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BRIEF REPORT

Does analysis brevity result in loss of control? A consecutive case series of 26 single-session interview-informed synthesized contingency analyses

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A believable demonstration of control over problem behavior is a necessary component of the functional analysis process. Control during a functional analysis has traditionally been defined in a binary manner: Differentiated outcomes point to an identifiable function and undifferentiated outcomes do not. However, it might be beneficial to characterize control as strong, moderate, or weak in order to evaluate the strength of evidence for experimental control during an efficient functional analysis format that requires only a single session. We analyzed the levels of control using 26 single-session interview-informed synthesized contingency analyses (IISCAs). Although shorter session duration (i.e., first 3 or 5 min of each session) tended to reduce the level of control, the majority of single-session IISCAs resulted in evidence indicating strong levels of control when data from the full 10-min session were included in the analysis.

KEYWORDS
analytic control, efficiency, functional analysis, problem behavior

1 | INTRODUCTION

Hanley, Jin, Vanselow, and Hanratty (2014) pioneered the development of a practical functional assessment model using procedures informed by an open-ended interview, which allowed for the identification of ecologically valid,

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individualized synthesized reinforcement contingencies. The functional analysis consisted of a single test condition, in which the synthesized reinforcers were delivered contingent on problem behavior, and a matched control condition, in which the same reinforcers were noncontingently available. The experimenters conducted a fixed series of five sessions with session durations as brief as 4 min. This functional analysis format has been termed the interview-informed synthesized contingency analysis (IISCA) and, in large-scale replications, has been found to be an efficient alternative to more labor-intensive functional analysis formats, requiring a mean of 25 min (Jessel, Hanley, & Ghaemmaghami, 2016) to 36 min (Jessel, Ingvarsson, Kirk, Whipple, & Metras, 2018) of analysis time.

Improving the practicality of functional analysis procedures is an important topic for applied research because clinicians often report multiple constraints to conducting functional analyses, which prevent routine clinical implementation, such as lack of time (Hanley, 2012; Oliver, Pratt, & Normand, 2015; Roscoe, Phillips, Kelley, Farber, & Dube, 2015). To that end, researchers have designed efficient functional analysis formats that modify the (a) measure of problem behavior (i.e., latency-based functional analysis; Thomason-Sassi, Iwata, Neidert, & Roscoe, 2011), (b) number of sessions conducted (i.e., brief functional analysis; Northup et al., 1991), (c) number of test conditions included (Iwata & Dozier, 2008), and (d) session duration (Wallace & Iwata, 1999). However, only a small number of studies have evaluated whether strategies to improve analytic efficiency will negatively impact evidence of experimental control.

For example, Wallace and Iwata (1999) found that binary interpretations of functional analysis outcomes are relatively insensitive to changes in session duration. The authors graphically displayed rates of problem behavior from 46 functional analyses using various session durations: the entire 15-min sessions, the first 10 min of each session, and the first 5 min of each session. Using a panel of graduate students, the interpretations of control differed only in three instances (93% correspondence) between the full 15-min sessions and the first 5 min of each session.

Jessel, Metras, Hanley, Jessel, and Ingvarsson (2019) also found a high level of correspondence between long and short session durations. During Study 1, the authors reanalyzed 18 IISCAs that were conducted with 10-min sessions by comparing problem behavior during the first 3 and 5 min to the full-session data. Multiple criteria were whether experimental control (i.e., binary measures) and the degree of evidence for control (i.e., multilevel measures) were demonstrated. The multilevel evaluations were included to create a more sensitive measure of changes in trend, level, and variability beyond a binary determination of the presence or absence of control. If an IISCA was determined to have control, the data were analyzed to determine if the level of control was strong (no overlap and no problem behavior in the control condition), moderate (some overlap or some problem behavior in the control condition), or weak (some overlap and some problem behavior in the control condition). Jessel et al. found that panelists' interpretations of the IISCAs with 5-min and 3-min sessions corresponded to the full analysis in 94% and 83% of applications, respectively. Furthermore, the majority of the full analyses were interpreted as having strong control (89%) and there was only a minor degradation in the level of control in three instances at sessions shorter than 10 min. The high levels of experimental control were replicated in Study 2, when eight consecutive cases were conducted using 3-min sessions. All but one of those analyses were determined to show experimental control, and six were categorized as having strong control. This suggests that in most cases, functional analysis can be practical and demonstrate experimental control.

Jessel et al. (2016) attempted to improve the efficiency of the IISCA further by conducting within-session analyses of a single test session (i.e., single-session IISCA). Rather than comparing rates of problem behavior across multiple conditions, the authors analyzed disparate rates of problem behavior each time the reinforcer was present (reinforcer present interval [RPI]) and absent (reinforcer absent interval [RAI]) within the first 3- to 5-min test session. Jessel et al. reanalyzed the data from the first test session of 10 full IISCAs and found corresponding outcomes in 80% of the analyses. However, the multilevel criteria of control have yet to be applied to the single-session IISCA, and the extent to which evidence for experimental control fluctuates during the brief variation of a functional analysis is unknown.

We conducted this study to better understand the boundaries of analytic efficiency and experimental control that can be achieved while conducting a practical functional analysis. We intended to determine if detriments in evidence of control would be observed when a single-session IISCA was conducted with a 10-min, 5-min, and 3-min session.

The first test sessions of the 26 consecutive, full IISCAs reported by Jessel et al. (2019) were reanalyzed and evaluated using the binary and multilevel criteria of control.

2 | METHOD

2.1 | Method

2.1.1 | Participants and settings

All functional analyses in the current study were from Jessel et al. (2019). Of the 26 participants, 23 were male and the median age was 7.5 years. Many of the participants were diagnosed with autism (22 of 26); however, other diagnoses included intellectual disabilities (12 of 26), attention deficit hyperactivity disorder (ADHD; 7 of 26), generalized anxiety disorder (2 of 26), Down syndrome (1 of 26), and fetal alcohol syndrome (1 of 26). One participant had no diagnosis. Lastly, eight of the participants could speak in full fluent sentences, four could speak in short diffluent sentences, six used one-word utterances to communicate, and eight were nonverbal. Sessions were conducted in 3-m × 6-m and 3-m × 4-m treatment rooms.

2.1.2 | Response measurement

The most common topographies of problem behavior were measured in five general categories. *Aggression* was defined as hitting, kicking, scratching, or biting others. *Tantrums* were defined as dropping to the floor and crying or whining. *Disruption* was defined as tearing, throwing, or hitting items. *Self-injury* was defined as hitting, scratching, or biting oneself. In addition to the more severe topographies of problem behavior, observers also scored less dangerous behavior. This included loud vocalizations, defined as yelling, screaming, whining, or swearing. Other problem behaviors included inappropriate sexual behavior (ISB), disrobing, and elopement.

During the full IISCA, problem behavior was measured as rate in minutes by dividing the total frequency by the number of minutes in the session. During the single-session IISCA, problem behavior was measured as rate in seconds, calculated by dividing the total frequency by the duration of the interval. Individual responses per second were calculated for each RPI and RAI. Every single-session IISCA included multiple intervals ranging from four (two RPIs and two RAIs) to 34 (18 RPIs and 17 RAIs). Access to reinforcers was measured as duration, with onset defined as the removal of evocative contexts and presentation of positive reinforcers, and offset defined as removal of positive reinforcers and presentation of evocative contexts.

2.1.3 | Interobserver agreement

Jessel et al. (2019) calculated interobserver agreement on an interval-by-interval basis. A second observer scored a mean of 40% of the sessions from the full IISCA of every participant in Jessel et al. (2019), and the first test session (i.e., single-session IISCA) was included in the calculation of interobserver agreement (IOA) in all of the IISCAs scored. More information on how IOA was calculated and the mean values can be found in Jessel et al. In addition, we extracted the IOA from the first test session for 23% of the full IISCAs and calculated a separate measure of IOA for the single-session IISCA. The mean IOA for problem behavior and reinforcement was 93% (range, 82 to 100%) and 96% (range, 95 to 100%), respectively.

2.1.4 | Interrater agreement

A second coder independently rated 100% of the single-session IISCAs using binary structured criteria (Hagopian et al., 1997; Roane, Fisher, Kelley, Mevers, & Bouxsein, 2013) and multilevel structured criteria (Jessel et al., 2019).

During the binary evaluation, an agreement was scored when the interpretations of the functional analyses (i.e., differentiated or not) by the primary and secondary coders matched. There were four possible levels that could be scored using the multilevel criteria: none, weak, moderate, and strong. An agreement was defined as both coders scoring the same level for each analysis. The IOA for the binary and multilevel criteria was 100%.

2.1.5 | Experimental design

The full IISCAs were conducted using a multielement design. Experimental control was demonstrated when higher rates of problem behavior were observed in the test condition compared with the control condition. A within-session analysis was conducted during the first test sessions. Experimental control was shown when higher rates of problem behavior were observed and replicated across multiple RAIs in comparison to the RPIs.

2.1.6 | Procedure

A full and individualized description of the functional analysis procedures can be found in Jessel et al. (2019). The assessment period was conducted in three phases. The first phase involved an open-ended interview with a caregiver. The open-ended interview consisted of questions about the context in which the caregiver observed problem behavior and the specific topographies of problem behavior to be addressed (see Hanley, 2012 for a full list of questions).

The therapist used the information from the interview to conduct a brief evaluation of the target problem behavior during an observation period. During the observation, the therapist unsystematically arranged the identified antecedents and, if problem behavior occurred, presented the identified consequences. In addition, any other topographies of problem behaviors that occurred during the observation that were not reported during the interview were added to the contingency class. The IISCA was conducted when the therapist was confident that the problem behavior could be turned on and off by manipulating the ecologically relevant variables that constituted the potential synthesized reinforcement contingency.

Prior to the test session of the IISCA, the participant was given a 30-s access to the putative reinforcement contingency. The therapist began the test session by removing any positive reinforcers (e.g., interactive play) and presenting any evocative events (e.g., instructions). If problem behavior occurred, the evocative events were removed while the positive reinforcers were reintroduced for 30 s. During the control condition, the participant had uninterrupted access to the positive reinforcers and no evocative events were arranged.

The 26 consecutive cases from the original Jessel et al. (2019) publication were conducted across two studies. Study 1 included 18 full IISCAs with 10-min sessions, whereas Study 2 included eight additional analyses using 3-min sessions. The current study consisted of a reanalysis of the first 10, 5, and 3 min of the first test session of the first 18 IISCAs and the entire 3 min of the first test session of the final eight IISCAs. This resulted in a total of 62 possible analyses of single-session IISCAs of varying durations.

2.1.7 | Data analysis

We conducted a within-session analysis of the first test session to calculate the rate of problem behavior within the first 10, 5, and 3 min of the session. For the 10-min reanalysis, the rate of problem behavior was calculated for each of the RPIs and RAIs for the entire first 10-min test session. For example, if a single instance of problem behavior occurred 15 s after the session began, the first 15 s would be considered one RAI and the rate of problem behavior during this RAI would be calculated by dividing 1 (frequency of problem behavior) by 15 (duration of the RAI) to get a rate of 0.07 responses per second. The end of the RAI would also indicate the beginning of the RPI. For the 5-min reanalysis, we calculated the rate of problem behavior for the RPIs and RAIs that occurred within the first 5 min of

the first 10-min test session. Lastly, for the 3-min reanalysis, we calculated the rate of problem behavior for the RPIs and RAIs that occurred within the first 3 min of the first 10-min test session.

2.1.8 | Binary criteria of control

We used two sets of binary criteria to evaluate experimental control in the IISCA. The same six Behavior Analyst Certification Board (BACB)-certified doctoral students who served on a panel to evaluate the full IISCAs in Jessel et al. (2019) also served as the panel in the current study. Each panelist judged 62 single-session IISCAs (18 with the reanalyzed 10-min sessions, 18 with the reanalyzed 5-min sessions, 18 with the reanalyzed 3-min sessions, and 8 with 3-min sessions) and indicated whether or not they judged experimental control to be present. Each analysis was coded as showing experimental control if at least five of the six panelists agreed.

The second set of binary criteria was developed by Hagopian et al. (1997) and modified by Roane et al. (2013) and is hereafter referred to as the binary structured criteria. We calculated a mean rate of problem behavior per second during the RPIs for each analysis. This served as the equivalent to a control condition in a full analysis. An upper criterion line was set at one standard deviation above the mean, whereas the lower criterion line was set at one standard deviation below the mean. If problem behavior did not occur during any of the RPIs, the upper and lower criterion lines were set at 0. The number of RAIs with rates of problem behavior below the lower criterion line was then subtracted from the number of RAIs with rates above the upper criterion line, the difference divided by the total number of RAIs, and converted to a percentage. The functional analysis was scored as differentiated if the quotient was above 50%.

2.1.9 | Multilevel criteria of control

In an extension of the binary structured criteria, the first author categorized the single-session IISCAs according to four levels of evidence for control: Strong, moderate, weak, and no control (see examples in Figure 1). Analyses with strong control were identified as having no overlap across the RAIs and RPIs and no problem behavior during the RPIs. Analyses with moderate control had some overlap *or* some problem behavior during the RPIs. Analyses with weak control had both some overlap *and* problem behavior during the RPIs. Finally, analyses identified as not having control had substantial overlap and a functional relation could not be determined.

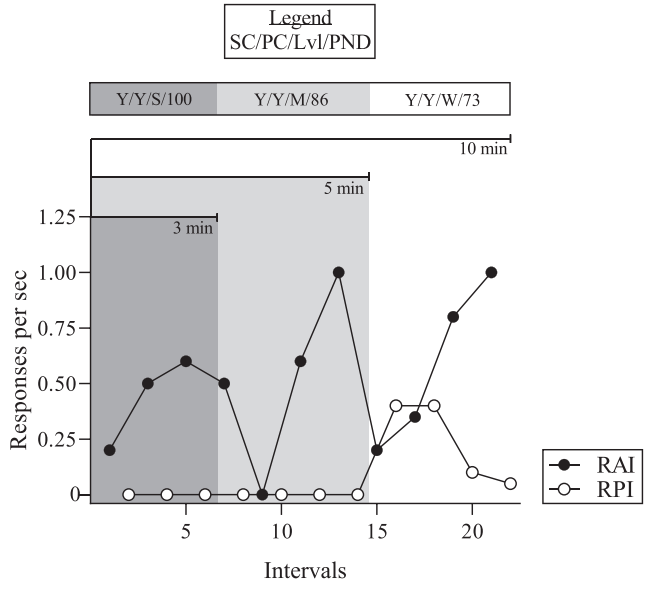

FIGURE 1 Depicted are hypothetical data representing strong control (first 3 min), moderate control (first 5 min), and weak control (entire 10 min). SC refers to the binary (yes or no) structured criteria interpretation of control. PC refers to the binary (yes or no) panelist criterion interpretation of control. Lvl refers to the multilevel structured criteria interpretation of control (strong, moderate, weak, no control). PND refers to percentage of nonoverlapping data

2.2 | Percentage of nonoverlapping data

In addition to the multilevel structured criteria, percentage of nonoverlapping data (PND) points were used to identify a quantitative indicator of level of control. The number of RAIs that were above the highest RPI was summed up and then divided by the total number of RAIs. This created an indicator of control ranging from 0% (all RAIs overlapping with the highest RPI) to 100% (no RAIs overlapping with the highest RPI). Analyses with insufficient number of points (i.e., one point in the test or control condition) automatically received a PND of 0%.

3 | RESULTS

The left panels of Figure 2 present the results of the 18 single-session IISCAs with rates of problem behavior from the first test session reanalyzed during the RAIs and RPIs of the full 10 (top), initial 5 (middle), and initial 3 min (bottom). For the 10-min reanalysis, higher rates of problem behavior were observed during the RAIs (M = 0.147 RPS; SD = 0.171) in comparison to the RPIs (M = 0.002 RPS; SD = 0.004). The 5-min reanalysis had similar outcomes, with slightly lower rates of problem behavior during RAIs (M = 0.13 RPS; SD = 0.173) but still elevated in comparison to the RPIs (M = 0.001 RPS; SD = 0.002). Problem behavior did not occur during the entire analysis for two of the 18 participants when the rates were reanalyzed during the first 5 min. Finally, problem behavior occurred again at elevated

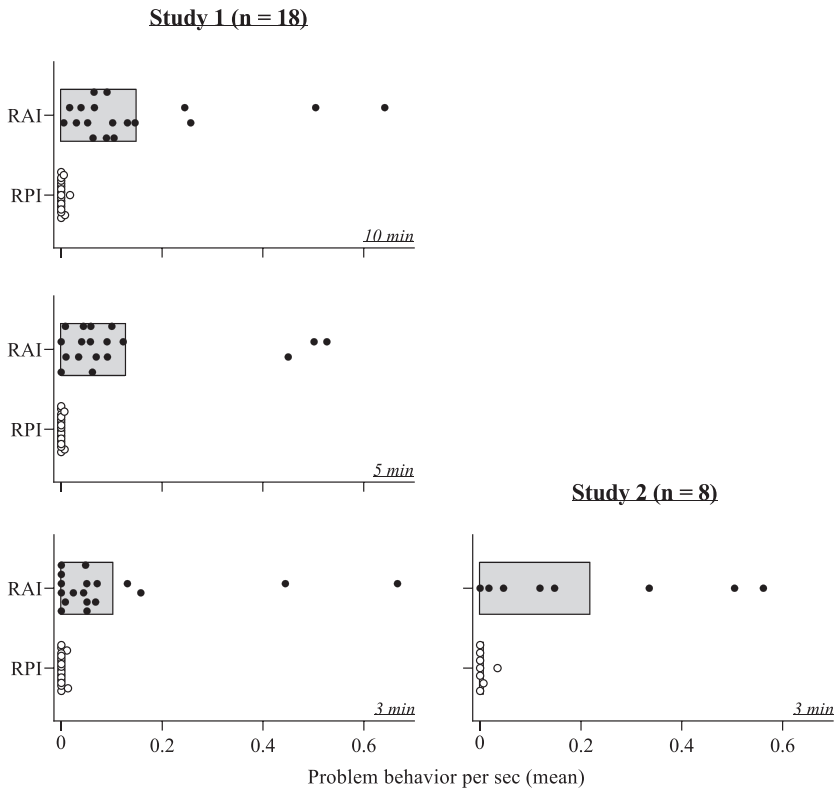

FIGURE 2 Depicted are the mean rates of problem behavior for each participant during the reinforcer absent intervals (RAIs; closed circles) and the reinforcer present intervals (RPI; open circles). The reanalyzed data of the 18 participants from Study 1 of Jessel et al. (2019) are presented in the left panels and the reanalyzed data of the eight participants from Study 2 are presented in the right panel

but mean lower rates during the RAIs of the 3-min reanalysis (M = 0.101 RPS; SD = 0.18) with nearly eliminated rates observed during the RPIs (M = 0.001 RPS; SD = 0.004). Five of the 18 participants did not exhibit problem behavior during the 3-min reanalysis.

The results of the binary criteria of control are summarized in Table 1. Using the binary panelist criterion, most of the single-session IISCAs (94%) were determined to have experimental control when the full 10-min session was analyzed. For the 5-min reanalysis, the percentage of studies with experimental control decreased to 78%, and reduced further to 67% for the 3-min reanalysis. The binary structured criteria resulted in a nearly identical degradation of control, with evidence of control in 94%, 83%, and 67% of the 10-min sessions, 5-min sessions, and 3-min sessions, respectively.

The results of the multilevel structured criteria for the single-session IISCAs are presented in Figure 3. As a comparison, the full IISCAs with 10-min sessions from Jessel et al. (2019) showed strong control in 89% of cases, with

TABLE 1 Results of the multiple measures of control

		Panelist criterion			Structured criteria			Multilevel structured criteria			PND (%)		
Study		10	5	3	10	5	3	10	5	3	10	5	3
1	Eli	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Nick	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Max	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Ari	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Rina	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Jiro	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Corey	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Tiff	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Koa	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Jin	Y	Y	Y	Y	Y	Y	S	S	S	100	100	100
1	Andy	Y	Y	Y	Y	Y	Y	W	W	W	78	75	67
1	Gene	Y	Y	Y	Y	Y	Y	W	W	W	77	80	75
1	Annie	Y	Y	N	Y	Y	N	S	S	NC	100	100	100
1	Smith	Y	N	N	Y	Y	N	S	NC	NC	100	100	N/A
1	Job	Y	Y	N	Y	Y	N	W	S	NC	43	100	N/A
1	Joe	Y	N	N	Y	N	N	S	NC	NC	100	N/A	N/A
1	Jim	Y	N	N	Y	N	N	M	NC	NC	80	100	N/A
1	Dace	N	N	N	N	N	N	NC	NC	NC	100	N/A	N/A
2	Lei	–	–	Y	–	–	Y	–	–	S	–	–	100
2	Levi	–	–	Y	–	–	Y	–	–	S	–	–	100
2	Dan	–	–	Y	–	–	Y	–	–	S	–	–	100
2	Hina	–	–	Y	–	–	Y	–	–	M	–	–	100
2	Omi	–	–	Y	–	–	Y	–	–	M	–	–	100
2	Val	–	–	N	–	–	N	–	–	NC	–	–	100
2	Matt	–	–	N	–	–	N	–	–	NC	–	–	50
2	Duke	–	–	N	–	–	N	–	–	NC	–	–	N/A

Note. Y refers to yes. N refers to no. S refers to strong. M refers to moderate. W refers to weak. NC refers to no control. N/A refers to the inability to calculate a PND.
Abbreviation: PND, percentage of nonoverlapping data.

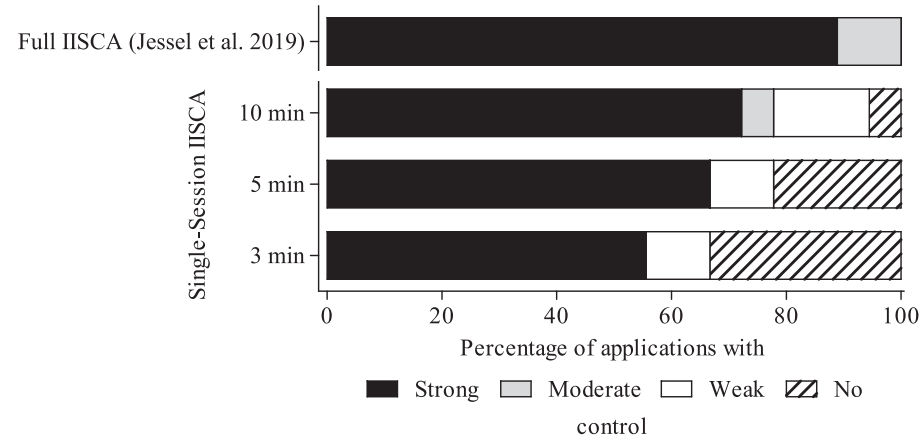

FIGURE 3 Percentage of full (i.e., multiple 10-min sessions) and single-session IISCAs with strong (black), moderate (gray), weak (white), and no (patterned) control using the multilevel structured criteria

the remaining 11% being identified as having moderate control. During the 10-min single-session evaluation, there was a decrease in the number of analyses identified as having strong control (72%) and moderate control (5.5%), and an increase in the number of analyses identified as having weak control (17%) and no control (5.5%). The number of analyses with strong control further decreased (67%) and the number of analyses with no control increased (22%) when the first 5 min was reanalyzed. Lastly, even fewer analyses were identified as having strong control (56%) when the first 3 min was reanalyzed and the number of analyses with no control increased even further (33%). The PND values for each application are presented in Table 1. Overall, many of the 10-min single-session IISCAs had high values (M = 93%, SD = 15), with a corresponding decrease for the 5-min (M = 86%, SD = 32) and 3-min reanalyses (M = 69%, SD = 45).

Study 2 of Jessel et al. (2019) included eight IISCAs using 3-min sessions. The reanalysis of the first test session for those IISCAs is presented in the right panel of Figure 2. The rates of problem behavior during the RAIs (M = 0.217 RPS, SD = 0.222) were generally elevated in comparison to the rates during the RPIs (M = 0.005, SD = 0.012) with no problem behavior in either condition in one of the eight analyses. Both panelist criterion and the binary structured criteria identified five of the eight (63%) single-session IISCAs as showing control (Table 1). Furthermore, the multilevel criteria identified 37.5% (3 of 8) of the applications as having strong control, 25% (2 of 8) as having moderate control, and 37.5% as having no control. The mean PND for the eight single-session IISCAs was 81% (SD = 37).

4 | DISCUSSION

We evaluated the degree of evidence for experimental control afforded by functional analyses that required as little as 3 min to conduct. We used four kinds of criteria to evaluate control in 62 distinct analyses[1] (see summary in Figure 4). We found that all criteria tended to correspond, implicating that strong levels of control were likely to be obtained during a single-session IISCA when the session duration was 10 min. Although there was a degradation in control when only the first 5 or 3 min of the first test session was included in the analysis, experimental control was still present in the majority of cases. Nearly all single-session IISCAs produced differentiated outcomes when sessions were 10 min and more than two thirds of the analyses were still differentiated when only the data from the first 3 min of the first test session were included. This suggests that, in many cases, a clinician could conduct a functional analysis of a client's problem behavior in a single, brief session.

Jessel et al. (2019) introduced an extension to the binary structured evaluation of experimental control that allowed for a more nuanced interpretation of fluctuations in the degree of control. The multilevel structured criteria

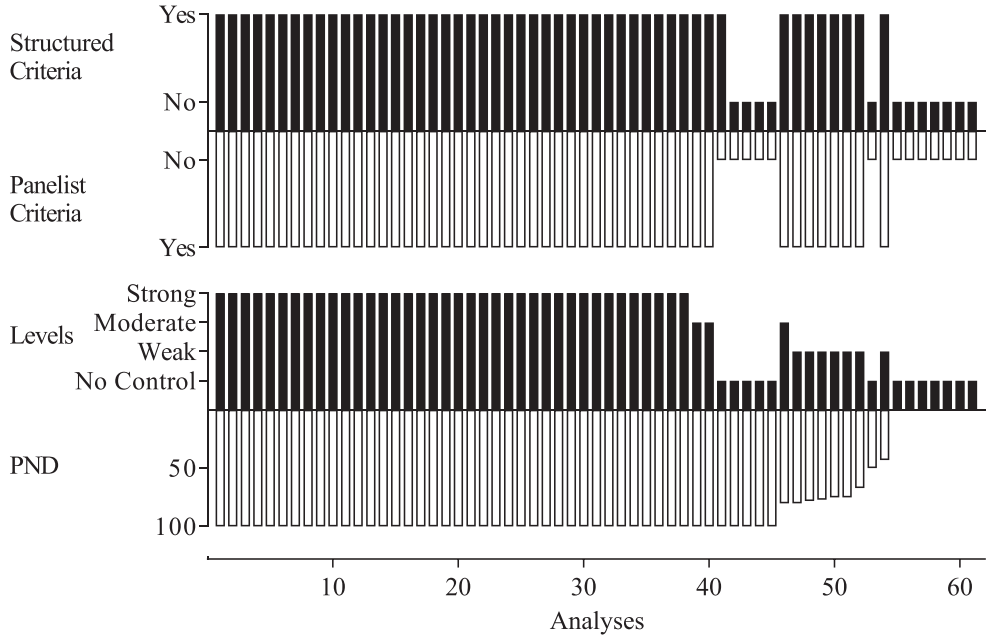

FIGURE 4 Summary of each of the four evaluations of functional control. Each pair of white and black bars represents an individual analysis of a single-session IISCA. The 62 analyses were derived from 26 participants

help clinicians identify if the control over problem behavior during a functional analysis is weak, moderate, or strong, which may have implications for treatment outcomes. The authors found that reducing session duration from 10 min to 5 and 3 min resulted in loss of control in a small number of cases. However, they also found that some of the analyses that were still classified as differentiated showed degradation in the level of evidence for control. This degradation of control from strong to moderate or weak levels was observed in 17% of the analyses. Interestingly, the current single-session reanalysis did not reveal the same pattern. Instead, the evaluation showed a starker dichotomy between analyses being identified with strong control and those that lost control entirely when 5-min and 3-min sessions were used. This may be because experimental control during the single-session IISCA must be obtained within a brief period of time. For the analysis to be maximally efficient, each removal of the reinforcer needs to evoke the problem behavior immediately and readily within a single test session. This stringent requirement may distinguish between strong antecedent control over problem behavior and gradual control through extended experience with the contingencies. This reliance on obtaining immediate, strong control over problem behavior during the single-session IISCA seems to suggest three possible models for practitioners to consider.

First, when the session duration is 10 min, the full IISCA could be replaced by a single-session IISCA. The current study revealed a high level of correspondence in levels of control between the full- and single-session analyses when the entire 10 min was evaluated. Therefore, clinicians can decide between conducting a full IISCA with brief sessions (i.e., 3 or 5 min) or forgo the repeated sessions for a single-session IISCA with a 10-min session duration. As long as the outcomes are differentiated with a high level of evidence of control, the single session is likely to serve as a sufficient baseline and inform effective treatments (Jessel, Hanley, Ghaemmaghami, & Metras, 2018).

Second, the single-session IISCA could be used in cases where the results of the open-ended interview and observation are clearly indicative of a contingent relation. In other words, when the clinician is confident that they have identified the maintaining variables and that their predication will be validated within the first test session of the functional analysis, the single-session IISCA might be sufficient. This model should be considered with caution because there are currently no quantitative measures that indicate what results from the interview and observation

are likely to produce immediate differentiation. Future research should focus on evaluating the level of correspondence between each part of the functional assessment process.

Third, clinicians could plan to conduct a single-session IISCA as a first option, using the session duration they deem adequate. However, if sufficient control is not demonstrated, the clinician can conduct additional sessions to create a full IISCA (Jessel et al., 2016). There are no procedural differences between the single-session IISCA and the test conditions of the full IISCA. Therefore, if a within-session analysis of the first test session does not identify a socially mediated function, a control condition can be added and interspersed with additional sessions of the test condition in a multielement design.

The multilevel structured criteria elucidate a more nuanced interpretation of control that could provide value for clinicians. For instance, functional analyses with differentiated outcomes and strong evidence of control may indicate that a function-based treatment is likely to be effective while requiring few, if any, modifications. On the other hand, functional analyses with differentiated outcomes but weak control may indicate that the function-based treatment will require supplemental reinforcement or punishment strategies to produce anticipated reductions in problem behavior. However, these assertions require additional research because the multilevel structured criteria have only been applied to the full and single-session IISCA without corresponding treatment evaluations. Future research should extend the multilevel criteria to different functional analysis formats to determine the general level of control afforded by each format and the utility of the varying levels to predict treatment outcomes.

COMPLIANCE WITH ETHICAL STANDARDS

Informed consent

Informed consent was obtained from all individual participants included in the study.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

CONFLICT OF INTEREST

Joshua Jessel declares that he has no conflict of interest. Rachel Metras declares that she has no conflict of interest. Gregory P. Hanley declares that he has no conflict of interest. Catherine Jessel declares that she has no conflict of interest. Einar T. Ingvarsson declares that he has no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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ENDNOTE

[1] Eighteen IISCAs analyzed at 10-min, 5-min, and 3-min sessions (54 analyses) and eight analyses conducted with 3-min sessions for a total of 62.

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