



COMPARISON OF BEHAVIORAL DATA COLLECTION PROCEDURES TO ASSESS ESCAPING BEHAVIOR IN A CHILD WITH AUTISM SPECTRUM DISORDER

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Abstract:

Behavior Analysts have many job responsibilities, one of them is to assess and treat behavior problems. The selection of the most appropriate and effective measurement procedure of challenging behaviors is considered critical, as some measurement methods provide more accurate and complete information, about the target behavior, than others. However, behavior clinicians should be aware, as not every measurement procedure is appropriate for every problem behavior. In our study, we evaluated the effects of three different measurement techniques for escaping from a demand by engaging in challenging behavior (i.e., screaming). We compared the assessment procedures that we implemented in order to analyze our participant's screaming behavior and at the same time, we provided the potential limits and strengths of each measurement technique. Nevertheless, guidelines for effective implementation of measurement procedures for challenging behaviors, such as screaming, in children with Autism Spectrum Disorder, and further recommendations are needed. Thus, having completed this study, further research is recommended.

Keywords: measurement, data collection, problem behavior, screaming, autism spectrum disorder

1. Introduction

Applied behavior analysis uses assessment techniques in order to detect and compare the effects of the environmental conditions which are important on the acquisition, maintenance, and generalization of appropriate behaviors. By measuring participant's

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challenging behavior, we can determine the current rate and magnitude, and identify if further intervention is required (Cooper, Heron, and Heward, 2007, pp. 72-101).

The purpose of this study is to examine screaming and identify if it warrants intervention. After determining that it requires intervention, a suitable behavior treatment plan will be designed in order to replace screaming with other, more socially appropriate behavior. In our study, we selected duration, latency, and partial-interval as measurement procedures.

The direct observational assessment is considered as one of the most widely used techniques (Cooper et al., 2007, pp. 48-71). Merrell (1989) indicated that this technique provides accurate, valid, and reliable data.

Galiatsatos and Graff (2003) indicated that descriptive assessments can be used in order to measure and treat screaming behavior. More specifically, in their study, they implemented a discontinuous recording procedure (i.e., partial-interval recording (PIR)). The occurrence and the non-occurrence of screaming behavior was recorded using a 10 second PIR procedure during 10-minute sessions.

DeLeon, Iwata, Conners, and Wallace (1999) used duration as a very sensitive procedure in order to measure problem behaviors. They identified that the reliability of duration was high, around 88.7%. Duration recording can offer a complete record that can be recorded in standard scientific units such as responses per seconds.

Call, Pabico, and Lomas (2009) used direct assessments in order to identify potential reinforcers for challenging behaviors such as escape from demands, while also measuring the occurrence of target behavior. They used latency recording and they measured it in seconds, from the beginning of the sessions to the occurrence of the target problem behavior which followed the demand. The mean agreement of the latency was very high (above 95%).

For our participant's screaming behavior, we attempted to identify how many times screaming occurs during a specific period of time (i.e., partial-interval), for how long screaming lasts during a standard period of time (i.e., duration), and also determined the time that elapsed between our demand and the occurrence of screaming (i.e., response latency).

2. Participant

Maria is a 4-year-old girl diagnosed with Autism Spectrum Disorder (ASD). She has been receiving 20 hours per week of therapy in her Intensive Behavior Intervention (IBI) program for the past month.

She can follow simple one-step instructions, she has basic imitation (i.e., movements) and play skills (i.e., builds castle with blocks), and she is also able to emit one-word requests (i.e., open, move, stop). She engages in screaming and flopping which typically coincides with non-compliance with demands.

Before the data collection, we informed Maria's parents about this research study and we obtained their permission to videotape their daughter. Based on code 3.03 of the

Professional and Ethical Compliance Code for Behavior Analysts, it is considered ethical and professional to inform those providing consent about the purpose of the study by obtaining written approval (Bailey & Burch, 2016, pp. 109-121). Thus, we explained to Maria's mother the purpose of the study, the procedures that would be used, and how the resulting information would be used and by whom.

We decided to work with Maria on screaming behavior which had been going on for some time. When Maria was prompted to sit down and have her lunch during lunch time, she started screaming. After the Antecedent – Behavior – Consequences (A-B-C) data analysis, we hypothesized that the function of screaming was to escape from demands. The protocol was to ignore the behavior, to do not establish any eye contact or say anything until Maria calmed down completely. Only then we would continue with the task demand and provide prompting if Maria was not complying. Once she complied, she could have access to her preferred items.

The operational definition of Maria's challenging behavior is the following:

- Any instance wherein Maria engages in vocalizations (screaming) above a conversational level for at least 2 seconds and the behavior stops when there are no screams for 5 seconds. This behavior occurs primarily during lunch time and may impact social situations.

3. Method

Data collection was conducted while Maria attended her IBI sessions. All of her 3 sessions were conducted in the lunch space, which contained two tables, chairs, toys, and one large window. We video-taped Maria in all 3-sessions for 5 minutes each, while we were placing the demands.

For the event recording (i.e., duration and latency), we used an IPAD, a digital stopwatch, and data collection forms. For the duration, we used a digital stopwatch, which increases the accuracy of the duration recording. For the data analysis, we looked through each 5-minute video, and when Maria began engaging in screaming, the stopwatch was started. When Maria stopped engaging in screaming for 5 seconds, we stopped the watch. Then, we recorded the length of the time her screaming occurred and we calculated the total duration by adding the duration of each session during the observation period.

For the latency, we started the stopwatch when the demand was provided and we stopped it when Maria started screaming. Then, we recorded the number of seconds that elapsed between the end of the demand and the onset of the screaming. After that we calculated the average latency of screaming by dividing the total latency by the number of occurrences.

For sampling record (i.e., partial-interval), an extra apparatus, an electronic device that vibrates was utilized. For this procedure, we divided the observational period into equal intervals (10 seconds). To achieve that, we used an electronic device which had been adjusted to vibrate at the end of each 10 seconds interval. On the form, we recorded

a “+” if the screaming occurred during the duration of 10 seconds interval and “-” if the screaming did not occur. After that, we counted the number of intervals during which the target behavior occurred and we divided this number by the total number of intervals and multiplied by 100.

4. Results

Changes in the occurrence of the behavior during the sessions can be observed. This can be achieved with the visual analysis. During visual analysis we will be able to examine the level, the trend, and the variability of our graphs. The changes in screaming behavior are interpreted in the graphs below.

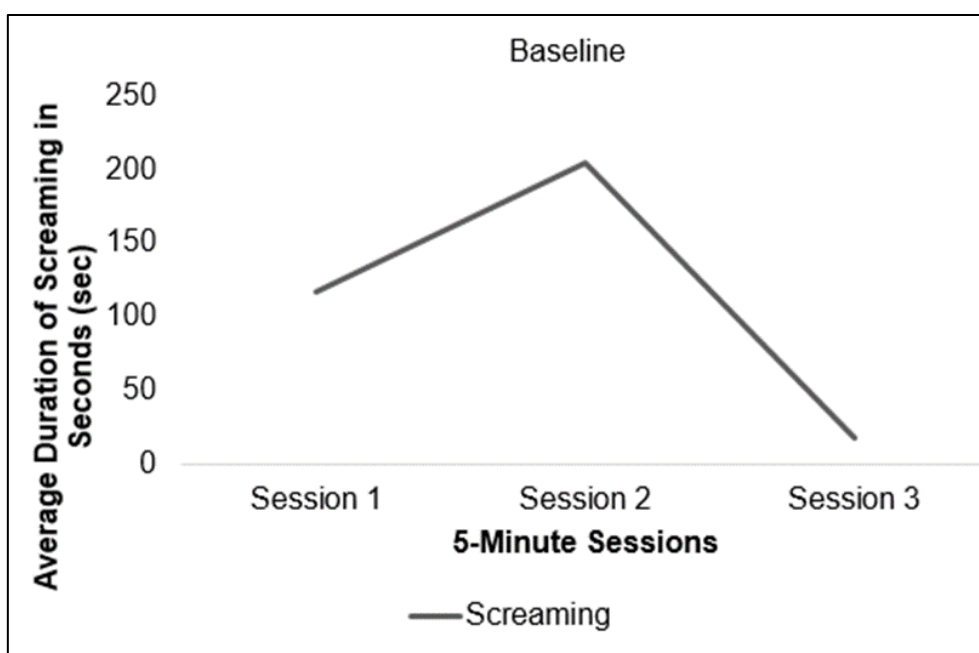


Figure 1: Assessment of Maria’s screaming behavior depicted as average duration in seconds within three 5- minute sessions

For the average duration of screaming, the level of screaming is at a moderate level in session 1. During session 2, there is an increase in the level of the duration, whereas on the last session falls into lower levels. It is clear that there is a significant change from one session to another and the duration of screaming is higher during session 2. There is also an increasing trend from session 1 to session 2 and a decreasing trend from session 2 to session 3. Moreover, this graph displays a variable pattern of screaming (see Figure 1).

For the average latency of Maria’s screaming behavior, the level of screaming is in moderate level in session1. In session 2 there is a high increase of the level of the latency, whereas during session 3 falls into lower levels. There is a change from one level to another and the latency of screaming is higher during the second session. The level of screaming latency is largely unchanged over the graph. The graph above varies between

2 seconds and 3 seconds which is considered as a relatively small change. This graph interprets a variable level of screaming (see Figure 2).

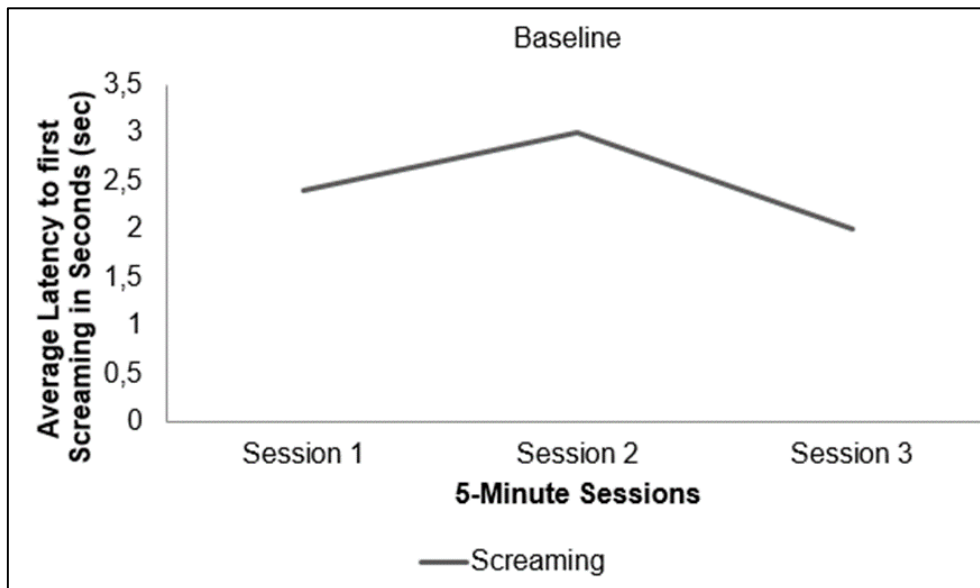


Figure 2: Assessment of Maria's screaming behavior depicted as average latency in seconds within three 5- minute sessions

For the percentage of screaming, the level of screaming is in moderate level during session1. On the other hand, in session 2 there is a high increase of the percentage of screaming, whereas on the last session it falls into lower levels. It is clear that there is a change from one level to another and the duration is higher during the second session. This graph interprets variable pattern of screaming (see Figure 3).

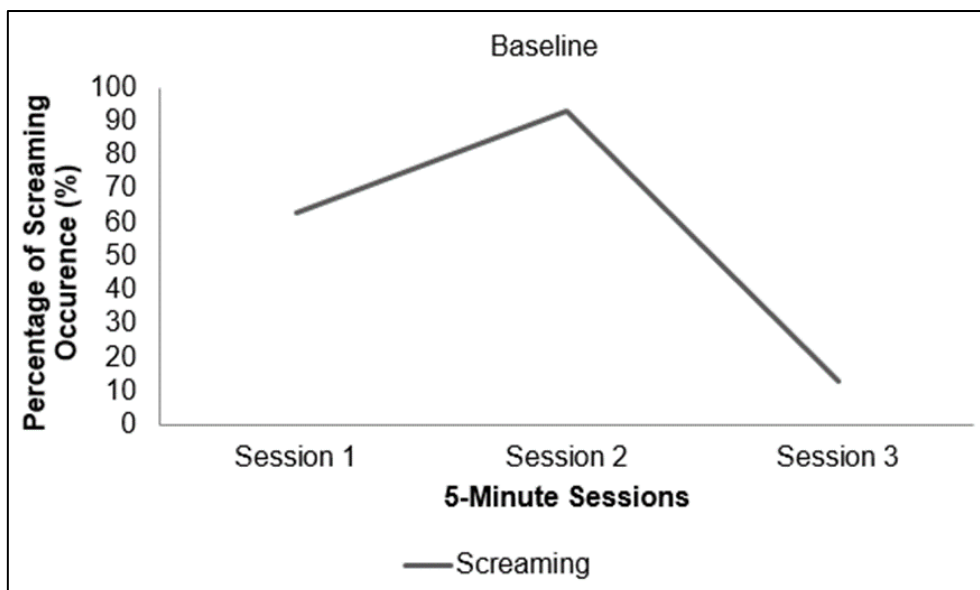


Figure 3: Percentage of 10-seconds intervals of Maria's screaming behavior across three 5-minute

5. Discussion

Based on the literature review that we conducted at the beginning of our study, we identified that partial-interval recording is an accurate method of measurement and it is more preferred than continuous methods. Behaviors, in which their onsets and offsets are clear and easily recorded, can be captured via continuous methods. However, given the presentation of screaming, discontinuous data collection methods may be more accurate. As long as screaming occurs at high frequency, partial interval seems to be an appropriate and simple data collection method, because we recorded the target behavior only once during the interval, regardless of how many times it occurred (Fiske & Delmolino, 2012). For both latency and duration, it can be challenging the accurate record, the exact length of the behavior, as well as the correct start time.

If we were planning to implement this study again, we would choose to utilize a discontinuous procedure given that it can be difficult to determine time of onset as well as duration of the target behavior chosen.

6. Conclusion

At the end of this research study, we identified that the best assessment method allows Behavior Analysts to make accurate decisions regarding behavior treatment goals and progress. As Behavior Therapists, we have to consider several factors that may impact our data collection and ensure that we are reviewing the relevant literature when making decisions.

Nevertheless, further research is needed in order to provide more information about the data collection decisions, for the clinicians in applied settings.

Conflicts of interest

I have no conflict of interest to declare. This project did not receive any funding.

Human rights statements and informed consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation. Informed consent was obtained from parents for being included in the study.

Note

All the names of the research's subjects have been changed.

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