Title	Repeated Transgressions Promote Costly Third-Party Punishment in 6-Year-Olds
Author(s)	Toda, Nazu; Toda, Rizu; Kanakogi, Yasuhiro
Citation	Social Development. 2025, 34(2), p. e12796
Version Type	VoR
URL	https://hdl.handle.net/11094/100960
rights	This article is licensed under a Creative Commons Attribution 4.0 International License.
Note	

ORIGINAL ARTICLE OPEN ACCESS

Repeated Transgressions Promote Costly Third-Party Punishment in 6-Year-Olds

Nazu Toda | Rizu Toda | Yasuhiro Kanakogi

Graduate School of Human Sciences, Osaka University, Suita, Osaka, Japan

Correspondence: Yasuhiro Kanakogi (kanakogi.hus@osaka-u.ac.jp)

ABSTRACT

Individuals across cultures believe repeat offenders deserve greater punishment than first-time offenders, which is also widely accepted in today's judicial system. Although previous studies indicate that children consider the transgressor's past behaviors, the effect of repeated transgressions on costly third-party punishment remains unknown. We aimed to investigate the effects of repeated transgressions on third-party punishment in 6-year-olds. We created two within-subjects conditions: first-time and repeated conditions, where the transgressor had transgressed for the first time, and the transgression had been repeated, respectively. In Study 1, children ($N = 43$) were allowed to punish the transgressor at a personal cost. We found that more children engaged in punishment in the repeated condition than in the first-time condition. In Study 2, we examined the effect of repeated transgressions on trait attributions and behavioral predictions regarding the transgressor with an additional group of 6-year-olds ($N = 43$). Results revealed that repeated transgressions significantly affected behavioral prediction but did not affect trait attribution regarding the transgressor compared with the first-time condition. These results suggest that 6-year-olds can administer punishment and predict a transgressor's recidivism based on the frequency information of the transgression. Our findings demonstrate that from the early stages of punitive behavior development, humans believe that repeat offenders should be strictly punished.

1 | Introduction

Third-party punishment, a behavior of punishing others who are antisocial even when the transgressor has not directly harmed them (Boyd et al. 2003), is a potential mechanism for maintaining a cooperative society (Bernhard et al. 2006; Fehr and Gächter 2002; Fowler 2005; Hauert et al. 2007). This behavior is unique to humans (Raihani et al. 2012; Riedl et al. 2012) and plays an important role in deterring further antisocial behaviors and enforcing norms (Balliet et al. 2011; Boyd et al. 2003; Fehr and Gächter 2002; Mathew and Boyd 2011). Humans are highly motivated to punish others who are antisocial, even when they

must sacrifice their resources (Fehr and Fischbacher 2004; Fehr and Gächter 2002).

From a developmental perspective, third-party punishment emerges during early childhood. Three-year-olds engage in third-party punishment by removing items from a thief (Riedl et al. 2015). Furthermore, children begin to punish antisocial others, even when they need to sacrifice personal resources, at approximately 4-years-old. Studies demonstrated that 4-year-olds relinquished their stickers to punish a free rider (Yang et al. 2018) or to punish a transgressor who ruined other people's artwork (Yudkin et al. 2020). By 6-years-old, children began

to administer costly third-party punishments across various transgressors, such as those who engaged in moral transgressions (Marshall et al. 2021; Yudkin et al. 2020) and violated fairness norms (Jordan et al. 2014; McAuliffe et al. 2017; Salali et al. 2015). For example, 6-year-olds sacrificed their own resources, such as candies or tokens, to punish another person who acted selfishly; however, 5-year-olds did not do the same (McAuliffe et al. 2015).

Although third-party punishment is pervasive as a norm-enforcing behavior, children, like adults, do not impartially punish in all circumstances. Instead, children can make punishment intervention decisions by considering various social and situational factors. For example, group identity (e.g., ingroup or outgroup) influences punishment decisions in children and adults. Some evidence has suggested that individuals are more likely to punish outgroup members extra harshly to inflict damage on future competitors (Bernhard et al. 2006; Jordan et al. 2014). Conversely, other studies have found that children tend to punish ingroup members more severely when they expect to interact with them in the future (Gonzalez-Gadea et al. 2022; Schmidt et al. 2012; Shinada et al. 2004), resulting in mixed findings on whether group affiliation strengthens or weakens the tendency to punish. Beyond group identity, children's third-party punishment is influenced by various other factors, including the transgressor's intentions, behavioral outcomes (Nobes et al. 2009), and the presence or absence of apologies (Darby and Schlenker 1982). These previous studies demonstrate that, from early developmental stages, children do not uniformly apply punishment but can engage in punitive behavior while considering different social and contextual information.

Another possible factor that can affect third-party punishment is information regarding the repetition of the transgression, that is, whether the transgressor has engaged in antisocial behaviors in the past. In the current judicial system, a significant custom of third-party punishment is that repeat offenders are punished more severely than first-time offenders (Burnovski and Safra 1994; Chu et al. 2000). Law and justice researchers have proposed several theories to argue that punishing repeat offenders more harshly than first-time offenders can enhance social deterrence (Burnovski and Safra 1994; Chu et al. 2000; Polinsky and Rubinfeld 1991; Rubinstein 1979). Research in experimental psychology also reported similar beliefs among adults. Peterson (2014) revealed that a history of offenses increased adults' desire for punishment. In addition, Gollwitzer and Keller (2010) suggested that adults punished repeat ingroup offenders more severely than first-time ingroup offenders, mediated by anger and societal concern. Therefore, adults strongly believed that repetitive transgressors deserved more punishment than first-time transgressors.

Is this notion acquired in the early stages of human development? Although no study has directly investigated the effect of repeated transgressions, previous research demonstrated that children considered the transgressor's past behavior and reputation when they made moral judgments. For example, 7- and 10-year-olds perceived transgressors as less likable and expected more punishment when they had unfavorable reputations (Darby and Schlenker 1989). Another study suggested that 6- and 8-year-olds

considered a transgression performed by a "bad" character, who always did the wrong thing, as more intentional and worthy of punishment than that performed by a "good" or "mixed" character (Cameron et al. 2023). Although these results indicated the development of moral cognitive skills to consider the transgressor's past behavior, the studies explicitly labeled a moral character to the transgressors. In many real-life interactions, trait information about others is not presented. Hence, investigating whether children can consider the frequency information of the transgression itself, a simple yet objective factor to determine appropriate punishment, can contribute to our understanding of children's moral development. In addition, previous studies demonstrated that children considered the transgressor's past behavior when they evaluated the deservingness of the punishment (Cameron et al. 2023; Darby and Schlenker 1989); however, they did not ask children to administer punishment on their own cost. Hence, whether the information regarding the repetition of the transgression promoted young children's punitive behavior is unclear.

We investigated whether repeated moral transgressions promoted the enactment of costly third-party punishment in 6-year-olds. We chose this age because, by the age of 6 years, children became agents of costly third-party punishment for various transgressions (Jordan et al. 2014; McAuliffe et al. 2015; Yudkin et al. 2020). Additionally, evidence suggested that 5- and 6-year-olds considered the number of antisocial behaviors the transgressor conducted when they evaluated the traits or predicted future actions (Boseovski and Lee 2006; Ferguson et al. 1986). Thus, 6-year-olds were likely to understand the information regarding the repetition of the transgression and could make moral decisions based on the number of times a transgressor had engaged in antisocial behavior.

We conducted a third-party punishment task using different transgression repetition information. We created two within-subjects conditions: the first-time and repeated conditions, where participants were told that the transgressor had transgressed for the first time and had repeated the antisocial behavior five times, respectively. We predicted that if children engaged in punitive behavior based on information about transgression frequency, they would be more likely to enact costly third-party punishment in the repeated condition than in the first-time condition. In Study 1, we investigated whether repeated transgressions promoted the enactment of third-party punishment. In Study 2, we investigated the effects of repeated transgressions on trait attribution and predictions of the transgressor's future behavior to deepen our insights into how children understood repeated transgressions.

This study aimed to identify a factor that promoted third-party punishment in early childhood and thereby enhance our understanding of the development of third-party punishment. Furthermore, this study investigated the influence of repeated transgressions on the punitive behavior of young children who began to exhibit third-party punishment. These results can provide insights into whether children, from early developmental stages, exhibit the idea that repeated transgressors should be strictly punished, which is already widely applied in the judicial system.

2 | Study 1

2.1 | Method

2.1.1 | Participants

Participants were 43 Japanese 6-year-olds (M = 73.8 months, SD = 3.3, 16 girls) from two kindergartens in Japan. Several additional children (N = 5) were assessed; however, they were excluded as they failed the comprehension checks (N = 4) or stopped participating (N = 1). Since no previous study examined the current questions, we performed several simulation-based power analyses (Kumle et al. 2021) based on studies regarding third-party punishment in 6-year-olds (Gonzalez-Gadea et al. 2022; Marshall and McAuliffe 2024). We chose the two above-mentioned studies based on the following criteria: (1) targeted 6-year-olds, (2) included within-subject conditions, (3) involved binary choice behavior (punish or not punish), and (4) had raw experimental data available. Since these studies included participants from older age groups, we first extracted the results from 6-year-olds. Based on the results, we simulated how the power of the analysis would change as the number of participants increased to detect a suitable sample size for our research. Simulation results suggested a final sample of between 20 and 50 participants. As our effect sizes could not be estimated, we aimed for a final sample of 40 participants toward the upper end of the estimated range. Our sample size of 43 participants provided post-hoc powers of >80% to detect differences in the proportion of those who chose to punish within the two conditions. This study was conducted in accordance with the Declaration of Helsinki and its future amendments and approved by Osaka University (approval number: HB021-051-01). Participants' parents provided written informed consent.

2.1.2 | Procedure

We created two within conditions: the first-time and repeated conditions, where the transgressor conducted an antisocial action for the first time, and another repeated the antisocial action five times, respectively. Children consecutively participated in third-party punishment tasks for each in a counterbalanced order. All the participants were individually assessed in kindergarten rooms, and the experiment took approximately 15–20 min. This procedure was based on the Third-Party Punishment task used in Marshall et al.'s study (Marshall et al. 2021).

2.1.3 | Introduction of the Toy and Antisocial Child

Children were presented with a toy named the Donut Tower, through which they could stack several donut-shaped pieces on an unstable plate while trying not to topple the tower. Participants were allowed to play with the toy once. Subsequently, we asked them whether they wanted to continue playing to ensure the toy was sufficiently appealing. All the participants answered that they wanted to play with the toy again. Thereafter, they were introduced to a transgressor. They watched a short video clip of a child named Yuka (girl) or Kazuki (boy) on a laptop. Before the video was played, the experimenter pointed to the child on the screen who held a piece of artwork and explained that the

child was the same age as the participants and went to a different kindergarten that the experimenter had visited the previous day. The participants were subsequently told the child's story (the script below describes Yuka's story):

> "Yuka and her friend Akari (or Shota, in Kazuki's story) were drawing pictures. At that time, Akari left the room with me briefly because she wanted to go to the bathroom (or, in the second task, because she went to another room to get some toys). Can you see Yuka holding a drawing (pointing to Yuka's hand on the screen)? It is Akari's drawing. I will show you what Yuka did to Akari's drawing while Akari and I were not there."

Thereafter, participants watched a video clip in which Yuka tore Akari's drawing. After presenting the video, the experimenter asked the first comprehension question: "What did Yuka do?" If the participants did not understand that Yuka had ripped her friend's artwork, the experimenter repeated the same clip and asked the question. If the children did not refer to whose drawing was ripped up, the experimenter asked, "Do you remember whose drawing this was?" If the participants failed the comprehension check twice, they were excluded from the analysis; however, all the children passed this comprehension check within two trials.

Subsequently, the children were given information on how many times Yuka (Kazuki) had repeated the transgression based on the condition. In the first-time condition, children were told, "It was the first time that Yuka (Kazuki) ripped up someone else's drawing. She had never ripped up someone's drawing before, but this time she did." In the repeated condition, children were told, "This was not the first time that Kazuki (Yuka) ripped up a drawing of his friend. He has ripped up someone's drawing five times and did it again." The experimenter provided numerical information (first and five times) by counting the numbers on their fingers to visualize the information regarding the repetition. To ensure that children understood that ripping up others' drawings was a transgression, we asked the second comprehension question: "Do you think what Yuka did was a nice or bad thing to do?" All children correctly recognized that the transgressor's action was "bad." After the children responded, they were presented with a picture of the transgressor ripping up the friend's artwork to look at when they responded to additional questions.

2.1.4 | Box Introduction

The children were informed that the experimenter would revisit Yuka (the transgressor) to conduct some activities and that Yuka wanted to play with the donut game. Subsequently, the participants were introduced to two boxes. Although identical, only one had a lock (whether the box with a lock was placed on the right or left side of the table was counterbalanced). Participants were asked to place the donut toy in the locked box to prevent Yuka from playing with it or in the open box to allow her to play with the toy while the experimenter was away. The experimenter also explained that if the participants chose the locked box, it would be locked immediately, and they would lose the opportunity to play with the toy again. However, they could play with the toys if they chose the open box. Participants had

to relinquish their opportunity to play with the toy to punish the transgressor, which made their punishment decision costly.

Thereafter, participants were asked the third comprehension question. They were asked for both boxes: "If you place the toy in this box, will you have a chance to play with it anymore?" If the participant responded incorrectly, the experimenter repeated the explanation and comprehension question. If the participants could not respond correctly in the second trial, they were excluded; however, all the participants provided correct responses within two trials. After the third comprehension question, children were presented with a card associated with each box. The card on the open box showed "Yes" with a large green circle (permission) around the toy picture.

This setup, where the transgressor could learn a lesson, was based on the "communicative punishment" from Marshal et al.'s (Marshall et al. 2021) study. In their study, they introduced two types of third-party punishment: "communicative punishment," which involves punishing transgressors and explaining why they deserve the punishment to teach them a lesson, and "non-communicative punishment," which consists in punishing the transgressor without explaining the reason, making it unlikely for them to learn a lesson. According to Marshall et al. (2021), communicative punishment was based on both retributive motives (imposing deserved consequences for the act) and consequentialist motives (preventing future transgressions by teaching norms), while non-communicative punishment was based solely on retributive motives. Since our study did not aim to restrict punishment motivations to retributive motives alone, we adopted the communicative punishment paradigm, which can accommodate both motivations.

Subsequently, the participants were posed with the fourth and fifth comprehension questions (posed in a counterbalanced order): "If you place the toy in this (lock) box, will Yuka know why she cannot play with the toy?" and "If you place the toy in this (lock) box, will Yuka learn a lesson?"

The explanation and comprehension check questions were repeated if their responses were incorrect. Participants were excluded if they failed to answer even in their second trial. However, all the participants responded correctly.

2.1.5 | Box Choice

Participants were instructed to privately place the toy in one of the two boxes after the experimenter left the room. They were also informed that a different experimenter would return to the room after they made the punishment decision. This was to prevent reputation management. Previous research revealed that 6–8-year-old children reacted more severely to antisocial puppets in front of the experimenter who knew of their antisocial character (Shinohara et al. 2019). Once they decided, they rang a bell on the desk to call the second experimenter.

2.1.6 | Follow-Up Questions

After the participants rang a bell, the second researcher entered the room and recorded their choices. Thereafter, the experimenter pointed to the box the participants chose and asked, "Why did you

choose this box?" One child did not understand the question and tried to distribute the toy into both boxes; subsequently, the child was excluded from the analysis.

If participants chose a locked box, they were also asked how long they would lock it: "How long do you want to keep the box locked? A tiny bit, a lot, or somewhere in between?" Participants were shown a card with five clocks that increased in time and numbers from 1 to 5. They responded by pointing to a clock illustration. Responses were recorded on a 6-point Likert scale that ranged from 0 (*chose the open box*) to 5 (*kept the box locked the longest time*).

All participants were asked whether the choice of a locked box would make Yuka feel sad: "If you placed the toy in the locked box, would Yuka be sad because she cannot play with the toy?" This last comprehension question was asked to confirm that the children understood that the choice of a locked box was a punishment for the transgressor. Therefore, participants who answered "No (choice of the locked box would not make Yuka sad)" were excluded. However, most children, except for three, correctly understood that the choice of the locked box would make the transgressor sad.

After the first third-party punishment task was completed, the second experimenter conducted the task under the other conditions. To make it easier for participants to distinguish the transgressors in each task, they were introduced to a transgressor of a different sex from the character in the first task. It was also explained that the second transgressor attended a different kindergarten from the first. The children had already received an explanation of the box's function in the first condition and passed the comprehension check. Hence, we omitted the third to fifth comprehension questions regarding its function to avoid redundancy. After completing all the tasks, the participants were allowed to play with the toy until the tower fell twice (3–5 min), irrespective of their box choices.

2.1.7 | Data Analysis

We examined if children administered more punishment to transgressors who repeatedly transgressed than to those who transgressed for the first time. We performed a Generalized Linear Mixed Model (GLMM) for participants' punitive decisions with the condition (first-time or repeated) as a predictor variable and participant ID as a random effect to account for variability between the participants. Data was fitted into the model via a binomial distribution with a logit link function. We also compared how long the participants chose to keep their toys away from the transgressor and examined the effect of the condition on their punitive behavior. A paired t test was conducted on each participant's suggested length of locking the box. All analyses were conducted via R (R Core Team, 2023; version 4.3.0). The lme4 package (Bates et al. 2015) was used for the linear and generalized linear mixed modeling. As an exploratory analysis, we also examined participant's reasoning for their punitive choices.

2.2 | Results and Discussion

To investigate whether repeated transgressions promoted third-party punishment in 6-year-olds, we requested participants to
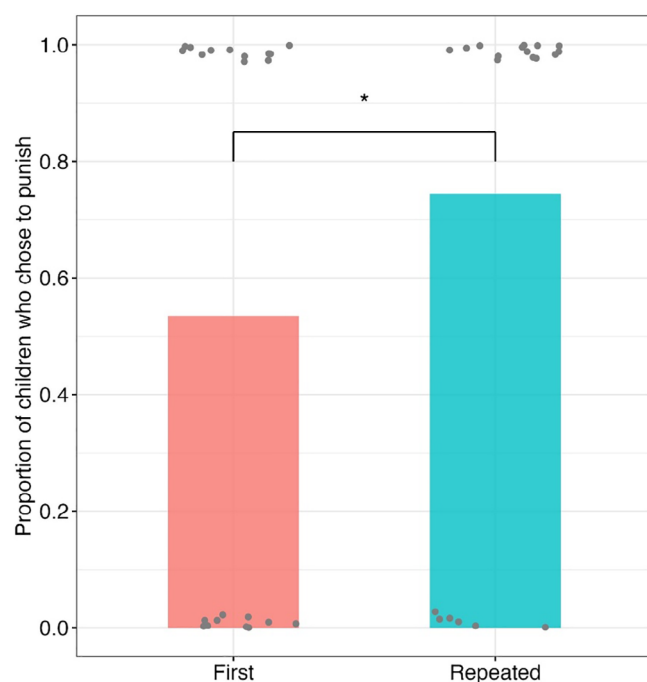
FIGURE 1 | Percentages of the participants who chose to punish in each condition in Study 1 ($N = 43$). *$p < 0.05$. Points reflect individual data in each condition.

choose whether to punish the transgressor in each condition by locking the toy box. In the first-time condition, 53.5% (23 of 43) chose to punish the transgressor, while 74.4% (32 of 43) chose to punish in the repeated condition (Figure 1). GLMM revealed a significant main effect of the condition ($(1) = 4.34$, $p = 0.037$), indicating that more children chose to punish the repeat offender than the first-time offender.

We also compared how long the participants chose to lock the toy away from the transgressor in each condition via a paired t test. This result was consistent with that of the punitive choice: children punished the transgressor in the repeated condition ($M = 2.98$, SD $= 1.98$) for a longer period than in the first condition ($M = 1.86$, SD $= 2.03$; $t(42) = -3.72$, $p < 0.01$). Our results suggested that 6-year-olds were more likely to punish repeat offenders and imposed harsher punishments than for first-time offenders. This result was consistent with prior research, in which children thought transgressors with a bad past reputation deserved harsher punishment (Cameron et al. 2023; Darby and Schlenker 1989).

To better understand their punitive choices, we also explored the verbal reasoning for their choices. Participants' common responses were classified into six categories: transgression, frequency/severity, empathy for the transgressor, punishment cost, other, and no answer (Table 1). Categorization was performed independently by two coders. In cases of discrepancies, the coders discussed and adopted one of the two options. The agreement rate between the two coders was relatively high, $\kappa = 0.967$.

In both conditions, the transgression was mentioned the most frequently, and all the children who referred to it chose to punish the transgressor (Table 2). This may reflect the heightened sensitivity to moral transgressions among this age group.

Furthermore, the second most frequently mentioned aspect was the frequency/severity of the transgression. Several children commented on the number of repetitions of the transgression and its associated severity. In the first-time condition, children mentioned that it was the transgressor's first transgression, and most chose not to punish the transgressor. Conversely, in the repeated condition, they mentioned that the transgression had been repeated multiple times or was too frequent, and most chose to punish the transgressor. Therefore, information on the repetition of the transgression influenced the children's choice of punishment. Regarding the differences between the conditions, the number of participants who mentioned "transgression" increased, and "empathy" decreased in the repeated condition compared to the first-time condition. Information that the transgressor had repeated the transgression five times may have caused participants to focus more on the transgression itself, potentially resulting in increased punishment.

However, why significant differences were observed in punishment choices between the conditions remains unclear from these verbal justifications alone. To deepen our understanding of how the frequency information affects children's punitive behavior, we designed Study 2 and investigated how 6-year-olds understood repeat transgressors. Specifically, we examined the effects of frequency information on the trait attribution and behavioral prediction of the transgressor. These two aspects play an important role when individuals make decisions in their daily social interactions (Erdley and Dweck 1993; Heyman and Gelman 1998). Previous research revealed that although task demands and contextual complexity were affected, 4- to 6-year-olds made trait attribution and prediction from other people's behavior (Boseovski et al. 2013; Boseovski and Lee 2006; Liu et al. 2007). Considering these findings, participants might have considered the trait of the transgressor in the repeated condition to be worse than those of the first-time transgressor; therefore, they were more willing to inflict a costly punishment. Conversely, children could have perceived the transgressor in repeated conditions as more likely to ruin other children's artwork again, which made them feel a higher need to punish the transgressor to deter further transgression. We aimed to investigate how information about the repeat transgressor in Study 1 affected children's understanding of the transgressor.

3 | Study 2

3.1 | Method

3.1.1 | Participants

Participants were 43 Japanese 6-year-olds ($M = 72.2$ months, SD $= 3.6$; 19 girls) from a kindergarten in Japan. Participants' parents provided written informed consent. This study was conducted in accordance with the Declaration of Helsinki and its future amendments and approved by Osaka University (approval number: HB022-027).

3.1.2 | Procedure

We created two within conditions (the first-time and repeated conditions) similar to those in Experiment 1. Participants

TABLE 1 | Coding scheme for participants' reasoning.

Category	Contents	Examples
Transgression	Referring to the transgression itself (but not to the frequency nor severity)	"Because she ripped up her friend's artwork."
Frequency/Severity	Referring to the number of times or degree of the transgression	"Because it is the first time she did it." "Because it is the fifth time she did it."
Empathy for the transgressor	Referring to the empathy or sympathy for the transgressor	"Because she will be sad if she cannot play with the toy."
Punishment cost	Referring to the cost of punishment for themselves	"Because I want to use the donut game later."
Other	Not being able to put into any of the above categories	"Because I am kind."
No answer	Not giving any responses or saying, "I do not know."	

TABLE 2 | Number of reasonings (in percentage) allocated to each category by conditions and choices.

Category	Choice	Number of reasonings	
		First-time	Repeated
Transgression	Total	18 (41.9%)	22 (51.2%)
	Punish	18	22
	Not punish	0	0
Frequency/Severity	Total	7 (16.3%)	7 (16.3%)
	Punish	1	6
	Not punish	6	1
Empathy for the transgressor	Total	6 (14.0%)	3 (7.0%)
	Punish	0	0
	Not punish	6	3
Punishment cost	Total	2 (4.7%)	2 (4.7%)
	Punish	1	0
	Not punish	1	2
Other	Total	6 (14.0%)	3 (7.0%)
	Punish	1	0
	Not punish	5	3
No answer	Total	4 (9.3%)	6 (14.0%)
	Punish	2	4
	Not punish	2	2

responded to several questions for each condition consecutively in a counterbalanced order. The experiment was conducted in a small room in the kindergarten and lasted approximately 10 min. A single experimenter conducted the task in each condition.

3.1.3 | Introduction of the Antisocial Child

The introduction of the antisocial child and information on the repetition of the transgression in each condition were mostly the same as those in Study 1. However, we omitted the introduction of the toys and boxes as we did not use them. The second comprehension question, which was to ask if ripping up others' drawings was a bad thing to do, was also deleted, as it was obvious from Study 1 that 6-year-olds regarded it as a transgression.

3.1.4 | Trait Attribution and Behavior Prediction Questions

After the participants were provided with information about the transgressor and the repetition of the transgression, they responded to trait attribution and behavior prediction questions regarding the transgressor. The experimenter first posed the trait question: "What kind of girl/boy do you think is she/he? Is she/he nice or mean?" The order of the two options was counterbalanced. For this question, the experimenter showed a card with positive and negative facial emotions. Participants responded by pointing to the emojis that matched their responses. Following the trait question, they were asked whether the transgressor would reoffend: "Tomorrow, I will visit Yuka/Kazuki's kindergarten to do the drawing activities again. What do you think will happen if I give Yuka/Kazuki another child's drawing? Do you think she/he will rip it up again or not?" (The order of the two options was counterbalanced.)

3.1.5 | Data Analysis

To investigate the effect of the information of the repetition of the transgression on participants' trait attribution and behavioral prediction regarding the transgressor, we followed a similar procedure as in Study 1. We performed two GLMMs to investigate whether the participants (1) were more likely to evaluate a repeating transgressor as meaner than a first-time offender and (2) considered that the repeating transgressor was more likely to reoffend than the first-time transgressor. Participants' trait attribution in each condition was the dependent variable for (1) and their answers to the prediction questions for (2). Both models included the condition (first-time or repeated) as a predictor variable and participant ID as a random effect to account for variability between the participants. Data was fitted into the models via a binomial distribution with a logit link function.
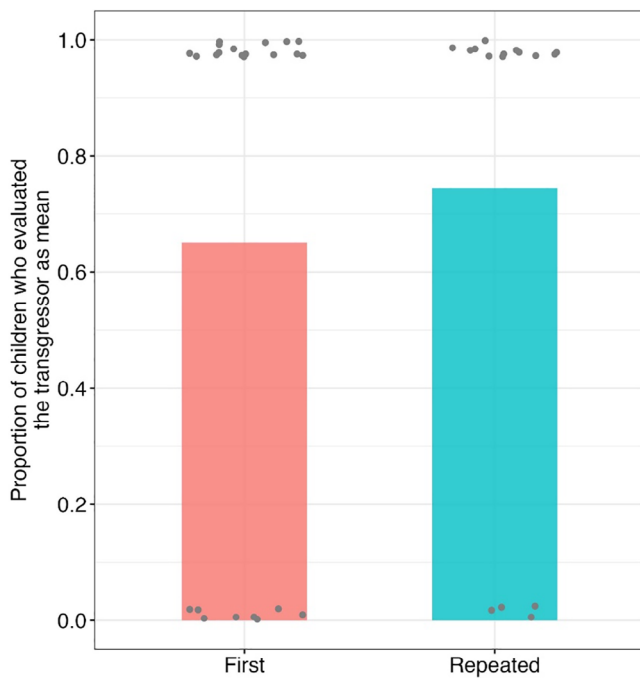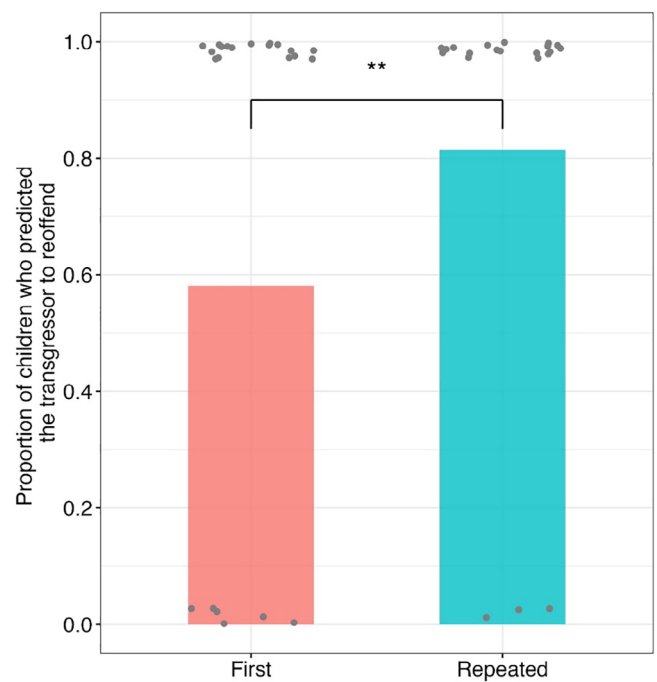
FIGURE 2 | Percentages of the participants who evaluated the transgressor as mean in each condition in Study 2 ($N = 43$). Points reflect individual data in each condition.

FIGURE 3 | Percentages of the participants who predicted that the transgressor would re-offend in each condition in Study 2 ($N = 43$). $**p < 0.01$. Points reflect the individual data in each condition.

3.2 | Results and Discussion

To investigate the effect of repetition of the transgression on trait attribution, we requested participants to indicate whether the transgressor was mean or nice in each condition. In the first-time and repeated condition, 65.1% (28 of 43) and 74.4% (32 of 43) responded "mean," respectively (Figure 2). We did not observe a significant main effect of the condition via GLMM ((1) = 2.54, $p = 0.11$). Considering that more than 50% of the participants evaluated the transgressor as mean in both conditions, children made negative attributions of others even from a single transgression. This result concurred with a previous study with children aged 4–6 who made trait attributions from a single piece of behavioral information regarding the character (Boseovski and Lee 2006).

However, interestingly, although all the participants in Study 1 understood that ripping up someone's artwork was bad, the proportion of the participants who evaluated the transgressor as mean remained relatively low. While this inconsistent evaluation might seem puzzling, it likely represents a reasonable response given the children's limited information about the transgressor. In this study, children were only presented with a single transgressive act of ripping up a piece of artwork. Previous research revealed that young children more accurately attributed traits to others when exposed to multiple behaviors (Boseovski and Lee 2006), but single transgressions might not have provided sufficient information for children to draw conclusions about others' traits. Another possible reason was the influence of positivity bias for trait attribution. Previous studies reported that 6-year-olds attributed positive traits to others (Boseovski and Lee 2006; Newman 1991; see Boseovski 2010 for review). This positivity bias was often observed among children aged 8 years and younger (Heyman and Giles 2004; Newman 1991; Solomon et al. 1996). Therefore, the 6-year-olds in this study could have

been influenced by positivity bias, which made them reluctant to attribute negative traits to the violator even after they watched a video of them tearing up a friend's drawing.

We also examined the effect of information on repeated transgressions on the behavioral prediction of the transgressor. In the first-time condition, 58.1% (25 of 43) responded that the transgressor would reoffend, while 81.4% (35 of 43) predicted the same in the repeated condition (Figure 3). GLMM revealed a significant main effect of the condition ((1) = 16.8, $p < 0.01$). These results indicated that 6-year-olds considered that transgressors with repeated transgressions had a higher probability of recidivism than first-time transgressors. Previous research had mixed findings regarding whether children of this age could evaluate others' traits or likelihood of reoffending based on their past behavior (Boseovski and Lee 2006; Boseovski et al. 2013; Heller and Berndt 1981; Liu et al. 2007; Rholes and Ruble 1984; Ruble et al. 1988).

However, our study indicated that 6-year-olds could predict recidivism based on the frequency information of the transgressions. Discrepancies in the results among studies might be explained by the quantity of information on the transgressions presented to the children. According to Boseovski and Lee (2006), the quantity of information was a factor that influenced children's predictions of others' actions. Previous studies that demonstrated 5- to 6-year-olds could not make predictions based on others' past behavior typically presented information about the transgressions through vignettes (Rholes and Ruble 1984; Ruble et al. 1988). In contrast, this study and others demonstrating children's ability to make behavioral predictions presented information about the transgressions through video clips or acted scenarios (Boseovski and Lee 2006; Liu et al. 2007). Such realistic and rich

information may have enabled even 6-year-olds to make behavioral predictions based on others' past actions.

Overall, results from Study 2 indicated that the information of the repeated transgressions affected the perceived probability of recidivism, but not the perceived meanness of the transgressor, compared with the information on first-time transgression.

4 | General Discussion

This study investigated the effect of information of repeated transgressions on 6-year-olds' third-party punishment and how it affected their trait attribution and behavioral prediction regarding the transgressor. We presented participants with transgressors who committed a transgression for the first time or the fifth time and examined the effects of repeated transgressions on third-party punishment (Study 1). Furthermore, we also examined children's trait attribution and behavior prediction toward the transgressor (Study 2). Findings from Study 1 revealed that 6-year-olds were more likely to punish transgressors who had committed repeat offenses than those who had transgressed for the first time. Results from Study 2 revealed that repetition of the transgression did not significantly affect the perceived meanness of the transgressor; however, it promoted the perceived likelihood of reoffending compared with the first-time condition.

Previous studies investigated several factors that promoted third-party punishment in children, such as the transgressor's intention (Nobes et al. 2009) and group identity (Jordan et al. 2014; Schmidt et al. 2012; Shinada et al. 2004) of the victim or transgressor. Furthermore, when children aged 7–10 years were requested to evaluate the deservingness of punishment, they considered whether the transgressor was a "good" child who had never caused trouble or a "bad" one who always caused trouble (Darby and Schlenker 1989). Our findings are the first to demonstrate that information about the transgressor's repetition of a transgression also promotes actual third-party punishment behavior in 6-year-olds. The notion that repeat offenders should be strictly punished is widely accepted across societies and is the basis for judicial systems (Burnovski and Safra 1994). Our findings demonstrate that humans exhibit this notion early on in punitive behavior development.

Considering the results of Studies 1 and 2, it is likely that children believed repeat transgressors were more likely to reoffend and thus required more intervention, resulting in more punishment for repeat transgressors than first-time transgressors. Previous research demonstrated two motivational bases existed in children's third-party punishment: retributive and consequentialist motives (Marshall et al. 2021). Retributive motive or "just deserts" theory was a motivation with which individuals expected the offender to get what they deserved for their act (Kant 2011). Conversely, the consequentialist motive or "deterrence" theory aimed to prevent further violations (Bentham 2000). Since both punishment and recidivism predictions increased based on the repetition of transgressions, the repetition of transgressions may have enhanced consequentialist motives. However, this study did not examine the direct relationships between the two aspects. However, the impact on consequentialist motives may vary based on the repetition frequency. For instance, if information about

repetition is extremely emphasized, such as "this transgressor always violates rules," or if the transgressor had repeated the same transgression 50 times, it might be perceived that punishment would not be effective in teaching norms, which could potentially decrease consequentialist motives. Further research should explore how the repetition of transgressions influences punishment motives. Our experiment provides a starting point for considering the connection between transgression repetition and punishment motives.

Our study had a few limitations. First, although our results implied that repetition of a transgression enhanced the punishment and prediction of the transgressor's reoffending, we did not examine the direct relationship between punitive behavior and predictions regarding the transgressor. Future research should investigate this relationship using third-party punishment, trait attribution, and behavior prediction tasks with the same participants. Second, while this study experimentally demonstrated that young children considered information of repeated transgressions when administering punishment, further investigation into punishment in actual interpersonal relationships is warranted. In our experimental paradigm, children who administered punishment had no direct relationship with either the transgressor or victim.

Additionally, although we used a new experimenter to confirm the child's choice to minimize the experimenter's influence on the child's decision, it was impossible to completely eliminate the impact of the experimenter's presence (i.e., the influence of reputation management). Therefore, further research should examine the influence of repeated violations on punitive behavior in more natural social contexts. Last, as we only assessed 6-year-olds, our findings were limited in their developmental aspects. Examining younger children is necessary to capture developmental changes in the effects of repeated transgressions on third-party punishment.

We investigated the effect of repeated transgressions regarding a transgressor on third-party punishment, trait attribution, and behavior prediction toward the transgressor among 6-year-olds. Our findings demonstrate that 6-year-olds punish repeat transgressors more and consider repeat transgressors more likely to reoffend than first-time transgressors. Hence, children have a notion of the relationship between repeated transgressions and punishment, which is widely accepted across societies from the early stages of their development.

Author Contributions

Nazu Toda: conceptualization, methodology, formal analysis, investigation, formal analysis, data curation, writing – original draft & editing, visualization. **Rizu Toda**: conceptualization, methodology, investigation, writing – review & editing. **Yasuhiro Kanakogi**: conceptualization, methodology, resources, writing – review & editing, supervision, funding acquisition.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

All materials and data are available at https://osf.io/fd3un/?view_only=fc87bac1c0e5412b855979d5e6a40314.

References

Balliet, D., L. B. Mulder, and P. A. M. Van Lange. 2011. "Reward, Punishment, and Cooperation: A Meta-Analysis." *Psychological Bulletin* 137, no. 4: 594–615. https://doi.org/10.1037/a0023489.

Bates, D., M. Mächler, B. Bolker, and S. Walker. 2015. "Fitting Linear Mixed-Effects Models Using lme4." *Journal of Statistical Software* 67, no. 1: 1–48. https://doi.org/10.18637/jss.v067.i01.

Bentham, J. 2000. *What Is Justice? Classic and Contemporary Readings*. Edited by R. C. Soloman and M. C. Murphy, 215–220. Oxford University Press.

Bernhard, H., U. Fischbacher, and E. Fehr. 2006. "Parochial Altruism in Humans." *Nature* 442, no. 7105: 912–915. https://doi.org/10.1038/nature04981.

Boseovski, J. J. 2010. "Evidence of "Rose-Colored Glasses": An Examination of the Positivity Bias in Young Children's Personality Judgments." *Child Development Perspectives* 4, no. 3: 212–218. https://doi.org/10.1111/j.1750-8606.2010.00149.x.

Boseovski, J. J., K. Chiu, and S. Marcovitch. 2013. "Integration of Behavioral Frequency and Intention Information in Young Children's Trait Attributions." *Social Development* 22, no. 1: 38–57. https://doi.org/10.1111/sode.12008.

Boseovski, J. J., and K. Lee. 2006. "Children's Use of Frequency Information for Trait Categorization and Behavioral Prediction." *Developmental Psychology* 42, no. 3: 500–513. https://doi.org/10.1037/0012-1649.42.3.500.

Boyd, R., H. Gintis, S. Bowles, and P. J. Richerson. 2003. "The Evolution of Altruistic Punishment." *Proceedings of the National Academy of Sciences of the United States of America* 100, no. 6: 3531–3535. https://doi.org/10.1073/pnas.0630443100.

Burnovski, M., and Z. Safra. 1994. "Deterrence Effects of Sequential Punishment Policies: Should Repeat Offenders be More Severely Punished?" *International Review of Law and Economics* 14, no. 3: 341–350. https://doi.org/10.1016/0144-8188(94)90048-5.

Cameron, S., M. Wilks, and M. Nielsen. 2023. "The Effect of Intent and Character Information on Children's Evaluations of Third-Party Transgressions." *Social Development* 32, no. 3: 976–989. https://doi.org/10.1111/sode.12675.

Chu, C. Y. C., S. Hu, and T. Huang. 2000. "Punishing Repeat Offenders More Severely." *International Review of Law and Economics* 20, no. 1: 127–140. https://doi.org/10.1016/S0144-8188(00)00024-7.

Darby, B. W., and B. R. Schlenker. 1982. "Children's Reactions to Apologies." *Journal of Personality and Social Psychology* 43, no. 4: 742–753. https://doi.org/10.1037/0022-3514.43.4.742.

Darby, B. W., and B. R. Schlenker. 1989. "Children's Reactions to Transgressions: Effects of the Actor's Apology, Reputation and Remorse." *British Journal of Social Psychology* 28, no. 4: 353–364. https://doi.org/10.1111/j.2044-8309.1989.tb00879.x.

Erdley, C. A., and C. S. Dweck. 1993. "Children's Implicit Personality Theories as Predictors of Their Social Judgments." *Child Development* 64, no. 3: 863–878. https://doi.org/10.1111/j.1467-8624.1993.tb02948.x.

Fehr, E., and U. Fischbacher. 2004. "Social Norms and Human Cooperation." *Trends in Cognitive Sciences* 8, no. 4: 185–190. https://doi.org/10.1016/j.tics.2004.02.007.

Fehr, E., and S. Gächter. 2002. "Altruistic Punishment in Humans." *Nature* 415, no. 6868: 137–140. https://doi.org/10.1038/415137a.

Ferguson, T. J., J. Van Roozendaal, and B. G. Rule. 1986. "Informational Basis for Children's Impressions of Others." *Developmental Psychology* 22, no. 3: 335–341.

Fowler, J. H. 2005. "Altruistic Punishment and the Origin of Cooperation." *Proceedings of the National Academy of Sciences of the United States of America* 102, no. 19: 7047–7049. https://doi.org/10.1073/pnas.0500938102.

Gollwitzer, M., and L. Keller. 2010. "What You Did Only Matters If You Are One of Us." *Social Psychology* 41, no. 1: 20–26. https://doi.org/10.1027/1864-9335/a000004.

Gonzalez-Gadea, M. L., A. Dominguez, and A. Petroni. 2022. "Decisions and Mechanisms of Intergroup Bias in Children's Third-Party Punishment." *Social Development* 31, no. 4: 1194–1210. https://doi.org/10.1111/sode.12608.

Hauert, C., A. Traulsen, H. Brandt, M. A. Nowak, and K. Sigmund. 2007. "Via Freedom to Coercion: The Emergence of Costly Punishment." *Science* 316, no. 5833: 1905–1907. https://doi.org/10.1126/science.1141588.

Heller, K. A., and T. J. Berndt. 1981. "Developmental Changes in the Formation and Organization of Personality Attributions." *Child Development* 52, no. 2: 683–691. https://doi.org/10.2307/1129190.

Heyman, G. D., and S. A. Gelman. 1998. "Young Children Use Motive Information to Make Trait Inferences." *Developmental Psychology* 34, no. 2: 310. https://doi.org/10.1037/0012-1649.34.2.310.

Heyman, G. D., and J. W. Giles. 2004. "Valence Effects in Reasoning About Evaluative Traits." *Merrill-Palmer Quarterly (Wayne State University Press)* 50, no. 1: 86–109. https://doi.org/10.1353/mpq.2004.0004.

Jordan, J. J., K. McAuliffe, and F. Warneken. 2014. "Development of In-Group Favoritism in Children's Third-Party Punishment of Selfishness." *Proceedings of the National Academy of Sciences of the United States of America* 111, no. 35: 12710–12715. https://doi.org/10.1073/pnas.1402280111.

Kant, I. 2011. *Why Punish? How Much? A Reader on Punishment*. Edited by M. H. Tonry, 31–36. Oxford University Press.

Kumle, L., M. L.-H. Võ, and D. Draschkow. 2021. "Estimating Power in (Generalized) Linear Mixed Models: An Open Introduction and Tutorial in R." *Behavior Research Methods* 53, no. 6: 2528–2543. https://doi.org/10.3758/s13428-021-01546-0.

Liu, D., S. A. Gelman, and H. M. Wellman. 2007. "Components of Young Children's Trait Understanding: Behavior-to-Trait Inferences and Trait-to-Behavior Predictions." *Child Development* 78, no. 5: 1543–1558. https://doi.org/10.1111/j.1467-8624.2007.01082.x.

Marshall, J., and K. McAuliffe. 2024. "How Retributive Motives Shape the Emergence of Third-Party Punishment Across Intergroup Contexts." *Child Development* 95, no. 5: 1779–1796. https://doi.org/10.1111/cdev.14097.

Marshall, J., D. A. Yudkin, and M. J. Crockett. 2021. "Children Punish Third Parties to Satisfy Both Consequentialist and Retributive Motives." *Nature Human Behaviour* 5, no. 3: 361–368. https://doi.org/10.1038/s41562-020-00975-9.

Mathew, S., and R. Boyd. 2011. "Punishment Sustains Large-Scale Cooperation in Prestate Warfare." *Proceedings of the National Academy of Sciences of the United States of America* 108, no. 28: 11375–11380. https://doi.org/10.1073/pnas.1105604108.

McAuliffe, K., P. R. Blake, N. Steinbeis, and F. Warneken. 2017. "The Developmental Foundations of Human Fairness." *Nature Human Behaviour* 1, no. 2: 0042. https://doi.org/10.1038/s41562-016-0042.

McAuliffe, K., J. J. Jordan, and F. Warneken. 2015. "Costly Third-Party Punishment in Young Children." *Cognition* 134: 1–10. https://doi.org/10.1016/j.cognition.2014.08.013.

Newman, L. S. 1991. "Why Are Traits Inferred Spontaneously? A Developmental Approach." *Social Cognition* 9: 221–253. https://doi.org/10.1521/soco.1991.9.3.221.

Nobes, G., G. Panagiotaki, and C. Pawson. 2009. "The Influence of Negligence, Intention, and Outcome on Children's Moral Judgments." *Journal of Experimental Child Psychology* 104, no. 4: 382–397. https://doi.org/10.1016/j.jecp.2009.08.001.

Peterson, J. 2014. "The Formation of the Desire for Retribution." *Journal of Business Inquiry* 13, no. 2: 132–145.

Polinsky, A. M., and D. L. Rubinfeld. 1991. *A Model of Optimal Fines for Repeat Offenders*. NBER Working Paper No.w3739. https://papers.ssrn.com/abstract=242131.

Raihani, N. J., A. Thornton, and R. Bshary. 2012. "Punishment and Cooperation in Nature." *Trends in Ecology & Evolution* 27, no. 5: 288–295. https://doi.org/10.1016/j.tree.2011.12.004.

Rholes, W. S., and D. N. Ruble. 1984. "Children's Understanding of Dispositional Characteristics of Others." *Child Development* 55, no. 2: 550–560.

Riedl, K., K. Jensen, J. Call, and M. Tomasello. 2012. "No Third-Party Punishment in Chimpanzees." *Proceedings of the National Academy of Sciences of the United States of America* 109, no. 37: 14824–14829. https://doi.org/10.1073/pnas.1203179109.

Riedl, K., K. Jensen, J. Call, and M. Tomasello. 2015. "Restorative Justice in Children." *Current Biology* 25, no. 13: 1731–1735. https://doi.org/10.1016/j.cub.2015.05.014.

Rubinstein, A. 1979. "An Optimal Conviction Policy for Offenses That May Have Been Committed by Accident." In *Applied Game Theory*, edited by S. J. Brams, A. Schotter, and G. Schwödiauer, 406–413. Physica-Verlag Heidelberg Publisher. https://doi.org/10.1007/978-3-662-41501-6_26.

Ruble, D. N., L. S. Newman, W. S. Rholes, and J. Altshuler. 1988. "Children's "Naive Psychology": The Use of Behavioral and Situational Information for the Prediction of Behavior." *Cognitive Development* 3, no. 1: 89–112.

Salali, G. D., M. Juda, and J. Henrich. 2015. "Transmission and Development of Costly Punishment in Children." *Evolution and Human Behavior* 36, no. 2: 86–94. https://doi.org/10.1016/j.evolhumbehav.2014.09.004.

Schmidt, M. F., H. Rakoczy, and M. Tomasello. 2012. "Young Children Enforce Social Norms Selectively Depending on the Violator's Group Affiliation." *Cognition* 124, no. 3: 325–333. https://doi.org/10.1016/j.cognition.2012.06.004.

Shinada, M., T. Yamagishi, and Y. Ohmura. 2004. "False Friends Are Worse Than Bitter Enemies: "Altruistic" Punishment of In-Group Members." *Evolution and Human Behavior* 25, no. 6: 379–393. https://doi.org/10.1016/j.evolhumbehav.2004.08.001.

Shinohara, A., Y. Kanakogi, and M. Myowa. 2019. "Strategic Reputation Management: Children Adjust Their Reward Distribution in Accordance With an Observer's Mental State." *Cognitive Development* 50: 195–204. https://doi.org/10.1016/j.cogdev.2019.04.003.

Solomon, G. E., S. C. Johnson, D. Zaitchik, and S. Carey. 1996. "Like Father, Like Son: Young Children's Understanding of How and Why Offspring Resemble Their Parents." *Child Development* 67, no. 1: 151–171.

Yang, F., Y. J. Choi, A. Misch, X. Yang, and Y. Dunham. 2018. "In Defense of the Commons: Young Children Negatively Evaluate and Sanction Free Riders." *Psychological Science* 29, no. 10: 1598–1611. https://doi.org/10.1177/0956797618779061.

Yudkin, D. A., J. J. Van Bavel, and M. Rhodes. 2020. "Young Children Police Group Members at Personal Cost." *Journal of Experimental Psychology. General* 149, no. 1: 182–191. https://doi.org/10.1037/xge0000613.