



## Improving Student Protesters' Self-Control Through Points of You Coaching

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**Abstract:** Student demonstrations in Indonesia are often marked by impulsive behaviors that may escalate into aggressive actions. Self-control plays an important regulatory role in helping individuals manage emotions, impulses, and responses in high-pressure collective settings such as protests. This study examines the effectiveness of Points of You-based coaching in enhancing self-control among university students involved in demonstrations in Makassar. An experimental one-group pretest-posttest design was employed, with self-control assessed using the Brief Self-Control Scale (BSCS) and the Self-Control and Self-Management Scale (SCMS). Data analysis was conducted using R version 4.5.0 in combination with Positron and JASP version 0.95.4.0. Bayesian paired-sample t-tests and Bayesian Linear Regression with a Dichotomous Predictor were used to evaluate changes following the intervention. The results indicate that Points of You coaching effectively improves participants' self-control, as reflected in increased post-intervention scores across both measurement instruments. The practical implications highlight that visual-narrative coaching approaches can serve as a relevant psychological intervention to help students regulate impulsive tendencies during demonstrations, while also supporting educational institutions in promoting more constructive, reflective, and self-regulated forms of collective action.

**Keywords:** Coaching, Points of You, self-control, student demonstrations, psychological intervention

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## INTRODUCTION

Student demonstrations constitute an integral part of Indonesia's socio-political dynamics and are widely regarded as a form of critical engagement with public policy (Adhipermana, 2022; Anridho, 2024; Rahman et al., 2025; Ramadlan & Aminuddin, 2025; Savirani, 2023). However, in recent years, several student protests in various cities—including Makassar—have shown a growing

tendency toward destructive actions and violence (Amiruddin & Saputra, 2022; Fitriana et al., 2023; J, 2012; Rijal, 2017; Herald Sulsel, 2025; Kompas, 2025; Liputan 6, 2025). These behavioral patterns indicate serious challenges in the emotional and behavioral regulation of students during the expression of collective dissent (Ghasemi, 2021; Evaldsson & Melander, 2017). Although public demonstrations are constitutionally protected, this phenomenon highlights the urgency of strengthening

self-control capacities to ensure that expressions of protest remain constructive and dignified (Marcou, 2021; Siegert, 2018; Yeom, 2020; Zubaidah et al., 2023).

Theoretically, self-control is defined as the ability to inhibit impulsive tendencies and direct behavior in accordance with personal values and long-term goals (Baumeister et al., 2007). Individuals with high levels of self-control are generally able to maintain emotional regulation in high-pressure situations (Tangney et al., 2004), whereas low self-control is often associated with aggressive behavior and irrational decision-making (Duckworth & Steinberg, 2015). In the context of protests, self-control functions as a key psychological mechanism that distinguishes healthy civic engagement from anarchic or destructive actions (Drury et al., 2012; Stott & Radburn, 2020; Thomas & Louis, 2013; Vestergren & Acar, 2023). Yet empirical studies examining psychological interventions to improve self-control in academic or socio-political protest settings remain extremely limited, especially in Indonesia.

Empirically, several reflection-based and awareness-based interventions have shown effectiveness in enhancing emotional regulation and prosocial behavior (Gross, 2015; Neff, 2023; Neff & Germer, 2018). One emerging approach is Points of You coaching, which integrates visual, metaphorical, and narrative elements to facilitate self-exploration and reflective awareness (Adedayo, 2024; Donaldson-Wright & Hefferon, 2020; Eames, 2024; Kovbuz, 2025; McManus, 2024; Watts, 2024). This approach helps individuals broaden their perspectives, identify maladaptive cognitive patterns, and develop more effective self-management strategies (Good et al., 2013; Wang et al., 2022). However, its effectiveness in emotionally charged social contexts such as student demonstrations has not been systematically examined, making it a promising area for empirical investigation.

Methodologically, this study employs an experimental design supported by Bayesian analysis, which allows more flexible parameter estimation with small sample sizes and provides probabilistic interpretations of intervention effects (Kruschke, 2018). Bayesian approaches offer advantages over traditional frequentist methods by accommodating uncertainty and producing more stable estimates in psychological intervention research (van de Schoot et al., 2015). The application of Bayesian analysis in social-psychological intervention studies in Indonesia remains rare, positioning this research as a methodological contribution to evidence-based practice.

Given the urgency of the identified gaps, this study aims to: (i) assess the level of self-control among students involved in demonstrations and (ii) examine the effectiveness of Points of You coaching in enhancing self-control. Altogether, this study offers both theoretical and practical contributions and provides empirical evidence supporting the use of reflective coaching approaches to strengthen students' self-control in socio-political contexts.

## **METHOD**

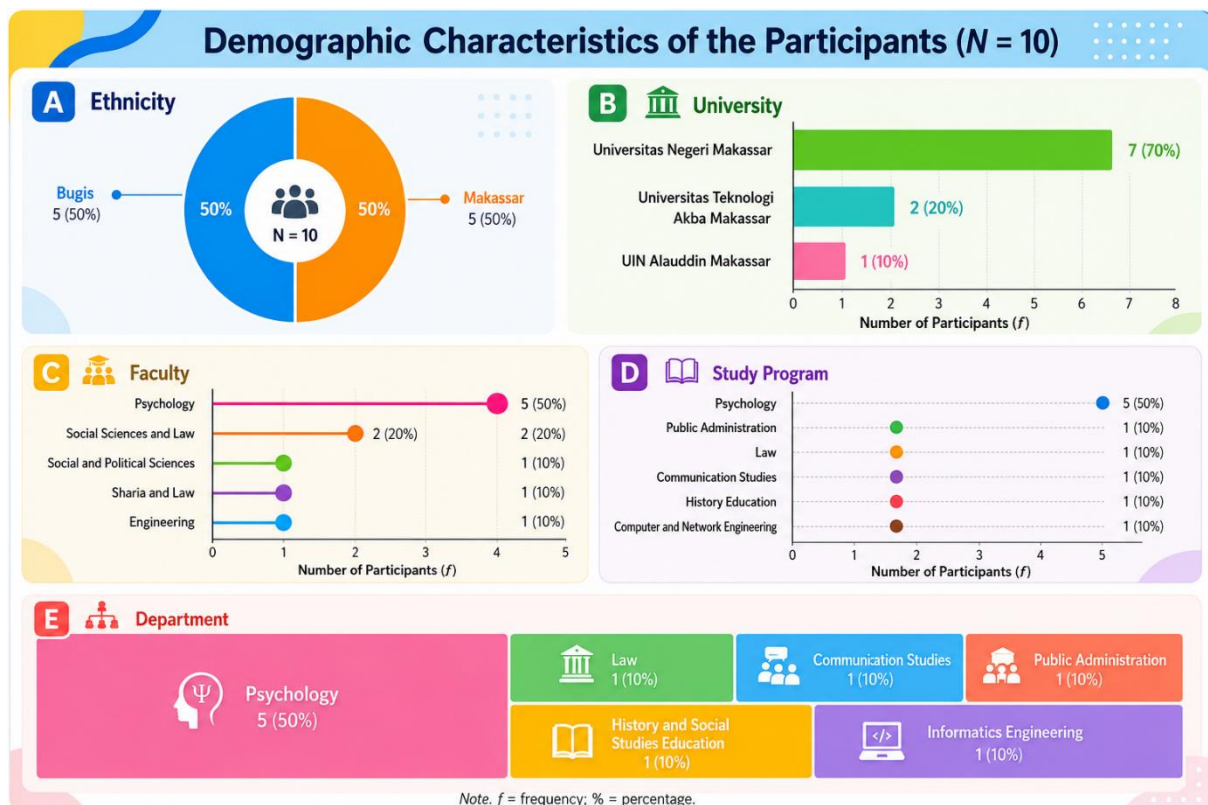
### ***Research Design***

This study employed a quantitative one-group pretest–posttest quasi-experimental design to evaluate the intervention's effectiveness by comparing pretest and posttest scores (Campbell & Stanley, 1963; Shadish et al., 2002). This design was selected because randomization and the inclusion of a control group were not feasible in the psychological setting. Potential threats to internal validity, including historical influences such as social activities, academic workload, and campus environmental changes, were minimized by standardizing the timing of the intervention, assessment procedures, and study conditions across all participants (Heppner et al., 2015).

## Participants

The study involved 10 university students (5 in the experimental group and 5 in the control group) from various universities in Makassar. The sample size was determined based on a power analysis using G\*Power 3.1 (Faul et al., 2009), with an expected effect size of 0.5, alpha of 0.05, and power of 0.80. Purposive sampling was employed (Etikan & Bala, 2017) with the following inclusion criteria: 1) active university students in Makassar; 2) experience participating in demonstrations that escalated into anarchic behavior; 3) aged 18–24 years; and 4) willingness to participate in the full intervention program.

As shown in Figure 1, the participants included 10 male students in Makassar who had prior experience in demonstrations. Participants' ages ranged from 17 to 22 years, with a mean age of 19.80 ( $SD = 1.48$ ), indicating that most were in early adulthood. Regarding ethnic background, half of the participants identified as Bugis (50%) and the other half as Makassar (50%), representing the two dominant ethnic groups in South Sulawesi. Based on university affiliation, the majority were enrolled at Universitas Negeri Makassar (70%), followed by Universitas Teknologi Akba Makassar (20%) and UIN Alauddin Makassar (10%).



**Figure 1.** Demographic Characteristics of the Participants

Based on the faculty and study program distribution, the largest proportion of participants came from the Faculty of Psychology (50%), followed by the Faculty of Social Sciences and Law (20%), the Faculty of Social and Political Sciences (10%), the Faculty of Sharia and Law (10%), and the Faculty of Engineering (10%). A similar pattern was observed at the study

program level, with Psychology being the most represented program (50%), while the remaining participants were evenly distributed across Public Administration, Law, Communication Studies, History Education, and Computer and Network Engineering, each accounting for 10%.

Overall, these demographic characteristics indicate that participants

were drawn from relatively diverse academic and social backgrounds, yet were homogeneous in terms of gender and protest experience. This composition aligns with the study's inclusion criteria, focusing on male students with prior experience in demonstrations that escalated into anarchic behavior in Makassar.

### **Materials and measures**

This study employed a range of research materials designed to support the implementation of the intervention and the evaluation of its outcomes. These materials included psychological instruments to assess students' self-control in the context of demonstrations, as well as tools used during the intervention sessions.

### **Instruments**

Students' self-control during demonstrations was measured using two primary instruments, namely: the Brief Self-Control Scale (BSCS) and the Self-Control and Self-Management Scale (SCMS). These instruments were selected for their suitability in assessing both impulse regulation and conscious self-management, aligning with the study's objectives. Both scales were adapted following the International Test Commission (ITC, 2018) guidelines to ensure linguistic and conceptual equivalence within the Indonesian student context. The instruments were chosen for their demonstrated construct validity, reliability, and relevance in measuring self-control under social and situational pressures such as protests (Furr, 2022).

Brief Self-Control Scale (BSCS). Developed by Tangney et al. (2004), this scale assesses an individual's capacity to regulate thoughts, emotions, and behaviors in alignment with long-term goals. The BSCS comprises two orthogonal dimensions: inhibition and initiation. The two-factor structure was supported by empirical data, with model fit indices for the

inhibition dimension showing CFI = 1.00, RMSEA = 0.00, and SRMR = 0.01, while the initiation dimension demonstrated adequate fit (CFI = 0.87, RMSEA = 0.10, SRMR = 0.06). All items exhibited significant positive factor loadings ( $p < 0.001$ ). The scale has good internal reliability ( $\alpha = 0.81$ ) and has been validated across diverse populations, including Indonesian university students (Arifin & Milla, 2020).

Self-Control and Self-Management Scale (SCMS). Developed by Mezo (2009) and later refined by Mezo and Short (2012), the SCMS assesses self-management abilities across three dimensions: self-monitoring, self-evaluation, and self-reinforcement. Its three-factor structure fits empirical data adequately (RMSEA = 0.07; SRMR = 0.07; CFI = 0.88; TLI = 0.86), with all items showing significant positive factor loadings ( $p < 0.001$ ). The scale demonstrates acceptable internal reliability ( $\alpha = 0.81$ ) and has been validated in the Indonesian context (Silfiasari & Pertiwi, 2025).

### **Intervention tools**

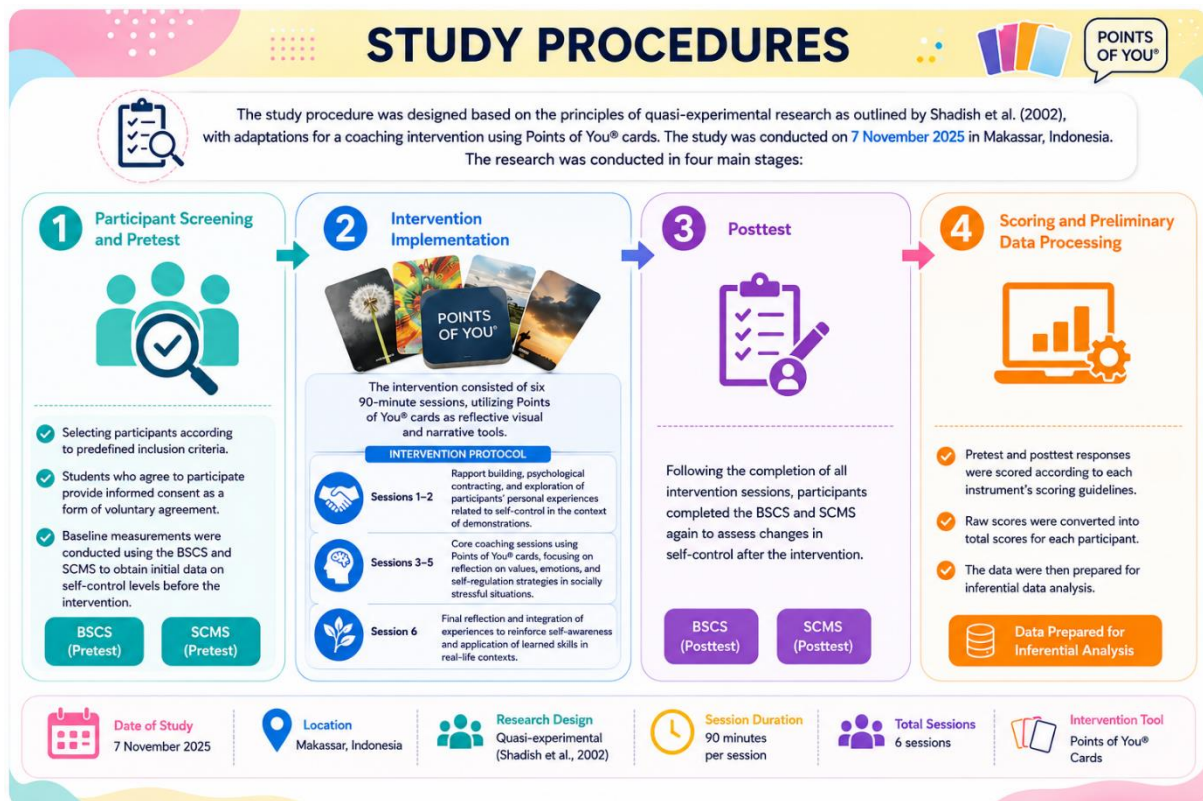
The intervention utilized reflective visual and narrative cards, employing a coaching card framework that has demonstrated effectiveness in self-development contexts (Watsjold & Zhong, 2020). In this study, the specific Points of You method was adapted to the context of university students and demonstrations. Although no published studies have directly examined Points of You in protest contexts, prior research with teachers indicates positive effects on self-insight (Khairunnisa & Arini, 2024).

### **Procedures**

The study procedure was designed based on the principles of quasi-experimental research as outlined by Shadish et al. (2002), with adaptations for a coaching intervention using Points of You®

cards. The study was conducted on 7 November 2025 in Makassar, Indonesia.

The overall study procedure and intervention flow are illustrated in Figure 2.



**Figure 2.** Study Procedure and Intervention Flow

The research was conducted in four main stages:

1. Participant screening and pretest. The initial stage involved selecting participants according to the predefined inclusion criteria. Students who agreed to participate provided informed consent as a form of voluntary agreement. Baseline measurements were then conducted using the BSCS and SCMS to obtain initial data on self-control levels before the intervention.
2. Intervention implementation. The intervention consisted of six 90-minute sessions, utilizing Points of You® cards as reflective visual and narrative tools. The intervention protocol emphasized experiential exploration, enhanced self-awareness, and reinterpretation of personal meaning:
  - Sessions 1–2: Rapport building, psychological contracting, and

exploration of participants' personal experiences related to self-control in the context of demonstrations.

- Sessions 3–5: Core coaching sessions using Points of You® cards, focusing on reflection on values, emotions, and self-regulation strategies in socially stressful situations.
  - Session 6: Final reflection and integration of experiences to reinforce self-awareness and application of learned skills in real-life contexts.
3. Posttest. Following the completion of all intervention sessions, participants completed the BSCS and SCMS again to assess changes in self-control after the intervention.
  4. Scoring and preliminary data processing. Pretest and posttest responses were scored according to

each instrument's scoring guidelines. Raw scores were converted into total scores for each participant, which were then prepared for inferential data analysis.

### **Data analysis**

Data analysis began with descriptive statistics and evaluation of data distribution to provide an overview of central tendency, dispersion, and variable distribution patterns. Data distribution was typically assessed using normality tests such as the Shapiro–Wilk test and homogeneity of variance tests like Levene's test (Field et al., 2012). However, as recommended by APA reporting standards (Appelbaum et al., 2018), univariate normality can also be evaluated by inspecting skewness ( $\pm 2$ ) and kurtosis ( $\pm 7$ ) as indicators of reasonable data distribution (Gallo-Giunzioni et al., 2025; Privado et al., 2024). In a one-group design, homogeneity testing is not required since the analysis focuses solely on within-subject comparisons (Dancey & Reidy, 2020; Field, 2024).

Once data quality was verified, a Bayesian paired-sample t-test was conducted to evaluate changes in self-control before and after the intervention. This analysis generated posterior distributions, providing probabilistic estimates of differences over time (Han et al., 2018; van den Bergh et al., 2020, 2023; van Doorn et al., 2021; Rouder et al., 2012). In addition, Bayesian Linear Regression with a Dichotomous Predictor was used to assess the effect of participation in the intervention on self-control improvements based on posterior parameter distributions.

For the Bayesian paired-sample t-test, a Cauchy prior with a scale of 0.707 was used as the default prior. In the Bayesian linear regression, a Beta-binomial distribution with parameters  $a = 1$  and  $b = 1$  (uniform prior) was applied, as recommended by Hoeting et al. (1999) for neutral prior selection. Regression parameters employed Jeffreys–Zellner–

Siow (JZS) priors with the default scale  $r = 0.354$  (Andraszewicz et al., 2015; Berger & Sellke, 1987), which are commonly recommended for Bayesian regression.

The Bayesian statistical approach was chosen because it addresses limitations of frequentist methods, including reliance on normality assumptions and sensitivity to small sample sizes (Gaskin et al., 2025; Kruschke, 2018; Muthén & Asparouhov, 2012; Lüdtke et al., 2021; Wagenmakers et al., 2010, 2018; Zondervan-Zwijnenburg et al., 2017). Over the past decade, Bayesian methods have gained popularity across disciplines (van de Schoot et al., 2017) because they represent theory, improve parameter estimation, and address model convergence issues (Brown, 2015; van de Schoot et al., 2015). This approach enables posterior distribution-based estimation to evaluate effectiveness of Points of You coaching in enhancing students' self-control during demonstrations.

In frequentist statistics, effect size was reported using Cohen's  $d$  to describe the magnitude of differences between conditions (Cohen et al., 2013). In Bayesian statistics, the strength of evidence was assessed using the Bayes Factor (BF), indicating how strongly the data support the alternative hypothesis relative to the null hypothesis (Nuzzo, 2017). BF values range from 0 to infinity, with interpretations as follows: 1–3 = anecdotal, 3–10 = moderate, 10–30 = strong, 30–100 = very strong, and  $>100$  = extreme evidence (Faulkenberry et al., 2020). All statistical analyses were performed using R version 4.5.0 (R Core Team, 2025) integrated with Positron (Posit Software, 2025) and complemented by JASP version 0.95.4.0 (JASP Team, 2025) for visualization and interpretation of Bayesian results.

## **RESULTS AND DISCUSSION**

### ***Descriptive statistics and data distribution***

Descriptive statistics and data distribution for the dependent variables at each measurement phase are presented in

Table 1. Overall, the results indicated changes in self-control scores between the pretest and posttest phases for both the BSCS and SCMS instruments.

For the BSCS, the hypothetical mean of 30 with a standard deviation of 6.667 indicates that participants' self-control levels were generally in the moderate to high range. Data distribution showed skewness values of  $-0.415$  in the pretest and  $-0.503$  in the posttest, suggesting a relatively symmetric distribution with a slight rightward (mild negative) tendency. Kurtosis values were  $-2.153$  (pretest) and  $0.209$  (posttest),

indicating a relatively platykurtic distribution with a wide data spread. Shapiro–Wilk tests yielded  $p > 0.05$  ( $p = 0.127$  for pretest;  $p = 0.851$  for posttest), indicating univariate normality. Categorization results showed that the proportion of participants with moderate self-control increased from 60% at pretest to 80% at posttest, the low category decreased from 40% to 10%, and 10% of participants reached the high category in the posttest phase. This pattern reflects a positive shift in self-control levels following the intervention.

**Table 1.** Descriptive Statistics and Data Distribution of the Dependent Variable at Each Phase

| Dependent Variable  | Phase    | Central Tendency |           | Data Distribution |        |                 | Data Categorization |              |          |
|---------------------|----------|------------------|-----------|-------------------|--------|-----------------|---------------------|--------------|----------|
|                     |          | <i>M</i>         | <i>SD</i> | Skew              | Kurt   | SW ( <i>p</i> ) | Low (%)             | Moderate (%) | High (%) |
| Self-Control (BSCS) | Pretest  | 30               | 6.667     | -0.415            | -2.153 | 0.879 (0.127)   | 4 (40%)             | 6 (60%)      | 0 (0%)   |
|                     | Posttest | 30               | 6.667     | -0.503            | 0.209  | 0.966 (0.851)   | 1 (10%)             | 8 (80%)      | 1 (10%)  |
| Self-Control (SCMS) | Pretest  | 48               | 10.667    | -0.067            | -1.754 | 0.843 (0.048)   | 4 (40%)             | 4 (40%)      | 2 (20%)  |
|                     | Posttest | 48               | 10.667    | -0.757            | 0.754  | 0.943 (0.586)   | 0 (0%)              | 8 (80%)      | 2 (20%)  |

Note. *M*: Hypothetical mean; *SD*: Hypothetical standard deviation; Skew: Skewness; Kurt: Kurtosis; SW: Shapiro–Wilk; BSCS: Brief Self-Control Scale; SCMS: Self-Control and Self-Management Scale.

Similarly, the SCMS results showed a consistent pattern. The hypothetical mean of 48 with a standard deviation of 10.667 indicated stable self-control levels across phases, with improvements in distribution and category. Skewness values of  $-0.067$  (pretest) and  $-0.757$  (posttest) suggested a near-symmetric distribution, shifting to the right in the posttest phase, indicating an increased number of higher scores. Kurtosis changed from  $-1.754$  to  $0.754$ , reflecting a more leptokurtic distribution at posttest, meaning participant scores were more concentrated around the mean. Shapiro–Wilk testing showed  $p = 0.586$  ( $> 0.05$ ) at posttest, indicating normality, while pretest ( $p = 0.048$ ) suggested minor deviations from normality. Given the small sample size, these results should be interpreted cautiously, as normality tests can be sensitive and unstable with limited data (Field et al., 2012). Therefore, normality assessment primarily relied on skewness and kurtosis values, following APA guidelines (Appelbaum et al., 2018).

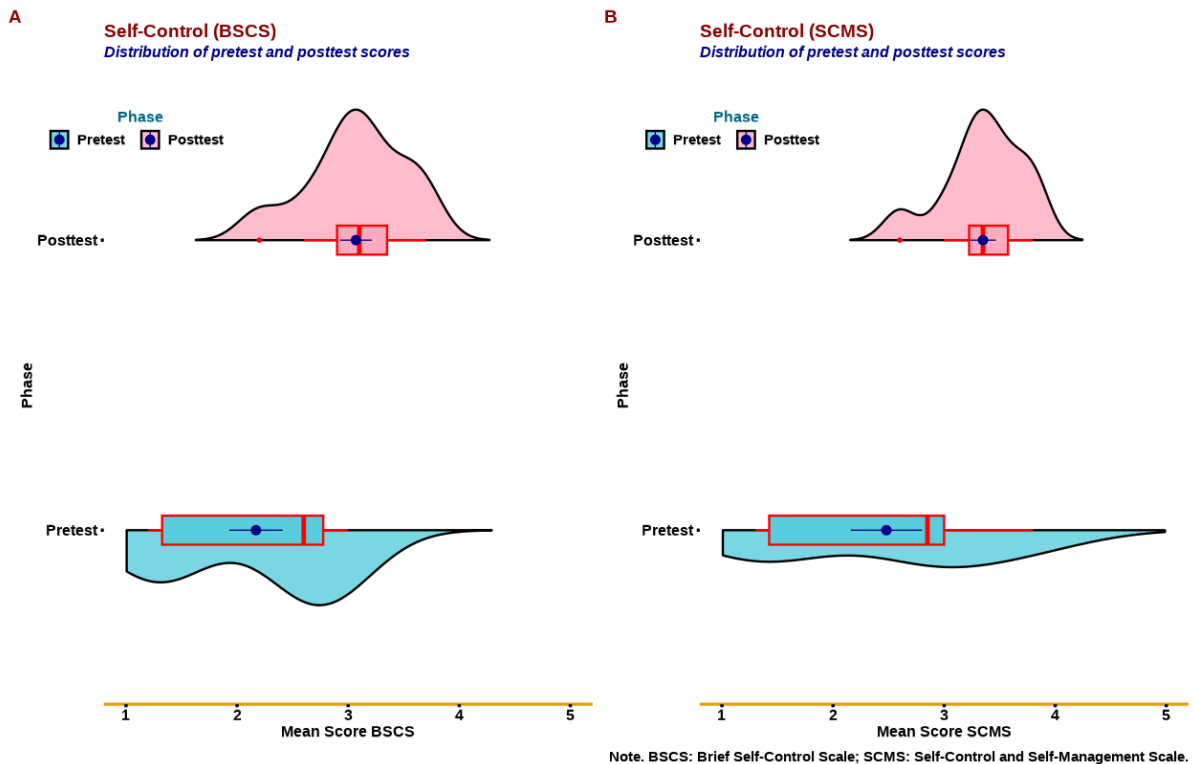
Categorical analysis revealed that the proportion of participants with moderate self-control increased from 40% to 80%, the low category decreased from 40% to 0%, while the high category remained stable at 20%. Overall, the descriptive results indicate a trend of increased self-control following the intervention for both BSCS and SCMS. The near-normal data distribution and reduction in the low category suggest that the Points of You coaching intervention has the potential to enhance students' self-regulation capacity, which will be further examined through inferential analysis using Bayesian paired-sample *t*-tests and Bayesian linear regression with a dichotomous predictor.

### **Bayesian paired-sample *t*-test**

Analysis comparing self-control scores before and after the intervention showed a consistent improvement across both measurement instruments, BSCS and SCMS. As illustrated in Figure 3, the distribution of pretest and posttest scores

clearly shifted toward higher mean scores after the intervention. For both scales, the posttest distribution (blue) shifted to the right compared to the pretest distribution (pink), indicating an increase in self-control levels. This shift was accompanied by a narrower range of scores and greater density

around the mean, suggesting that participants not only improved overall but also exhibited reduced inter-individual variability after the intervention. In other words, the intervention contributed to both the enhancement and consistency of participants' self-regulation abilities.



**Figure 3.** Distribution of Pretest and Posttest Scores on the BSCS and SCMS Scales

**Table 2.** Comparison of Self-Control Scores Based on Frequentist and Bayesian Analyses

| Dependent Variable  | Phase    | <i>M</i> ( <i>SD</i> ) | Frequentist Statistics |          |                            | Bayesian Statistics       |                        |
|---------------------|----------|------------------------|------------------------|----------|----------------------------|---------------------------|------------------------|
|                     |          |                        | <i>t</i>               | <i>d</i> | $\Delta M$ (95% CI)        | $BF_{10}$ (95% CrI)       | error %                |
| Self-Control (BSCS) | Pretest  | 2.170 (0.759)          | -3.101*                | -0.981   | -0.900<br>(-1.557, -0.243) | 5.122<br>(-1.594, -0.111) | $6.078 \times 10^{-6}$ |
|                     | Posttest | 3.070 (0.452)          |                        |          |                            |                           |                        |
| Self-Control (SCMS) | Pretest  | 2.480 (1.012)          | -2.552*                | -0.807   | -0.870<br>(-1.641, -0.099) | 2.535<br>(-1.384, -0.010) | $6.812 \times 10^{-6}$ |
|                     | Posttest | 3.350 (0.366)          |                        |          |                            |                           |                        |

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .  $\Delta M$ : Mean difference; 95% CI: 95% Confidence Interval; 95% CrI: 95% Credible Interval. BSCS: Brief Self-Control Scale; SCMS: Self-Control and Self-Management Scale.

Frequentist statistical results support this pattern (see Table 2). On the BSCS, mean scores increased from 2.17 ( $SD = 0.759$ ) to 3.07 ( $SD = 0.452$ ), with  $t_{(9)} = -3.101$ ,  $p = 0.013$ ,  $d = -0.981$ , indicating a large and significant effect. For the SCMS, scores increased from 2.48 ( $SD = 1.012$ ) to 3.35 ( $SD = 0.366$ ), with  $t_{(9)} = -2.552$ ,  $p = 0.031$ ,  $d = -0.807$ , reflecting a significant increase with a medium-to-large effect size.

Overall, these findings suggest that participants were better able to resist impulses, regulate behavior, and focus on long-term goals following the intervention.

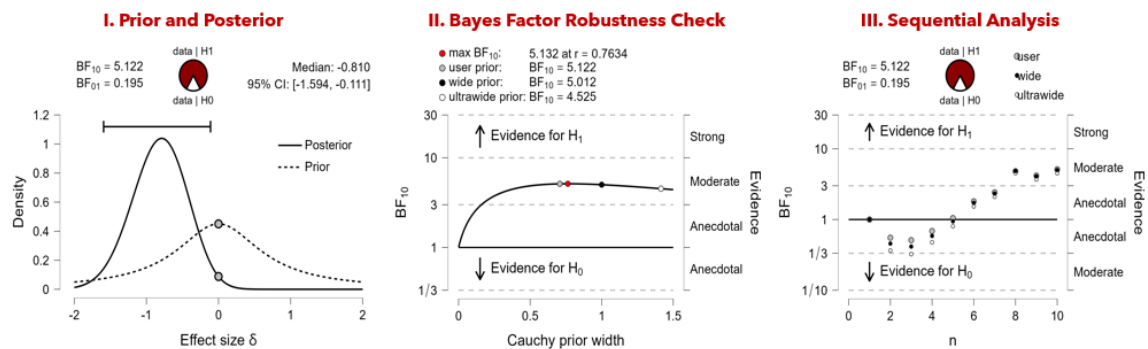
Figure 4 presents the Bayesian analysis results, providing a probabilistic estimate of the strength of evidence and the effect of pretest–posttest differences. In panel (A) for BSCS, the posterior curve (thick line) shifted substantially to the left

from the prior (dashed line), with a median effect  $\delta = -0.810$  and a 95% credible interval  $[-1.594, -0.111]$ . This shift indicates that, after accounting for the data, the probability of a negative effect (reflecting an increase in posttest scores) is much higher than the probability of no effect. The Bayes Factor ( $BF_{10} = 5.122$ ) provides moderate evidence supporting the alternative hypothesis ( $H_1$ ), indicating that self-control increased after the intervention. Robustness checks confirmed the stability of BF across different prior widths, and sequential analyses showed that evidence for  $H_1$  consistently increased as more data were incorporated, suggesting that the

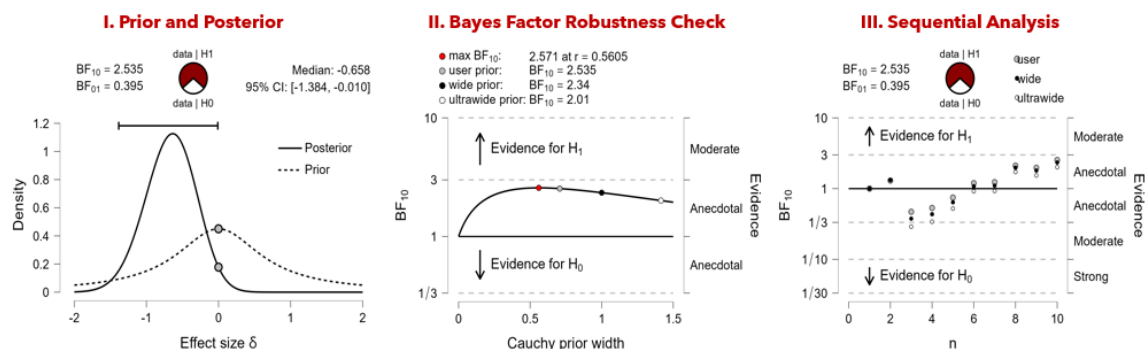
results were not dependent on the small sample size or specific anomalies.

In panel (B) for SCMS, a similar pattern was observed, though the strength of evidence was slightly lower. The median effect  $\delta = -0.658$  with a 95% credible interval  $[-1.384, -0.010]$  still indicates an improvement in self-control at posttest.  $BF_{10} = 2.535$  suggests anecdotal evidence supporting  $H_1$ . This means there is a high probability that the intervention had a positive effect, although Bayesian confidence in this effect is not as strong as for BSCS. The posterior curve shifted from the prior in a consistent direction, and sequential analyses confirmed that evidence for increased self-control remained stable.

### A. Pre BSCS - Post BSCS



### B. Pre SCMS - Post SCMS



**Figure 4.** Bayesian Estimation and Evidence Strength for Pretest–Posttest Differences on Self-Control Scales (BSCS and SCMS)

Overall, Figure 4 demonstrates that both frequentist and Bayesian results complement each other, indicating increased self-control after the intervention, with stronger evidence observed for BSCS compared to SCMS. Substantively, this suggests that participants not only

experienced temporary changes but also demonstrated measurable improvements in self-regulation from both traditional statistical and probabilistic Bayesian perspectives.

Psychologically, these results are interpreted that the intervention enhanced

participants' self-regulatory capacity. Improvements in BSCS reflect broader self-control aspects, such as the ability to resist impulses and regulate behavior, whereas improvements in SCMS highlight strengthened conscious self-management skills in social and emotional contexts, including regulating actions, emotions, and decisions during involvement in demonstrations. Therefore, the intervention not only increased awareness of impulsive behavior but also strengthened participants' ability to plan and adapt their actions more effectively to academic and social demands.

### **Bayesian linear regression with a dichotomous predictor**

As a complement to the Bayesian paired-sample t-test (see Table 2), a Bayesian linear regression with a dichotomous predictor was conducted to estimate changes in self-control between the pretest and posttest phases, using a dichotomous model approach (phase = 0 for pretest, phase = 1 for posttest). This analysis aimed to verify the stability of the results through a hierarchical regression approach that accommodates parameter uncertainty and provides posterior distribution-based estimates.

### **Model comparison and Bayesian evidence**

The model comparison results (see Table 3) indicate that the model including phase (M1: Model including phase) fits the data better than the null model (M0). For the BSCS, the Bayes Factor ( $BF_{10} = 9.028$ )

provides strong evidence for the model including phase compared to the predictor-free model, with the proportion of explained variance  $R^2 = 0.366$ . For the SCMS,  $BF_{10} = 3.186$  indicates moderate evidence supporting the model with phase as a predictor, with  $R^2 = 0.266$ . These findings confirm that phase differences contribute to explaining variations in self-control scores (BSCS and SCMS), with a stronger increase observed in the BSCS model

### **Convergence evaluation and posterior distribution**

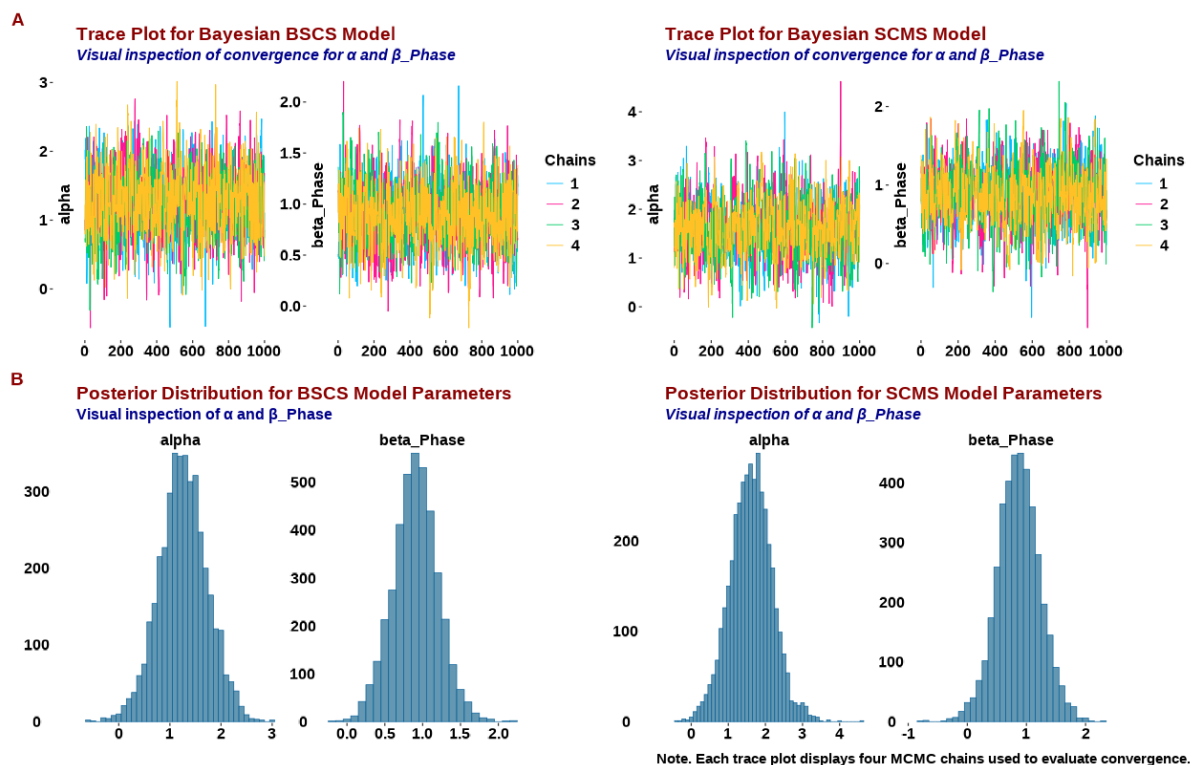
Panel A in Figure 5 presents the trace plots for the parameters  $\alpha$  (intercept) and  $\beta_{\text{Phase}}$  (phase effect) for both the BSCS and SCMS models. The chain patterns from the four chains exhibit overlapping random fluctuations without systematic trends, indicating that all chains achieved good mixing. Panel B displays the posterior distribution histograms for both parameters, showing unimodal and symmetric distributions resembling a normal distribution, which suggests stable estimates and adequate convergence.

Additionally, diagnostic checks for model convergence indicate that all parameters meet the criteria for good mixing. The R-hat values for all parameters range from  $1 \leq \hat{R} < 1.10$ , in line with recommendations by Depaoli (2021), Kaplan (2014, 2024), and Santiago et al. (2021), and remain below the tolerance limit of 1.12 as suggested by Mair (2018). This demonstrates that the MCMC chains reached sufficient stability and that the posterior distributions are well-behaved.

**Table 3.** Bayesian Linear Regression Model Comparison for BSCS and SCMS

| Dependent Variable  | Models         | Frequentist Statistics |                |       | Bayesian Statistics |           |                 |                  |                |
|---------------------|----------------|------------------------|----------------|-------|---------------------|-----------|-----------------|------------------|----------------|
|                     |                | R                      | R <sup>2</sup> | RMSE  | P(M)                | P(M data) | BF <sub>M</sub> | BF <sub>10</sub> | R <sup>2</sup> |
| Self-Control (BSCS) | M <sub>0</sub> | 0.000                  | 0.000          | 0.763 | 0.500               | 0.100     | 0.111           | 0.111            | 0.000          |
|                     | M <sub>1</sub> | 0.605                  | 0.366          | 0.625 | 0.500               | 0.900     | 9.028           | 1.000            | 0.366          |
| Self-Control (SCMS) | M <sub>0</sub> | 0.000                  | 0.000          | 0.865 | 0.500               | 0.239     | 0.314           | 0.314            | 0.000          |
|                     | M <sub>1</sub> | 0.516                  | 0.266          | 0.761 | 0.500               | 0.761     | 3.186           | 1.000            | 0.266          |

Note. M0: Null model; M1: Model including phase. BSCS: Brief Self-Control Scale; SCMS: Self-Control and Self-Management Scale.



**Figure 5.** Trace Plots and Posterior Distributions for the BSCS and SCMS Models

### Posterior parameter estimation

Based on the estimation results, the BSCS model indicates that the posttest phase has a significant positive effect on self-control scores ( $\beta\_Phase = 0.670$ , 95% CrI [0.000, 1.203];  $BF_{incl} = 9.028$ ), suggesting an increase in self-control during the posttest phase compared to the pretest. In the context of a dichotomous

model, this positive estimate indicates that the group coded “1” (posttest phase) has higher self-control scores than the reference group coded “0” (pretest phase). The intercept estimate  $\alpha = 2.620$  (95% CrI [2.337, 2.934]) represents the average self-control score at the pretest phase, indicating that the observed positive change reflects a meaningful improvement following the intervention.

**Table 4.** Posterior parameter estimates for the BSCS and SCMS models

| Dependent Variable  | M     | Param | Frequentist Statistics |           |              | Bayesian Statistics |                        |              |
|---------------------|-------|-------|------------------------|-----------|--------------|---------------------|------------------------|--------------|
|                     |       |       | <i>B</i> ( <i>SE</i> ) | <i>t</i>  | 95% CI       | $BF_{incl}$         | <i>M</i> ( <i>SD</i> ) | 95% CrI      |
| Self-Control (BSCS) | $M_0$ | Alpha | 2.620 (0.171)          | 15.349*** | 2.263, 2.977 | —                   | —                      | —            |
|                     | $M_1$ | Alpha | 2.170 (0.198)          | 10.987*** | 1.755, 2.585 | 1.000               | 2.620 (0.143)          | 2.337, 2.934 |
|                     |       | Phase | 0.900 (0.279)          | 3.222**   | 0.313, 1.487 | 9.028               | 0.670 (0.328)          | 0.000, 1.203 |
| Self-Control (SCMS) | $M_0$ | Alpha | 2.915 (0.193)          | 15.077*** | 2.510, 3.320 | —                   | —                      | —            |
|                     | $M_1$ | Alpha | 2.480 (0.241)          | 10.307*** | 1.974, 2.986 | 1.000               | 2.915 (0.176)          | 2.546, 3.278 |
|                     |       | Phase | 0.870 (0.340)          | 2.557*    | 0.155, 1.585 | 3.186               | 0.520 (0.392)          | 0.000, 1.230 |

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . M: Statistical model; Param: Parameter; 95% CI: 95% Confidence Interval; 95% CrI: 95% Credible Interval.  $M_0$ : Null model;  $M_1$ : Model including phase. BSCS: Brief Self-Control Scale; SCMS: Self-Control and Self-Management Scale.

In the SCMS model, a similar pattern is observed with  $\beta\_Phase = 0.520$  (95% CrI [0.000, 1.230];  $BF_{incl} = 3.186$ ). This positive effect confirms that the posttest phase is also associated with a

moderate increase in self-control. The intercept  $\alpha = 2.915$  (95% CrI [2.546, 3.278]) represents baseline self-control scores before the intervention, while the phase effect reflects an improvement from

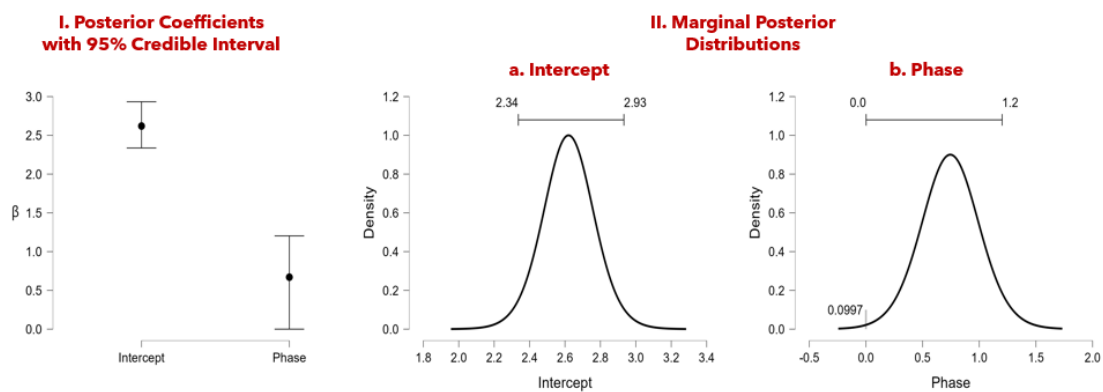
baseline to posttest consistent with the BSCS results, albeit with slightly lower evidential strength.

### Posterior coefficient distribution and credible intervals

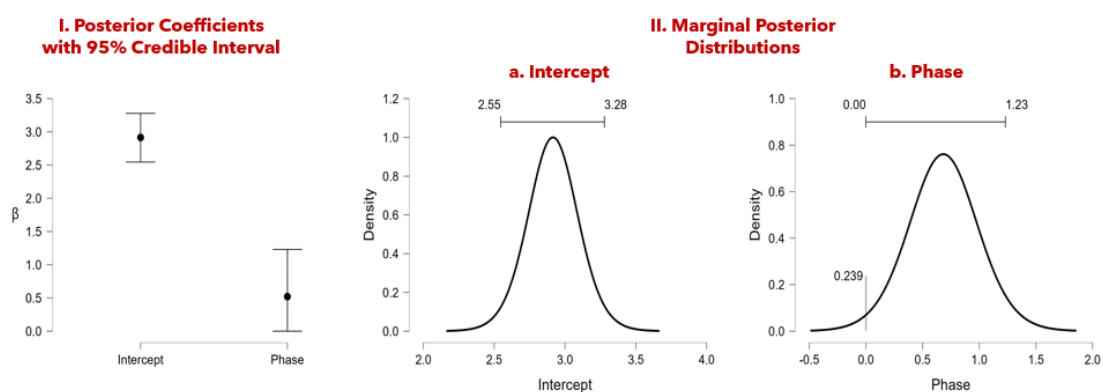
Figure 6 illustrates the visualization of the marginal posterior distributions and 95% credible intervals for the Intercept and Phase parameters in both models. The left panel (I) presents the 95% credible intervals, indicating that the phase effect in both models does not substantially cross zero, thereby reinforcing evidence of

increased self-control after the posttest phase. The right panel (II) shows the posterior distributions, confirming positive central estimates with relatively small variance, suggesting stable and reliable parameter estimates. Specifically, in the BSCS model, the distribution of  $\beta_{\text{Phase}}$  appears more concentrated with a distinct peak above zero, indicating a stronger and more consistent effect compared to the SCMS model. These findings align with the previous interpretation of Bayes Factor values, suggesting that evidence for improved self-control is stronger when measured using the BSCS.

#### A. Phase to BSCS



#### B. Phase to SCMS



**Figure 6.** Posterior Coefficients and Marginal Posterior Distributions (BSCS and SCMS) Models

Overall, the results of the Bayesian Linear Regression with a Dichotomous Predictor reinforce the findings from the Bayesian paired-sample t-test (see Table 3). Parameter estimates indicate that the posttest phase consistently increases self-control scores on both the BSCS and SCMS scales, with strong evidential support for

BSCS and moderate support for SCMS. The convergence patterns and posterior distributions demonstrate that the model parameter estimates are stable and reliable, supporting the conclusion that the intervention or experience between the two research phases contributed positively to participants' self-control improvement.

The results of this study indicate that coaching using Points of You cards has a significant impact on enhancing self-control among students involved in demonstrations (Albus et al., 2021; Wu et al., 2022; Yılmaz et al., 2025). Students who participated in the coaching sessions demonstrated higher abilities in managing emotions, restraining impulses, and considering the consequences of their actions before making decisions (Avilés-Dávila et al., 2023; Ramírez-García, 2023; Abdollahi et al., 2020; Britton & Polman, 2022). These findings are consistent with the self-regulation theory proposed by Baumeister et al. (2007), which states that self-control is the ability of individuals to adjust behavior and emotions in alignment with internal standards and social demands (Sepiadou & Metallidou, 2022; Qiang et al., 2024; Panadero, 2017). In this context, Points of You functions as a reflective medium that encourages students to understand their emotional dynamics before responding to high-pressure situations such as demonstrations (Anjum, 2022; Liu et al., 2022; Britton & Polman, 2022). The coaching approach, which emphasizes self-awareness and experiential reflection, helps students shift focus from impulsive reactions to more deliberate and responsible actions (Hunt et al., 2020; Hidayatullah et al., 2025; Puccini & Newell, 2025).

The primary mechanism explaining the effectiveness of this intervention lies in Points of You's ability to integrate visual, emotional, and cognitive elements into a single coaching process (Lin-Stephens & Manuguerra, 2023; Wasfy et al., 2021; Altmeyer et al., 2024). Each card contains images and words that stimulate personal associations, opening space for deeper interpretation and reflection (Liu et al., 2025; Błachnio et al., 2023). This process activates metacognitive awareness, which is the individual's ability to recognize and regulate their own thinking processes (Wang et al., 2022; Nadeem et al., 2022). Using Points of You cards helps participants break old thought patterns and

discover new perspectives regarding themselves and external situations (Chou et al., 2020; Stieglitz et al., 2021). Consequently, students learn to delay spontaneous reactions to provocation or emotionally charged situations during demonstrations and replace them with more purposeful thinking processes (Sozio et al., 2024; Rafatjoo et al., 2024).

Furthermore, the study showed that the greatest improvements in self-control occurred among students with initially low self-control scores (Aprodita, 2021; Li et al., 2022). This phenomenon supports the view that individuals with weaker self-regulation are more responsive to self-reflection-based interventions (Kuo et al., 2021; Lin et al., 2020). Coaching helps them build internal structures of awareness, responsibility, and the ability to choose adaptive responses to social pressure (Makarowski et al., 2021). Previous studies have also demonstrated that coaching emphasizing self-awareness and personal responsibility significantly enhances emotional regulation and ethical decision-making among students and young professionals (Kong, 2024; García-Álvarez et al., 2024). In the context of demonstrations, these findings indicate that coaching not only improves intrapersonal self-control but also positively impacts students' social behaviors in a more constructive manner (Smolkowski et al., 2022; Huang, 2024).

In practice, students who underwent Points of You coaching demonstrated greater abilities to delay aggressive impulses, consider more peaceful alternatives, and articulate aspirations in a structured manner. This improvement reflects not only strengthened self-control but also development in emotional regulation and moral reasoning (García-Álvarez et al., 2020; Iuga et al., 2023). When students face emotional pressure during demonstrations, the reflective process facilitated by Points of You allows them to identify the underlying values behind their actions (Jan & Parveen, 2024;

Muhammad et al., 2025). Thus, coaching becomes an important instrument in fostering more ethical and effective social participation among students (Tosuntaş, 2020).

Conceptually, this study extends understanding of how a visual experience-based coaching approach can serve as an innovative alternative in developing students' self-control (Mugisha & Arguel, 2025; Donker et al., 2020). Previous studies predominantly focused on cognitive-behavioral or mindfulness-based training to enhance self-regulation (Mrazek et al., 2021; Koć-Januchta et al., 2022). However, this study demonstrates that creative methods like Points of You, which integrate visual and narrative reflection, can produce similar effects through more natural emotional and cognitive pathways (Stewart et al., 2024). This approach aligns with the humanistic learning paradigm, which emphasizes self-awareness, empathy, and social responsibility as central to personality development (Liu et al., 2022; Kamtsios, 2023).

### **Implications**

The findings of this study carry important implications for the development of student development programs in higher education. Academic institutions, student organizations, and campus counseling centers can integrate Points of You card-based coaching as a means to strengthen students' self-control and social awareness. This intervention has the potential to reduce impulsive behaviors while enhancing students' ability to manage emotions during involvement in social activities such as demonstrations (Atad & Grant, 2021; Baah et al., 2024). Furthermore, this method can be developed as an adaptive and contextual character-building training model, particularly amidst the increasing social and political dynamics among Indonesian students (Zhavira & Palupi, 2022).

### **Limitations**

This study has several limitations that should be considered. First, the research was conducted in a specific context involving students participating in demonstrations, so generalizing the findings to the broader student population should be done cautiously (Udvardi-Lakos et al., 2024; Wang et al., 2023). Second, self-control measurement relied on self-report instruments, which are susceptible to social desirability bias and subjective responses from participants (Özbaş et al., 2025; Santoro et al., 2022). Third, the relatively short duration of the intervention limits understanding of the long-term effects of Points of You coaching. Therefore, future research is recommended to employ longitudinal designs and consider moderating variables such as peer pressure and cultural collectivism values that may influence the effectiveness of coaching interventions (Sepulveda et al., 2020; Robert, 2020).

### **CONCLUSION AND RECOMMENDATION**

The overall findings of this study indicate that Points of You card-based coaching is effective in enhancing self-control among university students involved in demonstrations in Makassar City. Both frequentist and Bayesian analyses confirmed a significant improvement in self-control following the intervention. This increase reflects that a visual and narrative reflection-based coaching approach using Points of You cards can help students recognize their emotions, delay impulsive reactions, and make more rational decisions in high-pressure situations such as demonstrations. Therefore, this intervention can be considered an effective psychological strategy to strengthen self-regulation and emotion management in dynamic social contexts.

Based on the findings, it is recommended that higher education institutions, student organizations, and campus counseling centers integrate Points of You card-based coaching into student development programs. Such interventions can help students improve self-control, emotional regulation, and socially responsible behavior during high-stress or socially dynamic activities. Future research should consider longitudinal designs and explore moderating factors, such as peer pressure and cultural collectivism, to further understand the sustainability and generalizability of the intervention effects.

## Declarations

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## Ethical Clearance Statement

As the study involved minimal risk, ethical review was waived. Participants provided informed consent before participation.

## Conflict of Interest

The authors declare no conflict of interest.

## Declaration of Generative AI Use

ChatGPT (GPT-5.5) was used solely to assist with figure creation and to improve the clarity, grammar, and readability of the manuscript. The authors independently reviewed, verified, and accepted all AI-assisted outputs prior to submission.

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## Author Contributions

**Perdana Kusuma:** Conceptualization; Methodology; Project Administration; Writing – Original Draft; Writing – Review & Editing. **Tri Sulastri:** Conceptualization; Data Curation; Writing – Original Draft; Writing – Review & Editing. **Dibyo Restu Nugraha:** Formal Analysis; Visualization; Writing – Original Draft; Writing – Review & Editing. **Dwi Yan Nugraha:** Supervision, Validation, Writing – Review & Editing.

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