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The convergent validity of the Questions About Behavioral Function scale and functional analysis for problem behavior displayed by individuals with autism spectrum disorder

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ABSTRACT

Only a few studies have compared the convergent validity of the Questions About Behavioral Function (QABF) scale to the results of functional analyses (FA). In the current study, six participants who emitted problem behaviors participated in either a brief, or a no-interaction-series FA, while each participant's parent completed the QABF. The results of the study showed that for five participants, the QABF and the FA identified the same non-social function. For one participant, the QABF and FA identified potentially dual functions. Based on our findings, we suggest that the QABF could be embedded within a five-step functional assessment protocol.

1. Introduction

Functional analysis (FA; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994) is considered the gold standard by which to assess behavioral function (Poling, Austin, Peterson, Mahoney, & Weeden, 2012; Wacker, Berg, Harding, & Cooper-Brown, 2004). The components that make up a full FA can also be easily adapted to less intensive iterations (e.g., alone series, trial-based FA, latency FA, etc., see Iwata & Dozier, 2008). One streamlined adaptation, the brief functional analysis (BFA; Vollmer & Northup, 1996), has emerged as an efficient, and in the majority of instances, an effective means by which to achieve the same aim. A BFA typically involves one or two replications of each analog with sessions lasting just 5 min. A BFA can be conducted in less time (approximately half a day; Iwata, Kahng, Wallace, & Lindberg, 2000); however, early BFA methods were prone to false positive (type 1) errors, in which, based on a visual analysis, experimenters would conclude that a functional relation existed when in fact no such relation existed (Kahng & Iwata, 1999). To minimize the false positive potential, newer studies recommend that each condition be assessed within at least three sessions per test and control conditions (e.g., Bartlett, Rapp, & Henrickson, 2011).

In specific instances, however, even half a day may prove too costly in both time and money (Scott, Meers, & Nelson, 2000) and thus, even more efficient procedures may be required. One such tool is the Questions About Behavioral Function (QABF; Matson & Vollmer, 1995), an indirect assessment questionnaire. The QABF enjoys good psychometrics (Zaja, Moore, Ingen, & Rojahn, 2011), is considered empirically valid (Freeman, Walker, & Kaufman, 2007; Matson & Boisjoli, 2007), and more closely approximates FA findings than do other indirect assessments (Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2001). Thus, the QABF has emerged as the most researched indirect functional assessment in the field of developmental disabilities

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(Matson, Tureck, & Rieske, 2012). However, only limited research has been conducted on the convergent validity of the QABF with FA procedures (e.g., Paclawskyj et al., 2001; Zaja et al., 2011) and as such, the purpose of this study, was to extend the behavioral literature on the QABF by assessing the degree of convergence between the QABF and FA with different topographies of problem behaviors.

2. Method

2.1. Participants

Six students (aged 9–19 years and 4 months) participated in this study. Each participant (a) carried an autism spectrum diagnosis, (b) emitted behavior deemed inappropriate by school personnel, (c) was enrolled in the same school, and (d) had a legal guardian who consented to their participation in this study. Participants 1 and 2 emitted repetitive behavior that could be defined as self-injurious. Participant 1 twisted and contorted his fingers such that this response class produced joint swelling. Participant 2 emitted hand flapping which at times, included the repetitive vertical movement of her thumb rubbing her nose or lips, the effects of which occasionally produced bleeding (although this did not occur during the course of this study).

2.2. Procedures

2.2.1. Indirect assessment

We employed a systematic model of assessment based on Paclawskyj et al. (2001) that included (1) interviewing the participants' caregiver, (2) collecting in-direct measures and, (3) conducting an experimental analysis. Accordingly, the first author met privately with each participant's parent in a private meeting room at the participants' school to discuss the study and to collect preliminary details on each student's problem behavior. We selected parents as respondents given their intimate knowledge of their son or daughter's behaviors and because the behaviors under assessment occurred across settings (i.e., at home and at school). Subsequent to the initial parent meeting, the first author observed each participant within their typical school routines in part to align the information endorsed by parents with direct observations; the combined effect helped to craft behavioral definitions for each participant's target behavior (definitions can be obtained from the first author). Finally, the experimenter briefly reviewed the QABF with each parent, answered any questions asked by the parents, and subsequently administered the assessment.

The QABF consists of 25 questions answered using a 4-point Likert-like scale where 0 = never, 1 = rarely, 2 = some, 3 = often, and X = does not apply. The test, which can be administered in about 15 min, is designed to detect the following five functions: attention, escape, nonsocial, physical, and tangible. Scoring of the QABF takes only a few minutes. Determination of function is based on the number of endorsed items and the severity score within each function category. Specifically, the Administrator's Manual (Matson & Vollmer, 1995) notes that a clear function is observed when one function receives an endorsement score of at least 4 and when no other function receives an endorsement score higher than 3. To these rubrics, we added the following guidelines to make the visual analysis more objective: if more than one function receives an endorsement score of at least 4, then we would examine the severity scale for a more in-depth analysis. Specifically, if the function with the highest severity score is at least 5 points higher than the next, then the higher severity score may suggest a probable function.

2.2.2. Functional analysis

We conducted a series of no-interaction sessions with Participants 1–5 in a manner similar to that described in Iwata and Dozier (2008). For Participant 6, we conducted a BFA as suggested by Iwata and Dozier (2008), but with three sessions per condition to minimize the likelihood of false positive errors (Bartlett et al., 2011). We conducted each session in one of two small intervention rooms at the school measuring 2.44 m by 3.05 m. School personnel determined room allocation based on availability. Each room included a table, two chairs, and a high definition camcorder affixed to a tripod positioned in the corner of the room. We conducted only one 5-min session daily to minimize schedule disruption and carry-over effects.

During the extended no-interaction series, the experimenter invited each participant into the assessment room and then sat in a chair ignoring all behaviors until the end of the session. The brief FA included play, demand, and no-interaction conditions arranged in quasi-random order. During the play condition, we placed a selection of putative reinforcers on the table in the assessment room. Approximately every 20 s, the experimenter narrated the participant's interaction with the enriching stimuli (e.g., "Wow, you are pushing Thomas the Train"). All instances of the target behavior were ignored. During the demand condition, the participant was directed to sit at the table in the assessment room and was immediately presented with a math sheet with single-digit arithmetic questions deemed by his teacher to be difficult but still within the upper range of his academic repertoire. Using a three-step, most-to-least sequence, the math sheet and a pencil were provided concurrent with a vocal directive such as, "It's time to do math." If, within 5 s, the participant had not begun the assignment, the same vocal directive was iterated and paired with a gestural prompt. If after an additional 5 s, the participant had not begun, the same vocal directive was reiterated and paired with graduated guidance and shadowing. Contingent on the target behavior, the experimenter immediately removed the pencil and math sheet for a 20 s hiatus. Immediately afterwards, the same three-step instructional sequence was repeated. The no-interaction component of the FA was identical to the no-interaction series described above.