & Fauziah, 2021). Exposure to neatly curated parenting standards can enrich available references, but it simultaneously increases the likelihood of upward comparison that may not align with local realities of resources, social support, or culture. Consequently, SCO may determine whether social comparison becomes an adaptive resource that enhances maternal self-efficacy (Shorey et al., 2015) or a source of psychological vulnerability marked by anxiety, feelings of inadequacy, and reduced parenting confidence (Onishi et al., 2024; Park & Baek, 2018). While the link between social comparison and maternal well-being

is well documented, this study addresses a more basic need: a culturally valid instrument to measure SCO in this population. Primiparous mothers represent a theoretically and practically important target group because they are simultaneously the most exposed to idealized parenting content and the least equipped with prior experiential benchmarks, rendering accurate measurement of their comparison tendencies essential for both research and early screening.

Despite the universal nature of social comparison, a significant measurement gap remains for this population. The Iowa–Netherlands Comparison Orientation Measure (INCOM), originally developed simultaneously for American and Dutch populations (Gibbons & Buunk, 1999), has since been adapted and validated across diverse linguistic and cultural contexts, including German (Schneider & Schupp, 2014), Spanish versions in Spain and Chile (Buunk et al., 2020), Portuguese (Mendes et al., 2019), Brazilian Portuguese (Veleda et al., 2024), and Arabic (Almailabi & Buunk, 2026). These adaptations consistently demonstrate that while the underlying SCO construct is cross-culturally robust, item wording and factor structure often require context-specific adjustment — some studies confirming the original two-factor structure and others supporting reduced solutions. SelWithout systematic cultural adaptation, there is a risk of construct underrepresentation or construct-irrelevant variance that may compromise the validity of findings and their practical implications (Bhui et al., 2003; Healey et al., 2017; Terrana & Al-Delaimy, 2023). Although Chae (2015) previously reworded six INCOM items to reflect the maternal context, that adaptation was applied within a substantive survey study and was not accompanied by a full psychometric validation of its factor structure. To date, no study has psychometrically validated — through confirmatory factor analysis — a social-media-contextualized version of the INCOM for primiparous mothers, particularly within an Indonesian cultural setting. The present study addresses this gap.

The INCOM offers several distinct advantages for measuring SCO among primiparous mothers compared to alternative instruments. First, it is the most widely used and psychometrically established measure of dispositional social comparison, demonstrating consistent reliability across more than twenty international samples (Schneider & Schupp, 2014). Second, unlike domain-specific comparison scales restricted to areas such as body image or academic ability, the INCOM captures a general comparison disposition applicable across the multiple life domains relevant to early motherhood, including caregiving competence, infant development, and lifestyle. Third, the INCOM has shown negligible correlations with social desirability, an especially valuable property when assessing parenting-related comparisons that are sensitive to social norms

(Veleda et al., 2024). Finally, validated short forms of the INCOM perform reliably with as few as six items (Schneider & Schupp, 2014), making it well suited for time-sensitive maternal care settings where brevity is essential.

The novelty of this study lies in developing a culturally adapted Indonesian INCOM for primiparous mothers, accompanied by rigorous psychometric validation using Confirmatory Factor Analysis (CFA) with Maximum Likelihood (ML) estimation applied to Likert-type ordinal response data (Flora & Flake, 2017; Goretzko et al., 2024). Consistent with current reporting standards in structural equation modeling, model evaluation draws on multiple goodness-of-fit indices — the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) with confidence intervals, and Standardized Root Mean Square Residual (SRMR) — interpreted in combination rather than relying on single fixed thresholds, while accounting for sample size and model complexity (Cheung et al., 2024; McNeish & Wolf, 2023; Schermelleh-Engel et al., 2003). Beyond global fit, internal reliability (McDonald's omega), convergent validity, and discriminant validity were assessed using average variance extracted (AVE) and composite reliability (CR).

Based on these considerations, the present study aimed to adapt and validate the Indonesian version of the INCOM among primiparous mothers who actively use social media. This study is positioned as an essential first step of psychometric validation — establishing the structural validity, reliability, and convergent–discriminant validity of the adapted instrument — rather than an evaluation of its clinical screening performance per se. By first ensuring that the instrument is culturally appropriate and psychometrically sound, this work lays the necessary foundation for its future use as a practical tool for psychosocial risk screening and for the development of targeted support programs for Indonesian primiparous mothers.

MATERIALS AND METHOD

Participants

Participants in this study were primiparous mothers residing in Indonesia, recruited using purposive sampling between May and June 2025. The inclusion criteria were: (1) being a first-time mother (primiparous); (2) having an infant aged under 12 months; (3) being an active social media user; (4) willingness to provide informed consent. Mothers were excluded if their infants were older than 12 months at the time of data collection or if they failed to pass the embedded attention-check items. To capture broader representation, participants were recruited

from various regions across multiple provinces in Indonesia rather than being limited to a single locality. Data were collected using a Likert-scale questionnaire administered through Google Forms via two distribution modes: online (shared through social media platforms and messaging applications) and in person (offline). To prevent duplicate responses across the two modes, each participant provided a unique identifier (e.g., phone number or email address), which was used to detect and remove any overlapping entries. Of the final sample, 207 participants completed the questionnaire online and 97 completed it in person.

The required sample size was determined based on established recommendations for confirmatory factor analysis (CFA), which suggest a minimum of 200 respondents and a subject-to-item ratio of at least 10:1 (Kyriazos, 2018). A total of 337 primiparous mothers initially participated. However, 7 respondents were excluded because their infants exceeded the age limit, and 26 were excluded for failing to meet the attention-check criteria, yielding a final sample of 304 participants. With six items, this sample substantially exceeds both criteria, providing adequate statistical power for stable parameter estimation. The majority of respondents (95%) were aged between 21 and 40 years (see Table 1).

Table 1.
Demographics of Participants

Demographic	Category	Frequency	Percentage
Mother's age	Adolescents (≤18 years)	15	5%
	Early adulthood (19-40 years)	288	95%
Daily Social Media Access	< 1 hour	37	12%
	1-2 hours	85	28%
	2-3 hours	74	25%
	3-4 hours	40	13%
	4-5 hours	22	7%
	5-6 hours	16	5%
	> 6 hours	30	10%
Highest Level of Education	Elementary	1	12%
	School	102	28%
	Senior High	1	25%
	School	13	13%
	Diploma I (D1)	3	7%
	Diploma III (D3)	170	5%

Demographic	Category	Frequency	Percentage
	Diploma IV (D4) Bachelor's Degree (S1) Master's Degree (S2)	14	10%
Postpartum Birth Control Use	Yes	182	60%
	No	122	40%
N: 304			

Instruments

Social comparison orientation was measured using instruments The Iowa-Netherlands Comparison Orientation Measure (INCOM), originally developed by Gibbons & Buunk (1999) to capture individual differences in the propensity to compare oneself with others. The original instrument consists of 11 items representing two dimensions, ability comparison and opinion comparison, and has demonstrated robust psychometric properties across numerous samples (Cronbach's α = 0.78–0.85). For the present study, we adopted the six-item short form used by Chae (2015), who selected six items from the original 11-item INCOM and reworded them to reflect the maternal context (e.g., comparison related to one's child and to oneself as a mother). In Chae's (2015) study among 533 Korean mothers, this six-item version demonstrated good internal consistency (α = 0.83). The six items comprise three items representing the ability dimension and three representing the opinion dimension. Responses were measured on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicating a stronger tendency toward social comparison. For the present study, these items were further contextualized to reflect comparison situations relevant to early motherhood and social media exposure during the cross-cultural adaptation process described below (Table 2).

Table 2

Blueprint of the Iowa-Netherlands Comparison Orientation Measure (INCOM)

Factors		Item	Total
Ability	Measures the tendency of mothers to compare their own parenting abilities or performance with those of other mothers	1, 2, 3	3
Opinion	Measures the tendency of mothers to seek opinions or experiences	4, 5, 6	3

	from other mothers as a reference in parenting	
Total	Total	6

The results of the previous descriptive analysis of INCOM were score M = 3,91 with SD = 0,55, indicating that new mothers in this sample quite often use social comparison as a framework for self-evaluation in carrying to their role as mothers. In addition, the Cronbach alpha score of 0,83, shows that the items in this scale consistently measure the construct of social comparison orientation adequately.

The instructions for filled the INCOM: "Most people compare themselves from time to time with others. For example, they may compare the way they feel, their opinions, their abilities, and/or their situation with those of other people. There is nothing particularly 'good' or 'bad' about this type of comparison, and some people do it more than others. We would like to find out how often you compare yourself with other people. To do that we would like to ask you to indicate how much you agree with each statement below, by using the following scale. The accompanying 5-point scale ranged from / disagree strongly (1) to / agree strongly (5)". Translation in Indonesian language for the assignment were as: "*Dari waktu ke waktu, banyak orang membandingkan diri mereka dengan orang lain—misalnya perasaan, pendapat, kemampuan, atau situasi. Tidak ada yang 'baik' atau 'buruk' tentang jenis perbandingan ini, yang berbeda hanyalah seberapa sering anda melakukannya dibanding orang lain. Oleh karena itu, anda diminta untuk menunjukkan sejauh mana anda setuju dengan setiap pernyataan di bawah ini, dengan menggunakan skala yang tersedia. Skala 5 poin yang menyertai berkisar dari tidak setuju sama sekali (1) hingga / setuju sepenuhnya (5)*. The translation was done based on the guidelines Beaton et al., (2000), which had been explained further in the next subsection.

Adaptation Procedure

The translation and adaptation of the INCOM were conducted in accordance with the standard guidelines established by Beaton et al. (2000). Figure 1 delineates the steps undertaken to adapt and validate the INCOM instrument. Prior to initiating the adaptation process, a comprehensive literature review was performed to evaluate the instrument's suitability for the intended target population (Sidani et al., 2010). Additionally, the authors engaged in correspondence with the original developer of the instrument via email to obtain permission for its use in this study. Following this request, the developer granted permission for the instrument to be adapted and employed in subsequent research. The stages of the translation and adaptation process are presented in Figure 1.

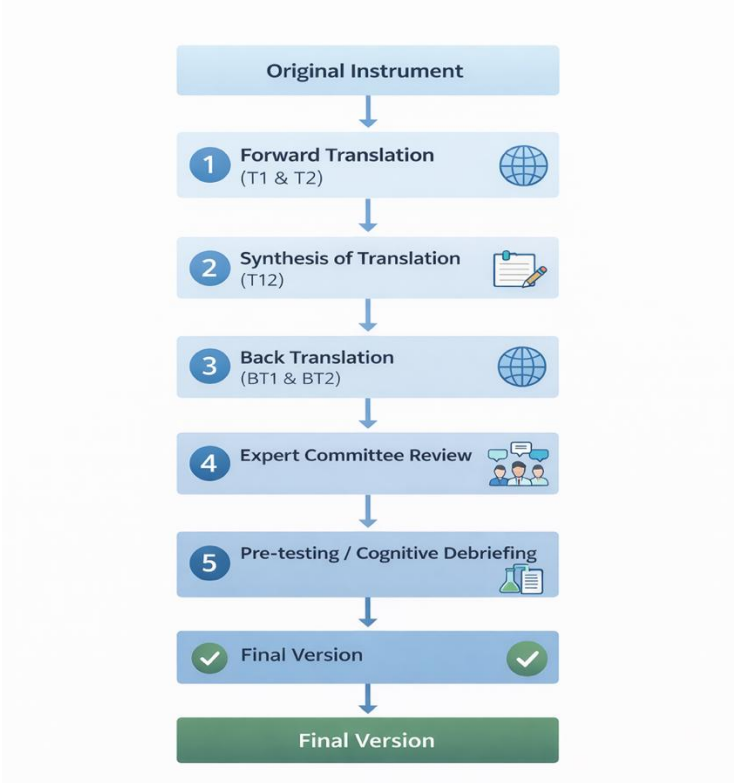

Figure 1
Process of Translation and Cultural Adaptation of the Instrument Based on Beaton et al. (2000)

Stage 1 (Forward Translation): This stage involved translating the instrument from English into Indonesian while considering the cultural context of primiparous mothers in Indonesia. The instrument was independently translated by two translators who were proficient in both English and Indonesian and had academic backgrounds in psychology. Both translators had studied in English-speaking countries for more than two years and demonstrated adequate English proficiency, as evidenced by IELTS scores above 6.5. These qualifications were considered essential to ensure translation quality in terms of linguistic accuracy as well as the

appropriateness of psychological terminology within the local cultural context. Both translators also provided written statements confirming their willingness and eligibility to participate in the translation process.

Stage 2 (Synthesis of Translation): The synthesis stage was conducted through a discussion based on the two translated versions produced in Stage 1. The process involved identifying similarities and differences between the translations and reaching a consensus on a single reconciled version. During this stage, the authors acted as note-takers, and the agreed-upon version served as the basis for the subsequent stage.

Stage 3 (Backward Translation): This stage involved translating the synthesized Indonesian version back into English. The backward translation was carried out by two different translators who were not involved in the forward translation stage. These translators were proficient in both Indonesian and English and were residing in English-speaking countries. The purpose of this stage was to ensure that the translated version accurately reflected the same item content as the original instrument. Both translators also provided written statements confirming their willingness and eligibility to participate in the translation process.

Stage 4 (Expert Review): The expert review stage was conducted to ensure equivalence between the original instrument and the translated version. This stage consisted of two processes. First, a language review was carried out to verify that the original scale and the synthesized translation conveyed similar meanings for the target population, assessed in terms of language comparability and similarity of meaning (Sperber, 2004). Second, a content review was conducted to compute the Content Validity Index (CVI) based on four criteria: relevance, clarity, simplicity, and ambiguity (Shi et al., 2012). Both reviews were each conducted by three experts with backgrounds in psychology, particularly clinical psychology, who demonstrated strong English proficiency supported by at least two years of experience living in English-speaking countries. The involvement of three experts aligns with established recommendations for content validity assessment, as a minimum of three experts is required to compute a meaningful CVI while maintaining acceptable agreement thresholds for individual items (Lynn, 1986). Using an odd number of experts further reduces the likelihood of tied evaluations and facilitates clearer consensus.

Stage 5 (Pre-testing): Following the CVI assessment, the instrument was pre-tested on six primiparous mothers with infants aged ≤12 months. While Beaton et al. (2000) recommend a pre-testing sample of 30 to 40

respondents for the field-testing phase, the present pre-test was intentionally designed as a smaller-scale cognitive debriefing focused on assessing item comprehensibility and readability rather than statistical pilot testing. This qualitative verbal-probing approach, conducted with a small purposive sample, is consistent with cognitive interviewing practices in which six to ten participants are generally sufficient to identify the majority of comprehension problems (Willis, 2005). The subsequent psychometric validation was then conducted on the full sample of 304 participants, which served as the field-testing phase.

Data Analysis

Confirmatory Factor Analysis (CFA) was conducted to test the hypothesized two-factor structure (Ability and Opinion) of the Indonesian version of the INCOM. Although INCOM responses were measured on a five-point Likert-type scale constituting ordinal-level data, Maximum Likelihood (ML) estimation was employed because simulation studies confirm that ML produces parameter estimates comparable to WLSMV when response categories reach five and item distributions show no severe non-normality (Rhemtulla et al., 2012). Item-level descriptive statistics confirmed this condition, with skewness ranging from -0.819 to 0.200 and kurtosis from -0.973 to 0.108 (Curran et al., 1996). Model fit was evaluated using CFI, TLI, RMSEA with 90% confidence intervals, SRMR, and GFI, interpreted using multiple complementary indices rather than single fixed thresholds, following the reporting standard recommended for CFA models (McNeish & Wolf, 2023; Schermelleh-Engel et al., 2003). Internal consistency was assessed via Cronbach's alpha (α) and McDonald's omega (ω), and item discrimination was evaluated through factor loadings and item–rest correlations. All analyses were performed using JASP (version 0.19) with the lavaan engine.

Ethics Approval of Research

This study is part of a dissertation and has obtained ethical approval from the Ethics Committee of Psychology, Universitas Airlangga, Indonesia, with certificate number 1481/B/UN3.FPSI/III/TA.00.03/2025. Moreover, we conducted our study in accordance with the Declaration of Helsinki by World Medical Association in 2013.

RESULTS AND DISCUSSION

Results of The Indonesian INCOM

The six-item INCOM (Chae, 2015) was translated and culturally adapted following the procedures recommended by Beaton et al. (2000), achieving semantic, idiomatic, experiential, and conceptual equivalence between the original and Indonesian versions. Each item was further contextualized to reflect social media use among primiparous mothers. The final translated items are presented in Table 3.

Table 3
Translation results of INCOM in Indonesian

INCOM Factors	Item	Description	Sentence
Ability	1	Original Item	I often compare how my little one is doing with how other kids are doing.
		T1	Saya sering membandingkan perkembangan anak saya dengan anak-anak lain.
		T2	Saya sering kali membandingkan perkembangan anak saya dengan anak-anak lain.
		Final Version	Saya sering membandingkan perkembangan anak saya dengan anak-anak lain di media sosial.
	2	Original Item	I always pay a lot of attention to how I do as a mother compared with what other mothers do.
		T1	Saya memperhatikan bagaimana saya sebagai ibu dibandingkan ibu lainnya.
		T2	Saya selalu memperhatikan bagaimana saya melakukan peran saya sebagai ibu dan membandingkannya dengan ibu lain.
		Final Version	Saya selalu memperhatikan bagaimana saya melakukan peran saya sebagai ibu dan membandingkan bagaimana ibu lain melakukan perannya di media sosial.
	3	Original Item	If I want to find out how well I have done as a mother, I compare what I have done with what other mothers have done.
		T1	Jika ingin tahu seberapa baik saya sebagai ibu, saya

INCOM Factors	Item	Description	Sentence
			membandingkan diri saya dengan ibu lain.
		T2	Jika saya ingin mengetahui seberapa baik saya sebagai ibu, saya akan membandingkan apa yang saya telah lakukan dengan apa yang dilakukan ibu lain.
		Final Version	Jika saya ingin mengetahui seberapa baik saya sebagai ibu, saya akan membandingkan apa yang saya telah lakukan dan apa yang dilakukan ibu lain di media sosial.
		Original Item	I often like to talk with other mothers about mutual opinions and experiences.
		T1	Saya senang berdiskusi dengan ibu lain tentang pengalaman dan pendapat mereka.
		T2	Saya sering berbicara dengan
	4		ibu lain tentang pendapat dan pengalaman yang sama- sama dialami.
		Final Version	Saya sering berkomunikasi di media sosial dengan ibu lain tentang pendapat dan pengalaman yang sama-sama
Opinion			dialami sebagai ibu.
		Original Item	I always like to know what other mothers in a similar situation would do.
		T1	Saya ingin tahu bagaimana ibu lain menangani situasi yang sama.
	5	T2	Saya selalu ingin tahu apa yang akan dilakukan ibu lain ketika menghadapi situasi yang sama.
		Final Version	Saya selalu ingin tahu apa yang akan dilakukan ibu lain di media sosial ketika menghadapi situasi yang sama.

INCOM Factors	Item	Description	Sentence
		Original Item	If I want to learn more about mothering, I try to find out what other mothers think about it.
		T1	Jika ingin belajar lebih banyak tentang menjadi ibu, saya mencari tahu pendapat ibu lain
		T2	Jika saya ingin belajar tentang
	6		cara mengasuh anak/menjadi ibu, saya berusaha untuk mencari tahu pendapat ibu lain tentang hal itu.
		Final Version	Jika saya ingin belajar tentang cara mengasuh anak/menjadi ibu, saya berusaha untuk mencari tahu pendapat ibu lain tentang hal itu di media sosial.

Item Properties and Construct Validity

Item discrimination was evaluated through factor loadings and item–rest correlations (Table 4). All six items demonstrated statistically significant standardized factor loadings ranging from 0.588 to 0.881, exceeding the recommended minimum of 0.50 and indicating that each item substantially represents its latent construct (Hair et al., 2019). The item–rest correlations ranged from 0.359 to 0.583 (figure 2), all exceeding the commonly accepted threshold of 0.30 for adequate item discrimination (Thorndike, 1995). The means and standard deviations indicated sufficient response variability with no evidence of floor or ceiling effects. Together, these results confirm that all six items discriminate effectively across the two factors, Ability and Opinion.

Table 4

Factor Loading, Discrimination Index of INCOM

INCOM Factors	**Item**	**Factor Loading**	**Item-Rest Correlation**	**Mean**	**Std. Deviation**	**CR**	**AVE**
Ability	1	0.588	0.359	2.720	1.190	0.772	0.536
	2	0.746	0.565	3.174	1.177		

	3	0.838	0.544	3.191	1.206		
Opinion	4	0.616	0.370	3.664	1.040	0.768	0.534
	5	0.660	0.396	3.724	1.003		
	6	0.881	0.583	3.872	1.047		

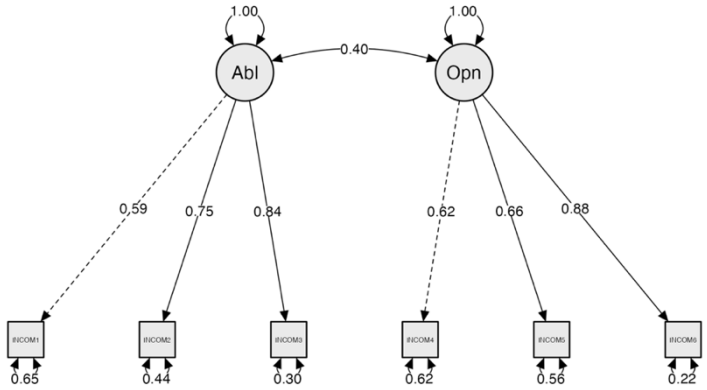

Figure 2
Path Diagram of the INCOM

Construct Reliability and Convergent Validity

Composite Reliability (CR) and Average Variance Extracted (AVE) were computed to evaluate construct reliability and convergent validity. The Ability factor yielded CR = 0.772 and AVE = 0.536, and the Opinion factor yielded CR = 0.768 and AVE = 0.534, with both factors exceeding the recommended thresholds of CR > 0.70 and AVE > 0.50 (Fornell & Larcker, 1981; Hair et al., 2019).

Model Fit

The results of the model fit evaluation indicate that the CFA model of the Indonesian version of the INCOM demonstrates an adequate to good fit, thereby supporting the construct validity of the hypothesized two-factor structure. The RMSEA value of 0.083 and TLI of 0.941 fall within acceptable ranges, indicating a slight degree of misfit that remains within tolerable limits. RMSEA values marginally above .08 remain defensible when other fit indices simultaneously indicate acceptable fit, as CFI =

0.969 and SRMR = 0.052 collectively support the adequacy of the two-factor model (Hu & Bentler, 1999). Furthermore, the RMSEA 90% confidence interval of [0.060, 0.071] indicates that the population RMSEA likely falls within the acceptable range, providing additional evidence of satisfactory model fit ((MacCallum et al., 1996).

Table 5
Fit Indices for CFA Model on INCOM

Fit Indices	Score	Categorization
RMSEA	0.083	Acceptable fit
CFI	0.969	Good fit
TLI	0.941	Acceptable fit
SRMR	0.052	Good fit
GFI	0.972	Good fit

Meanwhile, the comparative and residual-based indices provide strong support for the model, as reflected by the CFI value of 0.969 and SRMR of 0.052. As a complementary measure, the GFI value of 0.972 also indicates a good model fit (see Table 5). The chi-square test was significant, $\chi^2(8) = 24.557$, $p = 0.002$, suggesting that the exact-fit hypothesis was not fully supported. However, this result should be interpreted with caution, as the chi-square statistic is sensitive to sample size. Overall, the evaluation of multiple fit indices indicates that the model demonstrates an adequate to good fit, supporting the use of the Indonesian version of the INCOM for primiparous mothers.

Descriptive Statistics and Reliability

Table 6 presents item-level descriptive statistics and internal reliability estimates for the Indonesian version of the INCOM in this study sample. All items utilized the full response range of the 5-point Likert scale (min = 1; max = 5), indicating the absence of range restriction that could limit score variability. Within the Ability factor, skewness values ranged from −0.367 to 0.200 and kurtosis from −0.973 to −0.845, suggesting relatively symmetric response distributions with slightly flatter (platykurtic) shapes compared to a normal distribution. For the Opinion factor, skewness ranged from −0.819 to −0.648 and kurtosis from −0.033 to 0.108, indicating a slight negative skew (i.e., a tendency toward higher response categories) without substantial kurtosis deviation. Overall, the observed patterns of skewness and kurtosis indicate no extreme deviations from univariate normality at the item level, supporting the suitability of the data for subsequent psychometric analyses to evaluate the construct structure. The overall scale yielded Cronbach's $\alpha = 0.732$ and McDonald's $\omega = 0.734$. At the subscale level, the Ability factor demonstrated $\alpha = 0.773$ and $\omega =$

0.771, while the Opinion factor showed α = 0.764 and ω = 0.766, indicating satisfactory reliability for both dimensions.

Table 6. Descriptive statistics - Reliability of INCOM

INCOM Factors	Item	Min	Max	Skewness	Kurtosis	Cronbach's alpha (α)	McDonald's Omega (ω)
Ability	1	1	5	0.200	-0.890		
	2	1	5	-0.367	-0.845	0.764	0.773
	3	1	5	-0.156	-0.973		
Opinion	4	1	5	-0.728	-0.033		
	5	1	5	-0.648	0.061	0.766	0.7
	6	1	5	-0.819	0.108		

Recommendation for Clinical Utility

As this study represents an initial step of psychometric adaptation, future research should evaluate the clinical utility of the Indonesian INCOM by establishing diagnostic performance indicators — including sensitivity, specificity, and optimal cut-off scores — against relevant criterion measures such as maternal anxiety or depression, for example through receiver operating characteristic (ROC) curve analysis (Mandrekar, 2010).

DISCUSSION

The psychometric evaluation of the Indonesian version of the INCOM yielded results that collectively support the instrument's construct validity and reliability within the target population. The confirmation of a stable two-factor structure, with all items loading significantly onto their respective factors, indicates that primiparous Indonesian mothers cognitively distinguish between ability-based and opinion-based social comparisons — a finding consistent with the foundational theoretical framework of social comparison orientation (Gibbons & Buunk, 1999). The acceptable model fit, combined with CR and AVE values exceeding recommended thresholds, further suggests that the two dimensions are not only theoretically meaningful but also empirically distinct and internally coherent, providing confidence that scores derived from this instrument

reflect genuine differences in social comparison tendency rather than measurement artifacts (Cheung et al., 2024; Fornell & Larcker, 1981). The satisfactory reliability estimates additionally indicate that the six-item format, despite its brevity, is sufficient to produce consistent measurements across respondents — an important consideration for its practical deployment in time-sensitive clinical and research settings.

The present study provides the first psychometrically validated Indonesian version of the INCOM specifically developed for primiparous mothers who actively use social media. This extends prior work such as Chae (2015), which adapted INCOM items for the maternal context without subjecting the adapted version to formal structural validation. The replicated bidimensional structure is consistent with subsequent cross-cultural adaptations of the INCOM (Schneider & Schupp, 2014; Veleda et al., 2024), suggesting that this structure is robust across cultural contexts, including collectivist societies such as Indonesia. This finding extends the theoretical understanding of social comparison orientation by demonstrating that both dimensions remain empirically stable even within a culturally specific and contextually homogeneous sample — primiparous mothers navigating the digital ecosystem during early motherhood.

When compared with prior psychometric work, the present findings reveal both convergence and divergence. The overall internal consistency obtained in this study ($\alpha = 0.732$) is somewhat lower than that reported by Chae (2015) for her six-item adaptation ($\alpha = 0.83$) and by Gibbons and Buunk (1999) for the original 11-item scale ($\alpha = 0.78$–0.85), which is expected given the reduced item count and the cultural-contextual modifications introduced here. More notably, whereas Chae (2015) reported a unidimensional structure for her six-item version based on exploratory factor analysis, the present study supported a two-factor structure (Ability and Opinion) through confirmatory factor analysis. This divergence likely reflects both methodological differences — confirmatory versus exploratory approaches — and the theoretical decision in this study to retain items representing both comparison dimensions, consistent with the original conceptualization of Gibbons and Buunk (1999). The replication of the two-factor structure at the subscale level, with satisfactory reliability for both Ability ($\alpha = 0.773$; $\omega = 0.764$) and Opinion ($\alpha = 0.771$; $\omega = 0.766$), provides stronger structural evidence than prior maternal adaptations and reinforces the cross-cultural robustness of the bidimensional model.

From a practical standpoint, the availability of a validated Indonesian version of the INCOM addresses a critical measurement gap in maternal mental health research. Unlike generic SCO measures developed for

Western populations, the Indonesian version of the INCOM incorporates social media context directly into its items, making it ecologically valid for a population whose primary exposure to social comparison occurs through digital platforms (Djafarova & Trofimenko, 2017; Padoa et al., 2018). In clinical settings, this instrument can support early identification of mothers at risk of maladaptive social comparison patterns — patterns that have been consistently associated with postpartum depression, anxiety, and reduced maternal self-efficacy (Sun et al., 2023; Tate, 2023). Its six-item format further enhances feasibility for integration into routine postnatal care assessments, where time constraints and respondent burden are primary considerations (Clarke et al., 2024).

Beyond clinical application, the Indonesian version of the INCOM opens broader opportunity for research and policy development. It enables systematic examination of SCO as either a risk or protective factor in maternal public health, including its relationship to health practices, information-seeking behavior, and online community engagement. The instrument also supports testing of measurement invariance across subgroups — such as age, education, region, and intensity of social media use — ensuring fair score comparisons and identifying populations most vulnerable to maladaptive comparison effects (Vandenberg & Lance, 2000). At the policy level, its availability enables evidence-based program planning, allowing practitioners to quantify social comparison orientation prevalence and monitor outcomes of interventions targeting media literacy, social comparison management, and psychosocial support for primiparous mothers in both urban and low-resource settings (Huang et al., 2021; Zhang et al., 2023).

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design does not allow for the assessment of causal direction, nor does it evaluate the temporal stability of social comparison orientation, such as through test–retest reliability. Second, the reliance on self-report measures may introduce social desirability and perceptual biases, particularly for parenting-related topics that are sensitive to prevailing social norms. Third, although participants were recruited from various regions across multiple provinces, the use of purposive, non-probability sampling combined with the predominance of online recruitment may limit the generalizability of the findings. Because the sample may overrepresent mothers with greater internet access and digital literacy, it may not fully reflect the broader population of Indonesian primiparous mothers, particularly those in areas with limited connectivity or offline support, among whom the influence of social media may differ. Finally, future research would benefit from incorporating more detailed indicators of social media use — such as platform type, duration, active versus passive engagement, and the types

of parenting content followed — to more precisely map the relationship between social comparison processes and mental health outcomes, and to inform more specific and policy-relevant recommendations.

CONCLUSIONS

The adaptation and validation of the Indonesian version of the INCOM for primiparous mothers represent the first application of this instrument within this population. Following reliability and validity analyses, the instrument was found to be practical and easy to administer, consisting of only six items while demonstrating robust psychometric properties. The instrument shows an adequate confirmatory factor analysis (CFA) fit, enabling more precise hypothesis testing regarding how social comparison, often triggered by social media exposure, relates to maternal mental health, parenting practices, and health information-seeking behavior.

By extending validation to more diverse samples and incorporating tests of measurement invariance and temporal stability, the Indonesian version of the INCOM has the potential to become a standardized measurement tool for future research and the development of evidence-based interventions for primiparous mothers in Indonesia.

USE OF AI TOOLS DECLARATION

The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

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DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interest or personal relationships that could have appeared to influence the work reported in this paper.

AUTHORS' CONTRIBUTIONS

1. Mayenrisari Arifin Pasinringi: Conceptualization; Methodology; Investigation; Data curation; formal analysis; writing - original draft.
2. Primatia Yogi Wulandari: Supervision; formal analysis; writing - review & editing.
3. Endang Retno Surjaningrum: Supervision; validation; writing - review & editing.

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