The Adaptation and Psychometric Validation of the Online Prosocial Behavior Scale Among Indonesian Adolescents

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The increasing prevalence of online interactions among adolescents highlighted the need for culturally appropriate instruments to assess online prosocial behavior. This study aims to cross-culturally adapt and examine the psychometric properties of Indonesian version of the Online Prosocial Behavior Scale (OPBS). This study employs a quantitative approach with a total of 415 participants aged 14–23 years, and the data were analyzed using Confirmatory Factor Analysis (CFA). The results of this study showed that the validated Online Prosocial Behavior Scale consists of 20 favorable items measuring online altruistic behavior on social media, divided into two subscales: performing and receiving. Reliability testing using Cronbach's α showed that each dimension in this scale has good reliability. Item discrimination analysis revealed that all items in this scale could differentiate individuals with high and low levels of altruistic tendency. Based on the results, the Online Prosocial Behavior Scale is a reliable and valid instrument for measuring helping behavior on social media among adolescent users in Indonesia. However, the study has limitations concerning the convergent validity of the Performing factor, the reliance on self-reported data, and potential self-selection bias associated with parental consent procedures, highlighting the need for further validation using more diverse samples and additional sources of construct validity evidence.

INTRODUCTION

The rapid expansion of digital technology and social media platforms has fundamentally transformed patterns of human interaction. One notable outcome of this transformation is the emergence of online prosocial behavior, defined as voluntary actions performed in digital environments with the intention of benefiting others without the expectation of direct personal gain (Ernst & Hock, 2017; Erreygers et al., 2018, 2019).

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Examples include providing emotional support in online forums, sharing informative resources during crises, donating via digital platforms, and engaging in online advocacy for social or humanitarian causes.

Prosocial behavior broadly refers to actions intended to benefit others or the wider community, including helping, comforting, sharing, and cooperation (Batson, 2011; Kahana et al., 2013; Maner & Gailliot, 2007). From a psychosocial and humanistic standpoint, prosociality represents more than observable behavior; it reflects ethical orientation, relational awareness, and moral agency. Empirical research demonstrates that engaging in prosocial behavior is associated with numerous positive outcomes for the actor, including increased positive affect and life satisfaction (Kahana et al., 2013), enhanced subjective well-being (Dakua et al., 2024; K. A. Theurer et al., 2022; K. Theurer & Wister, 2010), reduced physical pain (X. Li & Xie, 2017), and lower levels of depression (Bjälkebring et al., 2021; Kahana et al., 2013; Matthews & Nazroo, 2021). For those who receive help, prosocial actions may foster shifts in self-understanding, including greater self-esteem, heightened empathy, renewed motivation to assist others, emotional enthusiasm, and strengthened religious or spiritual meaning (García-Vázquez et al., 2022). Thus, prosocial behavior contributes to both individual flourishing and collective cohesion.

Scholars commonly distinguish between prosocial and altruistic behavior. While prosocial behavior encompasses various forms of helping, altruism specifically refers to helping actions performed without expectation of personal benefit (Toumbourou, 2016). Prior research indicates that prosocial behavior is often facilitated by relational closeness between the helper and the recipient, whether grounded in kinship or emotional bonds (Babchishin et al., 2025; Bressan et al., 2009; Fitzgerald et al., 2010; Fitzgerald & Whitaker, 2009; Johnson et al., 2026). Such relational proximity has traditionally been viewed as a central condition for prosocial engagement.

Previous researchers have operationalized the definition of online prosocial behavior. Online prosocial behavior refers to voluntary actions carried out within internet-based networks with the aim of benefiting others or maintaining harmonious social relationships (Erreygers et al., 2018, 2019). In this sense, any individual behavior in digital environments that provides advantage, support, or care for others may be categorized as online prosocial behavior.

The concept of prosociality encompasses behaviors such as sharing resources, helping others, volunteering, cooperating, and offering emotional comfort (Johnson et al., 2026). Several aspects are categorized as part of online prosocial behavior. Sproull et al. (2013) identify several forms through which online prosocial behavior is enacted, including: (1) donating through online crowdfunding platforms, (2) voluntarily

participating in collaborative projects that generate communal benefits, and (3) offering assistance or guidance to others in online discussion forums. Compared to face-to-face contexts, online prosocial behavior operates within a broader social reach, unconstrained by physical proximity or temporal limitations. Examples include contributing to community-based digital services such as Wikipedia, sharing content or hyperlinks, supporting online campaigns, watching videos to generate donations, and engaging in symbolic acts such as sending encouraging messages or liking others' posts (Erreygers et al., 2017; Kinnunen et al., 2016). Thus, online prosocial behavior can be understood as a set of voluntary, digitally mediated practices through which individuals contribute to the well-being of others via both instrumental and symbolic actions.

Online prosocial behavior can therefore be understood as an extension of offline prosocial tendencies, while simultaneously constituting a novel moral space shaped by digital affordances. Prior studies suggest that online and offline prosocial behaviors are positively correlated, indicating continuity rather than rupture between digital and non-digital moral life (Wright & Li, 2011; Zheng et al., 2016). Individuals employ a range of digital affordances to express prosocial intentions online. Acts such as sending supportive messages, expressing appreciation through "likes," and offering public encouragement represent everyday forms of emotional support (Erreygers et al., 2018). Participation in online fundraising initiatives enables individuals to share material resources beyond the constraints of physical proximity (Sproull et al., 2013). Collaborative knowledge projects, such as Wikipedia, further exemplify collective prosocial engagement oriented toward the common good (Kinnunen et al., 2016).

Several psychological characteristics have been shown to influence online prosocial behavior. Mindfulness enhances individuals' sensitivity to others' needs and emotional states, thereby fostering empathic concern and increasing the likelihood of helping in digital environments (Lv et al., 2021). Interpersonal trust is likewise central, particularly in relation to information-sharing behaviors, which constitute a fundamental form of online prosociality (Liu et al., 2014). Finally, moral values and moral identity serve as intrinsic motivators of online prosocial behavior, influencing domains such as charitable giving, environmental engagement, and ethically grounded digital interaction (Johnson et al., 2026; Leng et al., 2020). At the individual level, empathy, moral identity, and personality traits are central predictors (W. Li, 2023; Patrick et al., 2018; Tissot et al., 2023). At the social level, perceived norms, group identification, and intergroup relations shape willingness to help others online (Hafizah et al., 2025; Shukla et al., 2022; Yuliawati, 2024).

Importantly, prosocial behavior in digital contexts is not exclusively driven by altruistic motivation. Studies of cooperative behavior in online gaming environments indicate that reciprocity and mutual benefit also play significant roles in motivating helping actions (Wang & Wang, 2008). The expansive reach of digital platforms enables individuals to align personal aspirations—such as recognition, respect, and social belonging—with acts of helping others (Erreygers et al., 2019). Digital mindfulness and framing also play a role in individuals' motivation to help others online (Hong et al., 2023; Robiyanti et al., 2024). This coexistence of altruism and self-interest underscores the complexity of moral motivation in contemporary digital life.

At the same time, anonymity within cyberspace allows individuals to enact ethical choices with reduced social pressure or expectation of recognition. This condition enables forms of silent generosity, such as anonymous donations, that resonate with ethical and spiritual traditions emphasizing sincerity and humility. Technological factors, such as platform affordances, anonymity, and algorithmic visibility, influence both opportunities and motivations for altruistic engagement (P. Yang et al., 2025; Y. Yang et al., 2025). As noted by Sproull et al. (2013), individuals in online environments often display a willingness to assist others or the broader community without explicit expectation of reciprocity, highlighting the enduring presence of moral agency within technologically mediated spaces.

According to The Social Identity Model of Deindividuation Effects (SIDE), anonymity in online environments can shift the salience of personal identity toward social identity, thereby increasing conformity to salient group norms (Lea et al., 2001). Rather than eliminating identity, anonymity can reduce the salience of individuating characteristics and strengthen the influence of social identity on individuals' perceptions and behaviors. As social identity becomes more salient, individuals may rely more heavily on group membership and perceived shared characteristics when evaluating other users (Walther, 2013). The SIDE model distinguishes between cognitive and strategic dimensions. The cognitive dimension explains how anonymity can enhance the salience of social identity and increase conformity to group norms, particularly when a shared group identity is salient. In computer-mediated communication, anonymity may therefore amplify social influence when individuals perceive themselves and others as members of the same social category (Spears, 2017). Perceived similarity and shared group membership may consequently serve as cues for interpersonal trust in online environments, fostering a sense of social connection among users.

Another relevant theory is Social Information Processing Theory (SIPT) proposing that individuals use available cues in computer-mediated communication, including message content, stylistic features, and

temporal patterns, to form impressions of others and identify interpersonal similarities (Walther et al., 2015). Unlike offline interactions that rely heavily on physical presence and established social ties, online prosocial behavior frequently targets individuals who are socially distant or entirely unknown to the helper (Sproull et al., 2013). Within these mediated contexts, perceived closeness is reconstructed through symbolic cues such as online profiles, narratives, and platform-mediated interactions. For example, emoticons can convey aspects of users' emotional expressions, whereas likes and shares may signal social endorsement or approval. Accordingly, visible indicators of social endorsement, such as likes and mutual friends, may function as heuristic cues that shape trust judgments in social media contexts.

Conceptually, online prosocial behavior consists of two core dimensions: helping behavior and moral courage (Kinnunen et al., 2016). Erreygers et al. (2018) further demonstrate that individuals who receive online prosocial treatment—such as assistance or encouragement—often experience feelings of gratitude or indebtedness, which subsequently shape their attitudes toward the helper. The present study adopts this relational dimension as its primary analytical focus. The identification of these aspects is essential for scale development, as online altruism manifests in varied forms across platforms and contexts. A valid measurement instrument must therefore capture the diversity of prosocial actions that occur in digital environments while maintaining conceptual clarity.

Although international studies have increasingly examined online prosocial and altruistic behaviors, research in the Indonesian context remains fragmented. Within the Indonesian context, research on prosocial behavior has predominantly focused on offline context (Ampuni & Buwono, 2022; Winahyu et al., 2023). Recent work on online prosocial behavior has focused more on dispositional variables (Cui & Li, 2023; Malizall & Rizqi, 2024; Nuttall et al., 2025; Wendt & Chen, 2026). Research on how it is measured remains scarce (van de Groep et al., 2026). Psychometric evaluations have been conducted in several cultural contexts, including Belgium, Japan, Peru, and Spain (Pastor et al., 2025). However, no study has examined the psychometric properties of this instrument within the Indonesian context. Consequently, the reliability and validity of the scale for assessing online prosocial behavior among Indonesian populations remain unknown.

Further, cultural values such as collectivism, mutual assistance (gotong royong), and religious ethics may play a significant role in shaping online altruistic behavior among Indonesians (Shukla et al., 2022). Meanwhile, one prominent factor in online prosocial behavior is identity development (Iwasa et al., 2023), which is strongly correlated to individual social environment. Moreover, the extent to which these cultural factors operate

in digital spaces remains underexplored empirically. This lack of culturally grounded measurement tools represents a significant methodological and conceptual gap in the literature.

The present study seeks to address this gap by developing and validating an Online Prosocial Behavior Scale tailored to the Indonesian cultural and digital context. This research contributes to the literature by integrating moral psychological perspectives with culturally informed dimensions of online prosociality. Methodologically, it offers a psychometrically suitable instrument that enables systematic examination of online prosocial behavior in Indonesian culture.

METHOD

Participants

This study employed a quantitative design to adapt and validate a psychological measurement instrument. A total of 415 participants completed the study, of whom 72.5% were female (n = 301) and 27.5% were male (n = 114). Participants ranged in age from 14 to 23 years, with the majority being 18 years old (n = 147, 35.4%) or 17 years old (n = 133, 32.0%), followed by 16 years old (n = 54, 13.0%). Regarding social media use, Instagram was the most frequently used platform (n = 195, 47.0%), followed by TikTok (n = 102, 24.6%), Twitter (n = 77, 18.6%), and Facebook (n = 41, 9.9%). Participants also reported substantial daily engagement with social media, with 29.6% using social media for more than eight hours per day, 30.8% for 3–5 hours, 28.9% for 6–8 hours, and only 10.6% reporting usage of less than three hours per day. For participants younger than 18 years, parental/guardian informed consent was obtained in addition to participant assent.

Table 1
Demographic Characteristics of the Sample

Variable		*n*	%
Gender			
	Male	114	27.5
	Female	301	72.5
Age			
	14	4	1.0
	15	25	6.0
	16	54	13.0
	17	133	32.0
	18	147	35.4
	19	37	8.9
	20	5	1.2
	21	4	1.0

	22	3	0.7
	23	3	0.7
Social Media Most Used			
	Facebook	41	9.9
	Instagram	195	47.0
	Twitter	77	18.6
	TikTok	102	24.6
Frequency per Day			
	< 3 Hours	44	10.6
	3-5 Hours	128	30.8
	6-8 Hours	120	28.9
	> 8 hours	123	29.6
***Note. N* = 415.**			

Instruments

The Online Prosocial Behavior Scale (OPBS) was adapted from the scale developed by Erreygers et al. (2018). Online prosocial behavior refers to voluntary actions performed within internet-based environments to benefit others or to maintain harmonious social relationships (Erreygers et al., 2018). The scale consists of two subscales—engaging in and receiving online prosocial behavior—and is designed to measure adolescents' online prosocial tendencies. The scale contains 20 items rated on a 5-point response format. The Cronbach's alpha reliability coefficient of the scale is 0.91.

Table 2

Blueprint of the Online Prosocial Behavior Scale

Factors	Item	Total
Performing	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	10
Receiving	11, 12, 13, 14, 15, 16, 17, 18, 19, 20	10
Total		20

Adaptation Procedure

Overall, the research was conducted in three stages: (1) adapting the OPBS into the Indonesian language and cultural context using the backward translation technique (Beaton et al., 2000) , (2) administering the adapted OPBS to the study participants, and (3) establishing validity

based on test content and internal structure (through confirmatory factor analysis (CFA).

We adapted the OPBS using a backward translation technique consisting of five stages. The first stage involved translating the instrument from English into Indonesian, carried out by two independent translators, resulting in versions T1 and T2. The second stage was the synthesis of T1 and T2, conducted by a panel of two experts in social psychology and psychometrics, producing the synthesized version T-3. The third stage involved back-translation of T-3 into English by a translator with expertise in English literature, resulting in the BT version. The BT version was then compared with both the original instrument and T-3 to examine equivalence of meaning, which led to the finalized Indonesian version. The fourth stage consisted of expert review. Several raters with expertise in social psychology, psychometrics, and English literature evaluated the Indonesian version. Their ratings were analyzed using Aiken's V (Aiken, 1985) to establish validity based on test content. The fifth stage was pretesting using a readability assessment (Azwar, 2021) , involving five individuals to examine comprehension of each item. Following the adaptation process, data collection was conducted online using Google Forms.

Data Analysis

The collected data were analyzed using CFA with JASP. This CFA procedure served as one of the analyses to establish validity based on internal structure. The validity testing of the Indonesian version of the OPBS instrument was conducted using confirmatory factor analysis (CFA) to assess construct validity. Prior to conducting the CFA, a normality test was performed, and the results indicated that the data were not normally distributed ($p < 0.01$). Therefore, considering the Likert scale and its ordinal nature, the DWLS estimator without mean/variance-adjusted (WLSMV) test statistics was used (C.-H. Li, 2021) .

Ethics Approval

This study is part of a thesis and has gained ethical approval from the Ethics Committee of Psychology Department, Universitas Gadjah Mada, Indonesia, with certificate number 4258/UN1/FPSi.1.3/SD/PT.01.04/2022.

RESULTS

This study aims to validate the Online Prosocial Behavior Scale (OPBS) into the Indonesian version. The adaptation process and empirical findings indicate that the Indonesian version of the OPBS is easily and clearly understood by respondents thereby demonstrating an internal

structure with adequate fit to the dimensional framework of the original instrument.

Descriptive Statistics and Reliability

Descriptive statistics demonstrated adequate variability across all retained items, with responses spanning the full range of the Likert scale. Item means ranged from 2.822 to 4.320, while standard deviations ranged from 0.873 to 1.396, suggesting sufficient dispersion in participants' responses. Examination of skewness and kurtosis values revealed no substantial departures from univariate normality, supporting the suitability of the data for confirmatory factor analysis.

Internal consistency reliability was evaluated using Cronbach's alpha and McDonald's omega. Both factors demonstrated acceptable internal consistency, with reliability coefficients exceeding the recommended threshold of 0.70. The reliability of the first factor remained stable or improved slightly, yielding Cronbach's $\alpha = 0.837$ and McDonald's $\omega = 0.823$. The second factor also demonstrated satisfactory reliability with Cronbach's $\alpha = 0.906$ and McDonald's $\omega = 0.905$. Overall, the instrument exhibited satisfactory reliability and improved construct validity while preserving the conceptual integrity of the original scale.

Table 3

Descriptive Statistics and Reliability of the OPBS

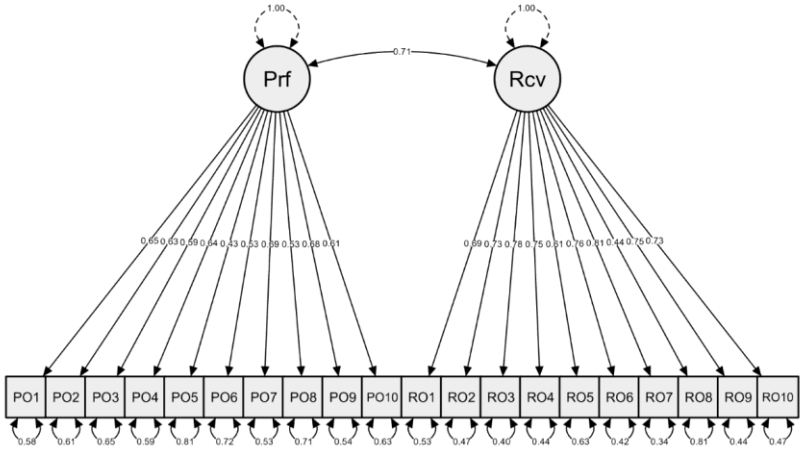
Item Properties and Construct Validity

Online Prosocial Behavior Factors	Item	Min	Max	Skewness	Kurtosis	Cronbach's Alpha	McDonald's Omega
Performing	PO1	1	5	-0.972	0.614	0.837	0.823
	PO2	1	5	-0.625	0.108		
	PO3	1	5	-1.014	0.487		
	PO4	1	5	-1.050	0.734		
	PO5	1	5	0.102	-1.247		
	PO6	1	5	-0.635	-0.592		
	PO7	1	5	-0.586	-0.033		
	PO8	1	5	-0.201	-0.827		
	PO9	1	5	-1.255	1.236		
	PO10	1	5	-1.305	1.325		
Receiving	RO1	1	5	-0.417	-0.137	0.906	0.905
	RO2	1	5	-0.301	-0.323		
	RO3	1	5	-0.389	-0.615		
	RO4	1	5	-0.588	-0.609		
	RO5	1	5	-0.037	-1.057		
	RO6	1	5	-0.362	-0.850		
	RO7	1	5	-0.417	-0.539		
	RO8	1	5	-0.233	-0.810		
	RO9	1	5	-0.773	-0.052		
	RO10	1	5	-0.363	-0.893		

Item discrimination was evaluated using standardized factor loadings and item–rest correlations for all 20 items (Table 4). All standardized factor loadings were statistically significant ($p < .001$), ranging from 0.435 to 0.814. Four items (PO5, PO6, PO8, and RO8) exhibited comparatively lower standardized loadings (0.435, 0.531, 0.534, and 0.437, respectively) than the remaining indicators, suggesting that they contributed less strongly to their respective latent constructs. Nevertheless, all factor loadings exceeded the minimum recommended threshold of 0.40 for practical significance in confirmatory factor analysis (Brown, 2015; Hair et al., 2021). Similarly, item–rest correlations ranged from 0.362 to 0.774, with all values exceeding the recommended minimum criterion of 0.30 (Clark & Watson, 2019), indicating satisfactory item discrimination. The observed means and standard deviations demonstrated adequate variability across all items, with no evidence of substantial floor or ceiling effects. Collectively, these findings provide evidence that the retained items discriminate effectively between respondents and adequately capture the underlying constructs.

Table 4
Factor Loadings and Discrimination Indices of the OPBS

Online Prosocial Behavior Factors	Item	Factor loading	Item Rest Correlation	Mean	Standard Deviation	CR	AVE
Performing	PO1	0.648	0.571	4.222	0.873	0.849	0.336
	PO2	0.628	0.550	4.082	0.839		
	PO3	0.595	0.613	4.169	0.946		
	PO4	0.642	0.658	4.198	0.914		
	PO5	0.435	0.362	2.822	1.396		
	PO6	0.531	0.428	3.737	1.210		
	PO7	0.686	0.610	3.754	1.008		
	PO8	0.534	0.436	3.275	1.207		
	PO9	0.676	0.685	4.320	0.877		
	PO10	0.608	0.620	4.299	0.899		
Receiving	RO1	0.686	0.641	3.660	1.004	0.914	0.505
	RO2	0.726	0.679	3.530	1.021		
	RO3	0.776	0.732	3.352	1.176		
	RO4	0.749	0.691	3.706	1.188		
	RO5	0.611	0.597	2.925	1.271		
	RO6	0.763	0.752	3.359	1.266		
	RO7	0.814	0.774	3.378	1.171		
	RO8	0.437	0.387	3.328	1.191		
	RO9	0.747	0.712	3.793	1.114		
	RO10	0.731	0.720	3.349	1.280		



Construct Reliability and Convergent Validity

Construct reliability and convergent validity were evaluated using Composite Reliability (CR) and Average Variance Extracted (AVE).

Composite reliability was satisfactory for both the Performing (CR = 0.849) and Receiving (CR = 0.914) dimensions, indicating good internal consistency. However, while the Receiving dimension demonstrated adequate convergent validity (AVE = 0.505), the Performing dimension yielded a lower AVE (0.336), suggesting limited convergent validity despite its satisfactory reliability. Overall, these findings indicate that all items adequately discriminated between respondents and were retained to preserve the content validity of the adapted instrument.

Model Fit

The confirmatory factor analysis demonstrated an overall acceptable-to-good model fit (RMSEA = 0.073, CFI = 0.960, TLI = 0.955, GFI = 0.964), although the SRMR value (0.095) was slightly above the recommended threshold of 0.08. Taken together, these indices suggest that the two-factor model provides an acceptable representation of the data.

Although the chi-square statistic remained statistically significant, (χ^2(df) = 298.329, $p < .001$), this result was interpreted cautiously because the chi-square test is highly sensitive to sample size and model complexity (Brown, 2015; Hair et al., 2021). Accordingly, greater emphasis was placed on the collective pattern of multiple fit indices. Taken together, these findings indicate that the model provides an acceptable to good representation of the observed data and offers stronger evidence for the construct validity of the proposed two-factor structure than the initial model.

Table 5

Fit Indices for the CFA Model of the OPBS

Fit Indices	Score	Categorization
RMSEA	0.073	Acceptable fit
CFI	0.960	Good fit
TLI	0.955	Good fit
SRMR	0.095	Marginal fit
GFI	0.964	Good fit

Table 6

Final Items of the Adapted OPBS (Performing Subscale)

No	Original item	Adapted item
1	*Say nice/friendly things to someone*	Mengatakan hal baik kepada seseorang
2	*Say nice/friendly things about someone*	Mengatakan hal baik mengenai seseorang
3	*help someone or offer to help*	Menawarkan bantuan kepada seseorang
4	*Cheer up someone*	Menyemangati seseorang

5	*let someone know that you like him/ her*	Menunjukkan kepada seseorang bahwa kamu menyukainya
6	*let know that you like something (e.g., like something, send a smiley…)*	Menunjukkan bahwa kamu menyukai sesuatu yang orang bagikan (misal, memberikan emoticon tersenyum atau ketawa untuk unggahannya)
7	*Compliment or congratulate someone*	Mengucapkan selamat kepada seseorang
8	*help someone with his/her school work*	Membantu seseorang mengerjakan tugas sekolah atau kampusnya
9	*Support someone*	Mendukung seseorang
10	*Comfort//console someone*	Menghibur seseorang

Table 7
Final Items of the Adapted OPBS (Receiving Subscale)

No	Original item	Adapted item
1	*Someone said nice/friendly things to me*	Seseorang mengatakan hal baik kepada saya
2	*Someone said nice/friendly things about me*	Seseorang mengatakan hal baik mengenai saya
3	*Someone helped me or offered help*	Seseorang membantu atau menawarkan bantuan kepada saya
4	*Someone cheered me up*	Seseorang menyemangati saya
5	*Someone let me know that he/she likes me*	Seseorang memberitahu saya bahwa dia menyukai saya
6	*Someone let me know that he/she liked something i did*	Seseorang menunjukkan bahwa dia menyukai apa yang saya bagikan (misal, memberikan emoticon tersenyum atau ketawa untuk unggahan saya)
7	*Someone complimented or congratulated me*	Seseorang mengucapkan selamat kepada saya
8	*Someone helped me with my school work*	Seseorang membantu mengerjakan tugas sekolah atau kampus saya
9	*Someone supported me*	Seseorang mendukung saya
10	*Someone comforted/consoled me*	Seseorang menghibur saya

Several items demonstrated relatively weak psychometric properties, suggesting that certain aspects of the instrument may not adequately represent the underlying construct of online prosocial behavior. These findings may reflect a combination of instrument-related limitations and contextual differences in how prosocial behaviors are understood,

expressed, and evaluated. From a measurement perspective, the conceptual breadth of online prosocial behavior, the specificity of individual items, potential ambiguity in behavioral interpretation, and respondents' ability to recognize and recall particular online interactions may contribute to inconsistent item performance. These considerations are particularly relevant because online prosocial behavior encompasses diverse activities that vary in their motivations, interpersonal conditions, and social consequences.

Ernst and Hock (2017) identify several factors that contribute to the emergence of online prosocial behavior, including social similarity, status enhancement, and social norms. First, social similarity influences prosocial engagement through social categorization, whereby individuals are more likely to recognize and respond to others with whom they share salient identities or interests. Second, status enhancement provides an additional motivation, as digital platforms allow individuals to make their helping activities visible and receive social recognition. Third, social norms influence prosocial engagement by establishing expectations regarding appropriate behavior within online communities. Similarly, identity development has been identified as an important factor associated with online prosocial behavior (Iwasa et al., 2023). These perspectives indicate that online prosocial behavior is not a homogeneous behavioral category but encompasses different motivations, interpersonal conditions, and forms of engagement.

One possible explanation for the weaker performance of PO5 and PO6 concerns the specific behavioral content represented by these items. Both items involve relatively explicit expressions of favoritism or preferential treatment toward particular individuals. Although these behaviors may constitute forms of online prosocial engagement, they potentially represent a narrower dimension of helping behavior than the broader construct intended by the scale. Respondents may interpret preferential treatment as an expression of personal relationships, interpersonal loyalty, or individual preference rather than as a general prosocial action. Furthermore, the relatively specific nature of these behaviors may limit their applicability across different contexts. Thus, their weaker psychometric performance may reflect limitations in behavioral representativeness and general applicability.

The performance of PO8 raises another issue concerning the contextual interpretation of helping behavior. The item refers to assistance involving task-related activities. Such activity may be interpreted differently depending on the purpose of the task and the relationship between individuals. For instance, assisting someone with an academic assignment may be perceived as legitimate collaboration in one situation but as inappropriate assistance or academic misconduct in another (Amigud & Hosseini, 2024). Consequently, respondents may not consistently classify

these activities as prosocial behavior. The distinction between providing legitimate assistance and facilitating inappropriate behavior is particularly important because the prosocial nature of an action depends not only on the intention to help but also on its contextual aptness.

Beyond these instrument-related considerations, cultural differences may provide an additional explanation for variations in how online prosocial behavior is expressed and reported. Research on collectivist cultures suggests that individuals may be less inclined to explicitly articulate their personal contributions to others, instead prioritizing shared group responsibilities and subtle supportive gestures (Hanif et al., 2025; Lim & Ma-Kellams, 2025). This tendency may also extend to online environments, where small symbolic actions, such as likes, brief supportive comments, and reaction emojis, can function as socially recognizable expressions of support (Erreygers et al., 2018). Consequently, items that require respondents to explicitly report their own helping activities may not capture all forms of supportive engagement equally well. Such items may also introduce self-presentation concerns when respondents are reluctant to emphasize their personal contributions to others.

In the Indonesian context, Nila et al. (2025) provide relevant evidence regarding the sociocultural variation of empathy. Their study of Indonesian adults found that empathy components, including helping behavior, empathic concern, and personal distress, varied according to demographic and sociocultural characteristics. These findings suggest that empathy and prosocial responses do not necessarily manifest through equivalent levels of emotional expression or personal distress. Accordingly, individual emotional experiences and the behavioral expression of concern should be distinguished when interpreting online prosocial behavior.

The cross-cultural findings reported by Pastor et al. (2025) further suggest that online prosocial behavior should not be understood solely through broad cultural classifications. Their study found that Peruvian adolescents reported the highest frequency of online prosocial behaviors, both performed and received, whereas Japanese adolescents reported the lowest frequency. This variation suggests that collectivism alone may be insufficient to explain differences in online prosocial behavior across cultural contexts. Research on collectivist social cognition has emphasized the importance of relational evaluations, social worth, and the self–other relationship in shaping social judgments (Mesquita, 2001). In Japanese social contexts, interactions with soto (less intimate or out-group others) may be regulated by expectations that individuals should respect one another's personal boundaries and avoid unnecessary interference (Takamatsu et al., 2024). Consequently, maintaining public harmony does not necessarily imply an obligation to actively help strangers. Rather,

social harmony may be achieved through minimizing interpersonal disruption and respecting social boundaries. Thus, an emphasis on social harmony does not necessarily translate into more frequent helping, as prosocial behavior may depend on relational proximity and context-specific expectations.

These considerations may also be relevant to online interactions, where social media can facilitate the maintenance of intimate relationships and forms of digital kinship that extend beyond conventional face-to-face boundaries. Research on Japanese families, for example, demonstrates how LINE facilitates the maintenance of familial relationships and everyday intimacy (Ohashi et al., 2017). Online self-disclosure and computer-mediated communication may further shape how interpersonal closeness is perceived and how opportunities for prosocial engagement are interpreted. Through selective self-presentation and intensified interpersonal exchanges, digital communication may facilitate the development of intimacy even when individuals are physically distant.

According to Social Information Processing Theory (SIPT), communicators rely on available cues—such as message content, stylistic signals, timing, and symbolic nonverbal markers—to form impressions and identify interpersonal similarities in online interactions (Walther et al., 2015). Modern research confirms that digital symbols, including emojis and reaction buttons, serve as expressive proxies for emotional cues, enabling users to infer affective states and intentions despite reduced nonverbal information. Features such as "likes," shares, and retweets also function as social signals that influence perceptions of credibility, engagement, and social value (Erreygers et al., 2017; Kinnunen et al., 2016). Content that elicits extensive engagement is often perceived as more trustworthy or impactful, illustrating how digital affordances shape sociocognitive evaluations in online spaces.

SIPT further posits that relational closeness in mediated environments develops over time through sustained interaction, increasingly approximating the intimacy of face-to-face communication (Walther & Whitty, 2021; Wright & Li, 2011). In practice, social media users engage in sequential impression formation by examining profile histories, interaction patterns, and digital footprints to assess trustworthiness and relational congruence (Hatamleh et al., 2023; Helmi et al., 2019). Conversely, ambiguous or inconsistent online behavior may undermine trust and reduce engagement. In this interpretive process, online trust emerges not as a fixed attribute but as a negotiated judgment shaped by accumulated symbolic cues and interaction histories.

As interaction deepens, evaluation processes may extend from interpersonal assessment to social categorization. The Social Identity Model of Deindividuation Effects (SIDE) posits that anonymity in digital environments can heighten the salience of group identity, shifting attention

from individual traits to shared group membership (Walther et al., 2015). Rather than diminishing social influence, anonymity may strengthen conformity to perceived group norms (Spears, 2017). Under these conditions, users may overestimate their similarity with others perceived to share symbolic, moral, or group-based affiliations, influencing their prosocial engagement patterns.

Nevertheless, these cultural and relational perspectives remain tentative explanations and do not directly account for the lower average variance extracted (AVE) of the Performing factor in the present study. The distinction between the frequency of prosocial behavior reported across countries and the psychometric properties of the OPBS should be maintained. Whereas cross-cultural differences may help explain variations in the expression and reporting of online prosocial behavior, low AVE indicates that the items share relatively limited variance with their underlying latent construct. Therefore, the lower AVE may also reflect instrument-related limitations, including translation nuances, differences in the interpretation of behavioral statements, item redundancy, or insufficient conceptual coherence among the indicators.

Although the AVE of the Performing (PO) dimension demonstrated below the conventional criterion of 0.50, this result should be interpreted within the broader context of the measurement model. Recent methodological studies argue that AVE is a conservative index and may underestimate convergent validity when constructs are conceptually broad or multidimensional. Consequently, convergent validity should be evaluated using multiple complementary sources of evidence, including standardized factor loadings, composite reliability, item discrimination, and overall model fit, rather than relying exclusively on a single cutoff value (Hair et al., 2021).

Weak item-level psychometric properties do not necessarily indicate that the corresponding behaviors are irrelevant to online prosocial behavior. Instead, they may suggest that the current operationalization does not capture these behaviors with sufficient clarity, consistency, or conceptual precision. The findings therefore highlight the importance of considering both statistical evidence and theoretical coverage when evaluating the instrument. Although removing items with relatively weak factor loadings may improve certain psychometric indicators, such decisions should not be based exclusively on statistical thresholds. Removing items may also narrow the conceptual representation of online prosocial behavior, particularly when those items capture behavioral expressions that are not adequately represented by the remaining indicators. Accordingly, retaining theoretically relevant items may be justified when their contribution to content validity outweighs the potential improvement in internal consistency.

Online prosocial behavior represents an increasingly salient form of prosocial action in contemporary digital societies. Despite its prominence in everyday online interactions in Indonesia, systematic research on this phenomenon remains underdeveloped due to conceptual and methodological limitations. By advancing a culturally sensitive framework and measurement tool, this study aims to deepen understanding of online altruism and support future research on digital morality, prosocial behavior, and social cohesion in cyberspace.

Conclusion

The findings of this study underscore the critical role of cultural context in shaping the psychometric performance of online prosocial behavior measures. Several items failed to demonstrate adequate model fit or internal consistency, not necessarily due to measurement deficiencies, but because their underlying assumptions reflect individualistic norms of self-assertion and explicit behavioral disclosure. In collectivist societies such as Indonesia, supportive actions are often communicated indirectly, embedded within relational obligations, and expressed through subtle symbolic gestures rather than overt claims of personal contribution. These cultural dynamics make certain forms of prosocial behavior less observable and more difficult to capture through standardized self-report items originally developed in Western contexts.

Overall, the findings emphasize the importance of cultural sensitivity in scale development and adaptation. Measurement tools for online prosocial behavior must account for the sociocultural norms that guide emotional expression, relational expectations, and digital interaction patterns within collectivist contexts to ensure conceptual accuracy and psychometric robustness.

Limitations of the Study

This study has limitations regarding the convergent validity of the Performing factor, as its average variance extracted (AVE) remained below the commonly recommended threshold of 0.50, despite retaining items based on their statistical performance and conceptual contribution. Although removing the weaker-loading items did not sufficiently resolve this concern, the decision to retain them prioritized the content coverage of the construct. Future studies should further examine the factor structure and convergent validity of the scale, including the potential for item refinement while preserving the conceptual breadth of the Performing dimension. In addition, the validity evidence in this study focused primarily on content validity and internal structure. Future validation efforts should examine relationships with theoretically relevant constructs, such as empathy, online trust, and social value orientation, to strengthen the evidence for construct validity.

Several ethical and procedural considerations warrant disclosure regarding sample demographics. Approximately half of the sample comprised adolescents aged 14–17 years. Although standard ethics protocol was followed—including obtaining parental consent and adolescent assent—the reliance on parental permission in recruitment may introduce mild self-selection or response bias. Future research with adolescent populations should explore direct recruitment models where institutionally permitted to minimize parental gatekeeping biases. Finally, broader and more diverse samples are needed to assess the instrument's applicability across different demographic groups and enhance the generalizability of the findings.

USE OF AI TOOL DECLARATION

The authors used an artificial intelligence (AI)-assisted writing tool, ChatGPT-4, to improve language clarity, grammar, and readability. All AI-assisted parts were thoroughly reviewed, and edited by the authors to fit their specific requirements. The authors take full responsibility for the content of this manuscript, including the accuracy of all interpretations, analyses, and conclusions.

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DECLARATION OF COMPETING INTERESTS

The authors declare that they have no competing financial interests or personal relationships that could have influenced the research, authorship, or publication of this manuscript.

AUTHORS CONTRIBUTION

1. Miftahun Najah: Conceptualization; Methodology; Investigation; Data curation; formal analysis; writing - original draft.
2. Moh. Iqbal Mabruri: Supervision; validation; writing - review & editing.
3. ST. Mislikhah: Supervision; writing - review & editing.

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