Published in final edited form as:

Behav Anal (Wash D C). 2019 February ; 19(1): 23–38. doi:10.1037/bar0000114.

Impacting Pediatric Primary Care: Opportunities and Challenges for Behavioral Research in a Shifting Healthcare Landscape

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Abstract

Behavior analysts have long recognized the potential of a partnership with pediatric medicine as an opportunity to expand the influence of behavior analysis and positively impact population health. Despite significant achievements in this domain, the impact of behavioral science on the daily practice of pediatrics has been limited. In this commentary, the authors argue that the current health care and research environments are ripe for a renewed focus on behavioral modification in pediatric primary care, with a particular emphasis on the study of high-frequency, low-intensity problems. They provide some analysis of why behavioral pediatrics has failed to gain traction in primary care, describe aspects of the current primary care practice and research landscapes that provide opportunities for an expanded portfolio of research, identify several exemplars from the behavior analytic literature that have influenced pediatric primary care or have the potential to do so, and make recommendations for producing influential data.

Keywords

integrated primary care; pediatric primary care; applied behavior analysis

There has long been a strong argument for the benefits of merging of pediatric medicine and behavioral science to promote behavioral health (Smith, Rome, & Freedheim, 1967). This argument has varied some over time, but it generally hinges on a few well-established findings: (a) child behavior problems are quite common in pediatric settings (Arndorfer, Allen, & Aljazeera, 1999; Cassidy & Jellinek, 1998; Fries et al., 1993; Sharp, Pantell, Murphy, & Lewis, 1992); (b) primary care providers (PCPs) face significant barriers to the provision of behavioral care, including limited time, inadequate training, and financial disincentive (Cooper, Valleley, Polaha, Begeny, & Evans, 2006; Norlin, Crawford, Bell, Sheng, & Stein, 2011; Regalado, Larson, Wissow, & Halfon, 2010); and (c) integrating behavioral health services into medical settings increases patient access (Burt, Garbac, Kupzyk, Frerichs, & Gathje, 2014; Kessler & Stafford, 2008), thereby improving patient experiences, reducing the cost of care, and promoting population health (Kazak, Nash, Hiroto, & Kaslow, 2017). Behavior analysts in particular have historically noted the potential of a mutually beneficial partnership with pediatrics (Cataldo, 1982; Christophersen

& Rapoff, 1979). Along with pediatric psychologists, behavior analysts have a significant history of producing effective interventions pertinent to pediatric medicine (e.g., Christophersen, 1985; Christophersen & Berman, 1978; Finney & Christophersen, 1984; Friman, Finney, Rapoff, & Christophersen, 1985; Friman & Leibowitz, 1990; Piazza & Fisher, 1991; Piazza, Fisher, Chinn, & Bowman, 1991; Rapoff & Christophersen, 1982) and devising strategies for successfully collaborating with pediatric physicians (Allen, Barone, & Kuhn, 1993; Roberts & Lyman, 1990; Roberts & Wright, 1982; Schroeder, 2004; Stabler, 1979; Stancin & Perrin, 2014).

Despite a track record of significant achievement, the current influence of behavior analysis and other behavioral sciences on the practice of pediatrics can be considered something of a mixed success. Emphasis on behavioral and psychosocial problems in pediatric primary care has clearly grown. For example, the American Academy of Pediatrics' (AAP) *Bright Futures Guidelines* now recommends PCPs introduce topics such as the use of time-out and positive reinforcement via contingent praise as part of routine care (Hagan, Shaw, & Duncan, 2008), and these concepts have become quite mainstream (Pew Research Center, 2015). Such widespread dissemination of behavioral technologies, however, has often come at the cost of fidelity to underlying behavioral principles. For instance, although most parents report using time-out, a large majority do so in a manner contradictory to its empirical and theoretical underpinnings (Drayton et al., 2017; Riley, Wagner, Tudor, Zuckerman, & Freeman, 2017). Such misconceptions are not exclusive to the lay public. A recent brief published in *AAP News*, the official magazine of the AAP, recommends avoiding consequence-based strategies with toddlers because they do not understand them (Bauer, Childers, & Curtin, 2016), a relatively common stance that is inconsistent with both developmental and behavioral intervention literatures. Practice guidelines increasingly recommend universal screening for psychosocial problems in pediatric primary care (Committee on Psychosocial Aspects of Child Family Health, 2009; Semansky, Koyanagi, & Vandivort-Warren, 2003; S. B. Williams, O'Connor, Eder, & Whitlock, 2009), but most problems remain unidentified (Sheldrick, Merchant, & Perrin, 2011). Evidence-based behavioral interventions for common pediatric concerns such as sleep disruption (Mindell et al., 2006), toilet training problems, medical regimen adherence (Graves, Roberts, Rapoff, & Boyer, 2010), and disruptive behavior (Chorpita & Daleiden, 2009; Garland, Hawley, Brookman-Frazee, & Hurlburt, 2008) all rely heavily on techniques derived from the principles of operant and respondent learning, but only a minority of children and families who would benefit from such services ever access them (Chisolm, Klima, Gardner, & Kelleher, 2009; Hacker et al., 2006; Rushton, Bruckman, & Kelleher, 2002). Pediatric residency programs are now required to include a rotation in developmental and behavioral pediatrics (McMillan, Land, & Leslie, 2017), but this has apparently had little overall impact on the management of behavioral concerns in primary care (Stein et al., 2016).

The continued need for better delivery of behavioral services in pediatric primary care represents an ongoing opportunity to advance the field of behavioral pediatrics. In this article, we argue that the time is ripe for increased empirical focus on behavior modification in pediatric primary care, and that a particular opportunity exists for behavior analysts to study and intervene on high-frequency, low-intensity behavioral problems within the context of well-child care. This is not to exclude or diminish the study of rarer, more intense

problems. Rather, our intent is to articulate some current dimensions of the health care and research landscapes that have opened the door for a wider spectrum of study. We first present a rationale for why it is important to study high-frequency, low-intensity problems and how the current health care landscape provides opportunities to do so. We then offer suggestions on how to produce and disseminate data that will impact the field of pediatrics. In doing so, we identify a number of exemplars from the behavior analytic literature that hold the potential to impact pediatric primary care.

Why Study Routine Behavioral Issues?

There is Much Grist for the Mill

Perhaps the most obvious reason to study common behavioral concerns in primary care is that they are, in fact, quite common. More than one third of children will meet criteria for a psychiatric disorder before the age of 16 (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003) and it follows that subclinical problems are even more frequent. In one study, 42% of parents reported behavioral or emotional symptoms that did not rise to the level of pathology but still caused distress and impairment (Costello & Shugart, 1992). Parents are most likely to seek professional behavioral guidance from their child's PCP (Taylor, Moeller, Hamvas, & Rice, 2013). As a result, behavioral concerns are raised in 50–80% of all child medical visits (Cassidy & Jellinek, 1998; Fries et al., 1993; Sharp et al., 1992) and are the primary presenting concern in 15–20% of cases (J. Williams, Klinepeter, Palmes, Pulley, & Foy, 2004). Although most PCPs provide some guidance on behavioral topics (Cheng, DeWitt, Savageau, & O'Connor, 1999), the need clearly remains unmet. The median amount of time devoted to behavior or discipline during well-child care is zero minutes (Norlin et al., 2011). Studies of well-child care consistently identify behavioral topics like discipline, toilet training, sleep, and helping children learn as parents' most commonly reported unmet needs (Combs-Orme, Holden Nixon, & Herrod, 2011; Olson et al., 2004; Schuster, Duan, Regalado, & Klein, 2000). Disadvantaged populations are disproportionately affected: non-English speakers, low-income families, and those lacking psychosocial supports are all more likely to report unmet behavioral health needs (Regalado et al., 2010). For researchers, this unmet need represents a large pool of potential study topics and participants.

A Long Standing, But Withstanding Problem

Addressing subclinical and prodromal child rearing concerns has long been identified as a goal of behavioral pediatrics and integrated primary care (Christophersen, 1982; Kanoy & Schroeder, 1985; Mesibov, Schroeder, & Wesson, 1977; Schroeder, 1979). Unfortunately, PCPs continue to report feeling underprepared to effectively deliver behavioral health counseling (Horwitz et al., 2015), and they often report recommending strategies that are not evidence based (Scholer, Nix, & Patterson, 2006). There have been numerous attempts to otherwise improve care for subclinical and prodromal child rearing issues, including provision of strategies and materials to PCPs to aid behavioral counseling (Barkin et al., 2008; Christophersen, 1982), behavioral advice call-in services (Kanoy & Schroeder, 1985; Polaha, Volkmer, & Valleley, 2007; Schroeder, 1979), walk-in appointments with behavioral specialists (Kanoy & Schroeder, 1985; Mesibov et al., 1977; Schroeder, 1979), behavioral consultation during usual well-child care (Talimi et al., 2016), and use of multimedia to

deliver evidence-based information (Riley, Freeman, & Marshall, 2016; Scholer, Hudnut-Beumler, & Dietrich, 2010). These approaches are all well-reasoned and each has gained some empirical attention, but with few exceptions, it is difficult to find experimental evaluation of effective methods for integrating them into primary care workflows or their effects on child outcomes. For instance, in an excellent paper detailing various strategies for pediatricians to address common behavioral topics, Christophersen (1982) provided recommendations for counseling parents on effective time-out implementation. Thirty-five years later, it is now quite common for PCPs to advise parents on the use of time-out (Scholer et al., 2006), but there is little evidence to inform how such counseling is best delivered or to suggest it is effective at promoting parental implementation, much less at improving child behavior (Barkin et al., 2008). The dearth of such data represents an ongoing opportunity for behavioral pediatrics.

The Times They Are A-Changin'

Historically, the presence of behavioral health professionals during well-child care was presumably quite rare, but there is currently a movement toward higher levels of integration for behavioral clinicians. In a recent survey of psychologists working in pediatric primary care (Hoffses et al., 2017), most endorsed working in *integrated* models, in which behavioral health providers operate side-by-side with PCPs and behavioral services are available to all patients (Asarnow, Kolko, Miranda, & Kazak, 2017). Over 90% of psychologists reported sometimes or often engaging in consultation, another indicator of high integration. Descriptive studies of highly integrated models have become more common in the literature (Cederna-Meko, Ellens, Burrell, Perry, & Rafiq, 2016; Hunter et al., 2017; Talmi et al., 2016). By contrast, nearly all of the experimental pediatric literature has focused on co-located or collaborative models of integrated care in which therapies derived from traditional clinical child psychology are modified for the primary care environment but delivered temporally or spatially separate from medical care (e.g., Finney, Riley, & Cataldo, 1991; Kolko et al., 2014; McMenemy, Sheldrick, & Perrin, 2011; Perrin, Sheldrick, McMenemy, Henson, & Carter, 2014; Walkup, Mathews, & Green, 2017). Collaborative models clearly provide an important level of care (Asarnow, Rozenman, Wiblin, & Zeltzer, 2015), but as primary care shifts toward higher integration, there will be a need for a clinical science to inform a "portfolio" of practice from primary prevention to individualized tertiary intervention (Kazdin & Blase, 2011). There is currently little empiricism to inform delivery of the low-intensity end of that portfolio.

If You Build It, Will They Pay?

There are likely numerous reasons why research on interventions for high-frequency, low-intensity behavioral problems has not proliferated. One probable culprit is the historical unclarity of how such services could be adequately reimbursed in practice. Physicians cite poor or absent reimbursement as a barrier to the provision of behavioral guidance (Nasir, Watanabe-Galloway, & DiRenzo-Coffey, 2016; Pidano, Kimmelblatt, & Neace, 2011), and this is compounded by the disproportionately time-consuming nature of behavioral counseling (Cooper et al., 2006). Licensed mental health professionals have traditionally been constrained to the use of current procedural terminology assessment and psychotherapy codes, reimbursement of which is typically dependent on the diagnosis of a psychiatric

disorder and prior authorization of services by payers, and thereby unsuitable for anticipatory guidance or subclinical concerns. So, traditionally there has been little financial incentive to address low-intensity concerns.

However, the health care payment landscape is shifting. As part of an increased emphasis on prevention and health promotion, aspects of the 2010 Affordable Care Act allow for reimbursement of behavioral services without a mental disorder diagnosis (Rozensky, 2014). At the same time, new billing options have emerged. Health and behavior (H&B) codes, which are designed for use in integrated settings (Miyamoto, 2006), do not require the presence of psychopathology to be reimbursed and can be used to assess and intervene on behavioral factors that contribute to physical health (Kessler, 2008). Talmi and Fazio (2012) have highlighted the potential of using H&B code to address subclinical behavioral concerns via brief consultations conducted during routine well-child visits, and some evidence indicates H&B code use is associated with higher levels of integration (Riley, Grennan, Menousek, & Hoffses, 2017). Beyond fee-for-service models, there is growing interest in alternative value-based payment models such as pay-for-performance (Unützer et al., 2012), bundled payment (Hussey, Ridgely, & Rosenthal, 2011), and global payment (Kathol, deGruy, & Rollman, 2014; Nutting et al., 2011) to finance integrated behavioral health services. These payment structures vary in their strengths and weaknesses, but contrasted with traditional fee-for-service reimbursement, each incentivizes clinicians to provide more efficient and value-based care (for recent reviews, see Miller et al., 2017 and Hobbs Knutson, 2017).

Given the volatility of health care reform, it is difficult to foresee with any certainty how or when payment models will change. If payment structures evolve from volume-based to value-based, economic reinforcers will shift, and so too will models of care. With respect to integrated primary care, this would likely result in an increased emphasis on team-based care and stepped-care interventions that are matched to the complexity of a given patient (Kathol et al. 2014). Such stepped care models would likely include efforts at primary and secondary prevention, both of which are squarely within the scope of behavioral pediatrics (Blum & Friman, 2000; Chamberlin, 1982; Christophersen, 1982). If behavioral health providers are to advocate for such services being well-reimbursed in practice, more and different data demonstrating their benefits are needed.

Generating Impactful Data

If the above argument is convincing, the question becomes how to seize the opportunity presented by high-frequency, low-intensity issues. We offer the following suggestions for generating impactful data based on our clinical, educational, and scholarly experiences in pediatric primary care. Although we see a particular opportunity to impact high-frequency, low-intensity problems, most of the recommendations are general enough to apply across a spectrum of patient complexity. This is not intended to be an exhaustive list, and we expect there are many other promising strategies.

Effectiveness Over Efficacy

The effort to disseminate evidence-based medicine into the primary care settings has been marked by a “quality chasm” (Bloom, 2002). Most clinical research is conducted at universities and academic medical centers, but most care is delivered through ambulatory primary care clinics (Green, Fryer, Yawn, Lanier, & Dovey, 2001). The result is a body of evidence which often does not generalize well to practice (Graham, James, & Cowan, 2000). On average, it takes 17 years for scientific evidence to influence day-to-day practice, and only a small fraction is ever adopted (Balas & Boren, 2000). Behavioral pediatrics is no exception, in that despite a strong evidence base, impact on daily practice has been limited. Among primary care scholars, recognition of the need for research findings to better inform clinical practice, and vice versa, has led to an increased emphasis on comparative effectiveness research (CER), the purpose of which is “to improve health out-comes by developing and disseminating evidence-based information to patients, clinicians, and other decision makers about which interventions are most effective for which patients under specific circumstances” (Conway & Clancy, 2009, p. 329). Typically designed to compare two or more active treatments, CER is by definition patient-centered, focusing on the needs and preferences of patients while seeking to improve health outcomes. This contrasts with traditional clinical trials, which are typically concerned with the isolation of independent variables to determine efficacy. The emphasis on pragmatic, patient-centered outcomes in CER is congruent with the applied dimension of applied behavior analysis, as both focus on societally important concerns and conduction of research in ecologically valid settings (Baer, Wolf, & Risley, 1968). In our view, applicability is the main challenge facing the dissemination of behavioral pediatrics in primary care. There is little question behavioral interventions work when delivered expertly and fully received by patients; however, whether and how they can be successfully implemented in daily pediatric practice remains largely unanswered.

One strategy for producing CER is to conduct practice-based research, meaning research trials are conducted within the usual clinical setting. This approach focuses on maximizing external validity to facilitate the dissemination and implementation of evidence-based practices (Westfall, Mold, & Fagnan, 2007). Such research is often conducted in practice-based research networks (PBRNs), collectives of practitioners who collaborate with researchers to serve as “real-world” laboratories (Green & Hickner, 2006; Heintzman et al., 2014; Nutting, Beasley, & Werner, 1999). According to the Agency for Health Care Research Quality, there are nearly 200 registered PBRNs in the United States, representing thousands of PCPs and millions of pediatric patients (Agency for Health Care Research & Quality, 2014). Practice-based research networks have been impactful in the study of pediatric psychosocial problems (e.g., Jellinek et al., 1999; Gardner et al., 2000; Kelleher et al., 1997, 1999; Kolko, Campo, Kilbourne, & Kelleher, 2012) and behavior analysts who wish to influence the practice of primary care would do well to partner with these communities, collaborate with practice-based researchers, and familiarize themselves with the CER literature.

Know Your Customers

A hallmark of CER is *stakeholder engagement*, actively seeking input from end users of health technologies to inform research practices from conceptualization to dissemination (Deverka et al., 2012). Stakeholders most commonly include patients and clinicians but may include others such as health care organizations, product developers (e.g., electronic health record vendors), payers, and policymakers (Concannon et al., 2014; Forsythe et al., 2016). Incorporation of stakeholder perspectives is designed to produce research that is relevant and translatable for the intended audience. Stakeholder engagement represents an important strategy for increasing the applicability of behavioral technologies in primary care.

Understanding the perspectives of PCPs is particularly important to developing and promoting behavioral technologies, as they and allied professionals serve as gatekeepers to those services (Allen et al., 1993). Existing research provides some important guidelines for developing behavioral interventions that are likely to be embraced by PCPs. For example, Arndorfer et al. (1999) found that pediatricians reported oppositional behavior as the most common and difficult-to-manage concern raised by parents. Further, pediatricians rated several potential behavioral interventions as highly acceptable. Beyond acceptability, interventions must meet the unique needs and preferences of PCPs. A recent survey of pediatric PCPs identified the amount of time required, applicability across multiple conditions, ease of use, and ease of learning as the factors most likely to influence adoption of psychosocial interventions (Arora, Stephan, Becker, & Wissow, 2016), echoing frequently cited barriers to behavioral care (Cooper et al., 2006; Meadows, Valleley, Haack, Thorson, & Evans, 2011; Nasir et al., 2016; Norlin et al., 2011; Pidano et al., 2011; Regalado et al., 2010). If they are to be widely embraced, behavioral technologies and the methods used to study those technologies must mitigate, rather than exacerbate, these barriers.

Embrace the Mundane

As Friman (2010) noted, much of clinical applied behavior analysis has been devoted to one tail of the normal distribution. Since the field's inception, a good deal of success has been derived from applying behavioral principles to problems that other disciplines have failed to solve (Ayllon & Michael, 1959). This is perhaps best exemplified by the functional analysis and treatment of aberrant behaviors among individuals with profound developmental disabilities (Beavers, Iwata, & Lerman, 2013). Whereas that branch of behavior analysis has made a tremendous impact on a relatively small portion of the population, pediatric primary care demands the inverse: relatively modest improvements that are broadly relevant. Such broad relevance requires studying behaviors that are "normal." While less prominent than the experimental analysis and treatment of aberrant behavior, there is a history of behavior analysts successfully tackling such run-in-the-mill problems. The study of "parent advice packages" is a prime example. Clark et al. (1977) described the effects of providing parents with written advice on managing disruptive behavior during shopping trips. The written materials described relatively simple response-cost and positive attention strategies which resulted in substantial reductions of problem behavior when implemented. Child tantrums in checkout lines is not an especially severe problem, but it is tremendously relatable for many parents and we expect such an advice package, if modernized and adapted for the clinical setting, would be very welcome in primary care offices. Similar advice packages have been

developed for improving behavior at restaurants (Bauman, Reiss, Rogers, & Bailey, 1983) and reducing sleep problems of infants and toddlers (Adair, Zuckerman, Bauchner, Philipp, & Levenson, 1992; Eckerberg, 2002; Weymouth, Hudson, & King, 1987). Low-intensity interventions such as these—targeted, grounded in behavioral principles, flexibly delivered—hold strong potential to be implemented in pediatric practice.

Design Flexibly and Functionally

If behavior analysis has produced numerous technologies that effectively address behavioral issues that frequently present in primary care, and thus would seem to be of general interest to PCPs and families, why have those technologies not proliferated in research or practice? We suspect one reason is the methodological disconnect between the respective sciences of behavior analysis and pediatric medicine. In part, this disconnect is due to fundamentally different sets of research questions. Whereas behavior analysis has often sought to identify the best methods of alleviating the most severe problems, the impetus in primary care is more commonly to determine the most efficient way to influence the greatest number of individuals. To broaden the impact of behavior analysis in primary care, researchers must be flexible in selecting research methods, balancing an idiographic approach to behavior change with population health perspectives (Winett, Moore, & Anderson, 1991).

Research questions focused on idiographic approaches to behavior change are well suited to use of single-subject designs (SSDs), the hallmark method of behavior analysis. Such designs have notable strengths (e.g., control for threats to internal validity through repeated measurement of behavior across time, repeated demonstration of treatment effect, intra- and interparticipant comparison; and control of threats to external validity via direct and systematic replication; Freeman & Eagle, 2011; Freeman & Mash, 2007). The use of SSDs is critical for initially demonstrating the effect of interventions, replicating effects across different populations, and generating pilot data to inform additional research. Further, groups of providers or practices can serve as “subjects” and the unit of analysis can be the behavior of groups of patients (e.g., Friman et al., 1985).

Despite their strengths, SSDs may not produce data which are sufficiently translatable to the practice of pediatric primary care. Estimates of average patient panel sizes for PCPs range from 900–2500 (Raffoul, Moore, Kamerow, & Bazemore, 2016). It can therefore be expected that PCPs and clinic directors considering whether they should invest the resources to adopt a specific intervention or set of interventions within a primary care practice will be particularly concerned with how those interventions operate within a population. As an utmost example, consider an important finding in the adult literature that a few seconds of advice on smoking cessation from a physician increases the odds of patients quitting by 1–3% (Stead, Bergson, & Lancaster, 2013). This finding has relevance for PCPs who manage thousands of patients, but it is difficult to imagine how such an effect could be captured by SSDs. By their very nature, group designs involve larger sample sizes and are particularly relevant when the researcher is interested in assessing the proportion of individuals who respond to treatment. Thus, group designs may be ideal when the percentage of individuals who respond to an intervention is of paramount interest, or when examining the impact of intra- and interpersonal characteristics on treatment outcomes (i.e., moderators). Further,

group designs, specifically randomized controlled trials (RCTs), are considered by many to be the gold standard for empirical demonstration of treatment effect (for commentary, see Bothwell, Greene, Podolsky, & Jones, 2016). Whether this view is accurate or not is beside the point. Pragmatically, large sample sizes are a general prerequisite for impacting primary care practices.

This is not to say the traditional RCTs are the only or best way to produce reliable data. On the contrary, behavior analysts and population researchers share a recognition of the limitations of traditional RCTs (Branch & Pennypacker, 2013; Heller & Page, 2002; Sanson-Fisher, Bonevski, Green, & D'Este, 2007), if for somewhat different reasons. The shift from efficacy to real world effectiveness has necessitated employment of alternative designs by primary care researchers for both scientific and pragmatic reasons (Ford & Norrie, 2016; Horn & Gassaway, 2007; Tunis, Stryer, & Clancy, 2003). These include but are not limited to cluster randomized trials (Puffer, Torgerson, & Watson, 2005), stepped wedge designs (Hemming, Haines, Chilton, Girling, & Lilford, 2015), sequential multiple assignment randomization trials (Murphy, 2005), and mixed-method approaches (Borkan, 2004). Importantly, these designs often use methodological features familiar to behavior analysts, including the sequential application of interventions, repeated measures, inductive reasoning, and iterative data-based decision-making. In fact, researchers have advocated the utility of interrupted time-series and multiple baseline designs for population-based research (Biglan, Ary, & Wagenaar, 2000; Hawkins, Sanson-Fisher, Shakeshaft, D'Este, & Green, 2007). Each of these approaches has relative strengths and weakness, varying in appropriateness depending on the nature of the research question being asked. Building an evidence base that translates intervention research findings into practice will likely require a variety of methods, from tightly controlled SSDs to large-scale pragmatic scientific approaches.

The study of time-out as a parenting strategy highlights the utility of design flexibility and relaxing allegiance to one category of designs. A large body of research has established the general efficacy of time-out in reducing problematic behaviors (Everett, Hupp, & Olmi, 2010; Morawska & Sanders, 2011). Part of this literature has also examined the differential effects of particular procedural components (e.g., the provision of warnings, contingent release, escape contingencies) on the effectiveness of time-out, typically via SSDs. Although excellent at establishing the internal validity of intervention components and effects, such studies do not address how parents use time-out in every day practice, nor are they particularly easy to translate to the primary care environment given differences in the populations, procedures, and settings studied. However, recent studies focused on the dissemination of time-out to the general population have begun to fill in this picture. Drayton et al. (2014) coded information about time-out found on the Internet to assess what misleading or incomplete information has been disseminated, which may be useful for PCPs counseling parents regarding effective implementation. A recent survey of parents in primary care ($N = 401$) further assessed parents' perceptions and implementation of time-out (Riley et al., 2017), identifying critical areas for further study. For example, parents' report that their child attempts to escape from time-out was the most robust predictor of perceived ineffectiveness. In our experience, escape from time-out represents common topic on which PCPs or imbedded behavioral health consultants might advise parents. Small-scale research

has identified a number of viable strategies for reducing escape from time-out (Donaldson, Vollmer, Yakich, & Van Camp, 2013; Kunkle & Ortiz, 2016; Warzak & Floress, 2009), but it is unclear which of these should be employed in primary care for which patients. A pragmatic trial comparing various approaches to counseling parents on time-out escape would be of high value in the primary care setting.

Disseminate Differently

As long ago as the early 1990s, behavior analysts lamented that the evidence base for interventions targeting child behavioral health was being developed parallel to rather than in collaboration with pediatricians (Allen et al., 1993). The dissemination habits of behavior analysts are an important contributor to this disconnect. Likely as true today as in the 1990s, researchers tend to publish in a narrow band of outlets, often in journals read by likeminded scholars within the profession (Normand, 2014). Impacting pediatric primary care health will require publication in medically oriented journals targeting pediatric scholars and clinicians (e.g., *Pediatrics*, *Journal of Pediatrics*, *JAMA Pediatrics*, *Journal of Developmental and Behavioral Pediatrics*, *Academic Pediatrics*). Further, broadening the types of publications to include commentaries, topical reviews, and other summaries of the empirical and conceptual foundations for interventions promoted for adoption in primary care would expand the impact of behavior analysis. Of course, successful publishing in such outlets demands attention to the culture, language, and questions of the audience and thereby will require flexibility of communication style.

Dissemination of the Bedtime Pass, an intervention for bedtime resistance in young children designed and initially tested by behavior analysts (Friman et al., 1999), illustrates the utility and potential impact of disseminating differently. Although the initial demonstration of treatment effects used a withdrawal design across just two participants, the authors chose an outlet targeting pediatricians, *Archives of Pediatric and Adolescent Medicine*, rather than behavior analysts. In justifying the publication of a study with two participants, the journal's editor included a note with the article explaining, "The idea is so novel and easy, I hope our readers will try it and let us know if it works for their patients" (p. 1027). The impact of this dissemination choice has been tangible. Shortly after publication, the lead author participated in interviews with multiple national news outlets (Friman, 2014). A quick Internet search shows that the Bedtime Pass continues to be regularly mentioned in popular media outlets such as *Parents* magazine (Cettina, 2012), *Today.com* (2007), *Huffington Post* (Prueher, 2015), and [NPR.org](https://www.npr.org) (Clarke, 2015).

The success of the Bedtime Pass is not solely due to publication in a visible outlet, nor would it likely have been accepted for publication by that outlet did it not exemplify the other features we have argued for above. The Bedtime Pass targets a common problem (Blader, Koplewicz, Abikoff, & Foley, 1997) and uses behavioral principles (i.e., differential reinforcement of alternative behavior plus extinction; Freeman, 2006) to inform an "easy" intervention, mitigating the barriers of time and training for PCPs. Both SSDs and group methodologies have been used to evaluate the intervention and investigations have included ratings of acceptability from PCPs and parents (Freeman, 2006; Friman et al., 1999; Moore, Friman, Fruzzetti, & MacAleese, 2006). Can the Bedtime Pass be implemented

systematically in pediatric primary care to improve population health outcomes? This would be a challenging but excellent question to answer.

Conclusion

Behavior analysis has made important contributions to pediatric primary care and still has much more to offer. The current health care landscape's increased focus on the integration of medical and behavioral services offers a ripe opportunity for behavior analysts to impact mainstream child health. This area remains in need of empirical investigation and pragmatic clinical science to inform practice. Studies examining applications to larger groups of patients (e.g., PCP patient panels), externally valid methods of delivery, and stakeholder variables that influence effective dissemination are critical to widely disseminating behavioral interventions for routine child rearing challenges to pediatric primary care. Behavior analysts are positioned to help fill that void by leveraging the strengths of the discipline to devise and evaluate clinical strategies that are grounded in behavioral principles, pragmatic for practitioners, and valued by families. Doing so will require blending adherence to the field's behavioral roots with flexible, pragmatic science.

Acknowledgments

This project was supported by grant K12 HS022981 from the Agency for Health Care Research and Quality. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Health Care Research and Quality.

This article was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant D40HP26865 and title Graduate Psychology Education Programs. This information or content and conclusions are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS, or the U.S. Government.

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