Behavior Analysis in Practice
https://doi.org/10.1007/s40617-022-00699-4

RESEARCH ARTICLE

Psychotropic Medication Monitoring in a Human Services Organization for Children with Autism Spectrum Disorder: Description and Evaluation of Interdisciplinary Team Review

Frank Bird[1] · Jill M. Harper[2] · James K. Luiselli[2] · Andrew Shlesinger[2] · Joseph Gold[3]

Accepted: 8 March 2022

Abstract
Children with autism spectrum disorder (ASD) are often prescribed psychotropic medications but pharmacotherapy is typically conducted and evaluated based on clinical judgement without reference to objective measurement of treatment effectiveness and combined efficacy of pharmacological-behavioral interventions. We describe an interdisciplinary review team (IRT) model at a human services organization for children with ASD that was designed to standardize a process of psychotropic medication monitoring through (1) coordinated involvement of medical, nursing, behavior analyst, and special education professionals, (2) parent-guardian participation, (3) data-driven decision making, and (4) high-level administrative support. Our description includes case illustrations of medication reduction-elimination trials with five students and social validity assessment of IRT clinicians, nurses, and parent-guardians. Key components of the IRT model are emphasized with associated practice and research recommendations.

Keywords autism spectrum disorder · human services organizations · interdisciplinary team review · medication monitoring · pharmacotherapy · psychotropic medications

Approximately 15%–65% of children who have autism spectrum disorder (ASD) receive at least one psychotropic medication (Spencer et al., 2013; Williams et al., 2012) and often more than one drug (polypharmacy) prescribed concurrently (Madden et al., 2017; Murray et al., 2014; Park et al., 2016; Spencer et al., 2013). Medication regimens are commonly initiated to treat challenging behavior such as self-injury, aggression, and property destruction as well as underlying conditions of anxiety and irritability (Deb et al., 2015; Goel et al., 2018; Sheehan et al., 2015). In general, it is advised that nonpharmacological interventions should precede and be shown to be ineffective before starting a child on medication (Coury et al., 2012). Matters in this regard are the difficulty some children have tolerating psychotropic medications, potential of adverse health effects, and exacerbation of ASD symptoms and presenting problems (Bakaki et al., 2018; Spencer et al., 2013). Most concerning is the limited evidence-based research supporting the therapeutic benefits, efficacy, and safety of psychotropic medications among children with ASD (Bertelli et al., 2016; Poling et al., 2017; Siegel & Beaulieu, 2012). Several factors contribute to research uncertainty including inadequate sample sizes, heterogeneity of participants, disparate dependent measures, lack of placebo-controlled conditions, and experimental design flaws (Poling et al., 2017; Schroeder et al., 2013).

The limitations of pharmacotherapy research notwithstanding, physicians in many treatment settings prescribe psychotropic medications based on clinical judgement without relying on behavior data to inform effectiveness (Aarons, 2005; Hoagwood et al., 2001; Lunsky et al., 2018). In particular, "How prescribers come to the decision to prescribe, and what information they use to monitor and judge effectiveness, or to make medication changes, will impact the course of treatment the patient receives" (Rieken et al., 2019, p. 2). Likewise, Weeden et al. (2010) advised that more behavior-specific measurement is needed to reliably

✉ James K. Luiselli
jluiselli@melmarkne.org

[1] Melmark, Berwyn, PA, USA

[2] Melmark New England, 461 River Road, Andover, MA 01810, USA

[3] McLean Hospital and Harvard Medical School, Boston, MA, USA

Published online: 25 March 2022

determine the effects psychotropic medications have on adaptive skills, challenging behavior, and undesirable side effects. Emphasis should also be placed on evaluating polypharmacy regimens in the short and long term (Stortz et al., 2014).

In a survey study, Rieken et al. (2019) reported that physician prescribers of psychotropic medications to children with ASD relied on their pharmacologic history, whether psychosocial-behavioral treatment was being implemented, and less often, anecdotal and quantified data sources from other providers. These results suggest that some prescription practices may be guided by reasonable criteria but more objective methods should be considered. For example, Li and Poling (2018) posited that applied behavior analysis (ABA) principles and methods "are often appropriate for the everyday evaluation of psychotropic medications" (p. 3). Further, behavior measurement and evaluation should be integrated within interdisciplinary teams responsible for the care and treatment of children with ASD in human services settings (Brodhead, 2015) especially in the context of medication management (Newhouse-Oisten et al., 2017). Beyond the objective of comprehensive evaluation of medication outcomes, a behavior-based interdisciplinary model can also address operations such as standardizing prescription guidelines, implementing methodologically sophisticated clinical trials, and synthesizing pharmacological with behavioral assessment and intervention practices (Cox & Viruse-Ortega, 2022; Schroeder et al., 2013; Valdovinos et al., 2016).

Apropos to the limitations and constraints of prescribing and evaluating the effects of psychotropic medications in children with ASD, there is little guidance for systems development in behavior-based human services settings (Poling et al., 2017; Schroeder et al., 2013). In particular, how do settings accurately monitor medication administration among client populations, what information must be reported to inform treatment decisions, and are there operations that support input from multiple disciplines and stakeholders? In the following program description and evaluation, we present an interdisciplinary review team (IRT) approach to psychotropic medication monitoring, which is a component of organizational infrastructure (Dixon & Loukus, 2013; Maguire et al., 2022) designed to (1) document the clinical, mental health, and medication status of students with ASD, (2) make data-driven decisions about medication prescriptions and adjustments, (3) evaluate the advantages and disadvantages of including medications with educational and behavior support plans, (4) confirm medication outcomes, (5) unify collaborative participation among professionals, care providers, and families, and (6) ensure student safety. Our description includes several case examples of children who presented with high-risk challenging behavior and underwent medication reduction-elimination trials including social validity assessment (acceptance and approval) of IRT members. The program description and evaluation summarizes several practice and research recommendations for replicating and extending the IRT model to similar settings.

IRT Components and Description

The IRT model was developed at a human services organization currently serving 50 children diagnosed with ASD and related neurodevelopmental disabilities. As special education students, they attend a school for 7 hr on weekdays and live in six community-based group homes. School staff include teachers, teacher-assistants, and allied professionals (e.g., speech-language, occupational, and physical therapists) and residence counsellors function as group home care providers. The human services organization operates the school and group homes from an applied behavior analysis (ABA) orientation focused on evidence-based intervention, competency staff training, performance management, supervision, outcome evaluation, and family support (Maguire et al., 2022).

IRT members have distinct roles and responsibilities, described below, that are directed at collaborative planning, progress monitoring, and empirical decision making.

Psychiatry

A consulting board-certified child and adolescent psychiatrist co-chairs the IRT with the chief clinical officer at the human services organization. Together, they integrate information from parents-guardians, other team members, primary care pediatricians, medical specialists, and allied professionals representing speech-language pathology and occupational therapy in order to determine the factors responsible for student challenging behavior. For any new or worsening behavior such as self-injury, aggression, and destruction, common pediatric maladies (e.g., strep throat and otitis media) and problems more prevalent in ASD (e.g., constipation, gastroesophageal reflux disease, seizures) are considered first. Further consideration is given to comorbid psychiatric disorders in concert with the results and hypotheses generated from functional behavioral assessment (FBA; Call et al., 2017).

The psychiatrist assesses student behavior, presenting symptoms, unusual changes in disposition, and family history before rendering a psychiatric diagnosis. Of note, psychiatric care within the IRT process begins when students enter the residential school. Upon admission, the psychiatrist completes a thorough records review, meets with parents-guardians, and conducts a detailed developmental evaluation of past and present medication regimens.

We have found in many cases that other physicians had prescribed medications to the students while they lived at home where dangerous behavior often lead to complex drug prescriptions that sometimes included more than one anti-psychotic agent. Therefore, the IRT psychiatrist carefully considers the positive and negative influences these medications may have had on student behavior before planning and recommending prescription adjustments.

Another assessment priority at this point in time is the psychiatrist collaborating with clinicians and educators on the team to define measures for data recording and evaluating medication effectiveness. The team selects measures that are sensitive to the educational and clinical needs of students such as adaptive living skills, communication abilities, and problem behavior. Common side effects from psychotropic medications are additional measures as well as health indices (e.g., food consumption, body weight, sleep) to determine whether students safely tolerate medications. Data recording forms are also formatted to track occurrence of novel (unwanted) behavior occasioned by medication administration. This multiple measure assessment focus is the basis for the psychiatrist making behavioral-pharmacological treatment decisions in concert with input from IRT members.

When obtaining informed consent from parents-guardians during IRT meetings, the psychiatrist explains the potential benefits and risks of each medication as well as therapeutic purposes, common outcomes, side-effects profiles, safety precautions, and related information. The psychiatrist also conducts student observations, monitors blood tests and other lab results for untoward conditions (e.g., metabolic syndrome), oversees scoring of AIMS (Abnormal Involuntary Movement Scale) assessments (Munetz & Benjamin, 1988), completes legal paperwork, and writes progress notes. Beyond the IRT meeting schedule and format (described below), team members communicate regularly with the psychiatrist through telephone and email correspondence.

Clinical Coordination

Noted earlier, the chief clinical officer at the human services organization, a board-certified behavior analyst, co-chairs the IRT and has complementary and separate responsibilities with the consulting psychiatrist. Highlighted activities are preparing for scheduled IRT meetings by confirming attendance of team members, setting the review agenda, arranging presentation of student data, aligning necessary communication with families, and writing summary notes that capture medication decisions and action plans. In this capacity, the chief clinical officer carefully monitors the quality and integrity of the IRT process, in effect, functioning as the "gatekeeper" of operations and evaluation.

Clinical and Educational Services

Senior clinicians with assistance from educational coordinators and special education teachers at the human services organization present student reviews during IRT meetings. Preparation for these presentations is extensive, requiring updates that reference behavior data plotted on time-series graphs, health informatics measures such as student weight, BMI, sleep efficiency, and seizure status, and additional quality of life metrics. For example, the data for a student receiving psychotropic medication would include (1) daily frequency of problem behavior, (2) health measures, and (3) skill acquisition outcomes recorded within classroom and group home locations up through the day immediately preceding the scheduled IRT meeting. Conditions (phases) that correspond to intervention adjustments and medication alterations are indicated on graphs and facilitate visual inspection of trend, level, and latency changes (Cooper et al., 2020). All IRT members are committed to making medication decisions based on interpretation of these data combined with other empirical information that can inform prescription and nonpharmacological treatment choices.

Nursing and Medical Assistance

Nurses from the human services organization attend every IRT meeting and report student medication regimens, laboratory testing results (e.g., blood serum levels), vital signs, AIMS assessments, and other pertinent health data. Several days prior to IRT meetings, medical assistants working in conjunction with nurses ensure that electronic student databases are updated and complete, send the schedule and agenda to team members, and confirm attendance with parents-guardians. Required consents are forwarded to the consulting psychiatrist so that these documents can be previewed before meetings. When IRT meetings conclude, the medical assistants summarize what was presented, discussed, and decided for each student, the information is distributed via email, necessary paperwork is approved and filed, and the date of the next review confirmed.

Parents-Guardians

Parents-guardians attend their child's IRT meeting as active participants in team decisions. They describe observations of their daughter or son and behavior occurring during recent family home visits. The parents-guardians are able to confirm or counter the information and impressions of team members, pose questions about medication to the psychiatrist, and request additional details they think are missing but should be considered. Parents-guardians must be fully

appraised about intervention and medication recommendations, understand the rationale for such decisions, and provide informed written consent before implementation.

As noted previously, IRT meetings are convened on a routine schedule that provides systematic monitoring and evaluation of all students receiving psychotropic medications. Students are assigned to the meeting schedule based on their clinical status, that is, whether they are (1) progressing satisfactorily, (2) showing variability, or (3) not improving based on the multiple data sources presented during reviews. According to these criteria, a student may be scheduled biweekly, monthly, bimonthly, or quarterly to permit time-sensitive progress monitoring. We review more than one student during meetings that typically last 1.5–2 hr.

Preceding the COVID-19 pandemic, IRT meetings were held in-person at the human services organization. Subsequent meetings were and continue to be convened remotely via videoconferencing but with all key components remaining in place. In particular, attendance of team members including parents-guardians is mandatory, a premeeting agenda is distributed, data are documented and filed, and correspondence with team members is coordinated before and following meetings. The senior clinicians who are responsible for leading student reviews during meetings follow task-analyzed presentation guidelines, depicted in Table 1. These guidelines standardize presentations and economize the time needed to complete student reviews thoroughly. Similar guidelines are followed by nurses participating in IRT meetings. The supervisors complete behavior checklists matched to these guidelines to record accurate presentation by senior clinicians and nurses. Following IRT meetings, they review recorded checklists with respective presenters by praising accurate implementation and correcting-practicing guidelines that were misapplied.

Depending on the IRT analysis of student clinical, health, and skill acquisition data, parent-guardian feedback, severity of side-effects, and other behavioral sequelae, the psychiatrist may recommend that (1) current medications and dosages remain the same, (2) dosage of a current medication be increased, decreased, or gradually eliminated, or (3) a new medication be added to the current regimen. Throughout this process, the dominant clinical objective is to prescribe the fewest medications at the lowest dosages needed to benefit the student, ideally leading to discontinuation of pharmacotherapy whenever possible. Toward this goal, the IRT model is dedicated to evaluating the combined and separate effects of psychotropic medications and behavioral-educational interventions with students so that the least restrictive and safest treatment approach can be followed long-term.

IRT Evaluation

Table 2 presents descriptive data from IRT meetings conducted over a consecutive 3-year period (2018–2020). On average, 54 students were reviewed each year. Note that this number exceeded the yearly census of 50 students because of discharges and admissions that occurred. Including multiple reviews completed with individual students, the average total per year was 298 and average AIMS assessment were 72.3 per year. Concerning medication changes that were made one or more times with individual students during the period, there were between 15–18 dosage reductions (M = 15.6 per year), 2–3 dosage increases (M = 2.3 per year), 6 eliminations of medications (M = 2 per year), and no additions of new medications. Parent-guardian attendance at IRT meetings averaged 94.6%.

Case Examples

Figures 1, 2, 3, 4 and 5 are case examples of students who were admitted to the residential program at the human services organization while receiving (N = 4) or starting on (N = 1) one or more psychotropic medications. We selected these students because they represent children who had been

Table 1 Presentation Guidelines for Senior Clinician Student Reviews during IRT Meetings

Clinician logs into meeting at scheduled tine
Clinician initiates contact with psychiatrist and parent-guardian in attendance
Clinician presents student data via screen shot available for immediate review
Clinician reviews student data per graph
Data review per graph includes *designation of X and Y axes, specification of cumulative review period, discussion of data trends, level, and stability, description of condition phases, identification of medication and behavioral intervention changes, summary of primary results*
Clinician presents student health informatics data via screen shot available for immediate review
Health informatics data review per graph includes *weight, BMI, sleep, seizure status, well-body checks, menses (if applicable)*
Clinician responds to questions from IRT members with reference to student data
Clinician references student data when making program recommendations
Clinician demonstrates empathy and compassion when discussing student and family issues
Clinician identifies proposed action plans
Clinician poses questions to psychiatrist concerning potential outcomes, adverse side effects, and intended benefits to adding new medications and/or reducing/increasing current medications

Table 2 Three-Year IRT Evaluation

Measures	2018	2019	2020
Students reviewed	57	54	51
Total student reviews completed	306	302	286
AIMS assessments completed	75	72	70
Psychotropic medications reduced with one or more students	18	15	14
Psychotropic medications increased with one or more students	3	2	2
Psychotropic medications discontinued with one or more students	2	2	2
New psychotropic medications introduced	0	0	0
Percentage parent-guardian attendance	96%	94%	94%

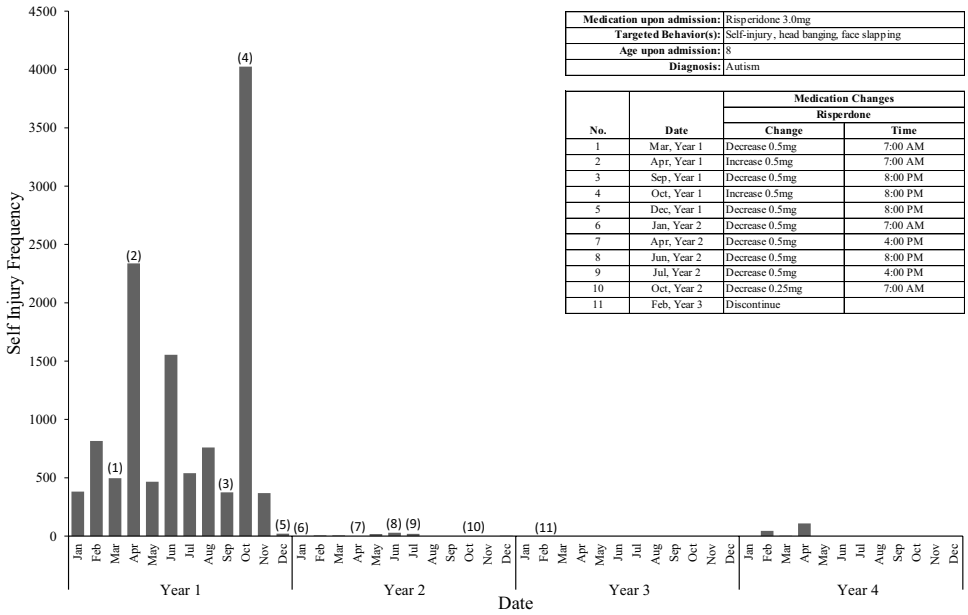

Fig. 1 Frequency of Self-Injury per Month During 4-year Medication-Reduction Evaluation with Adam

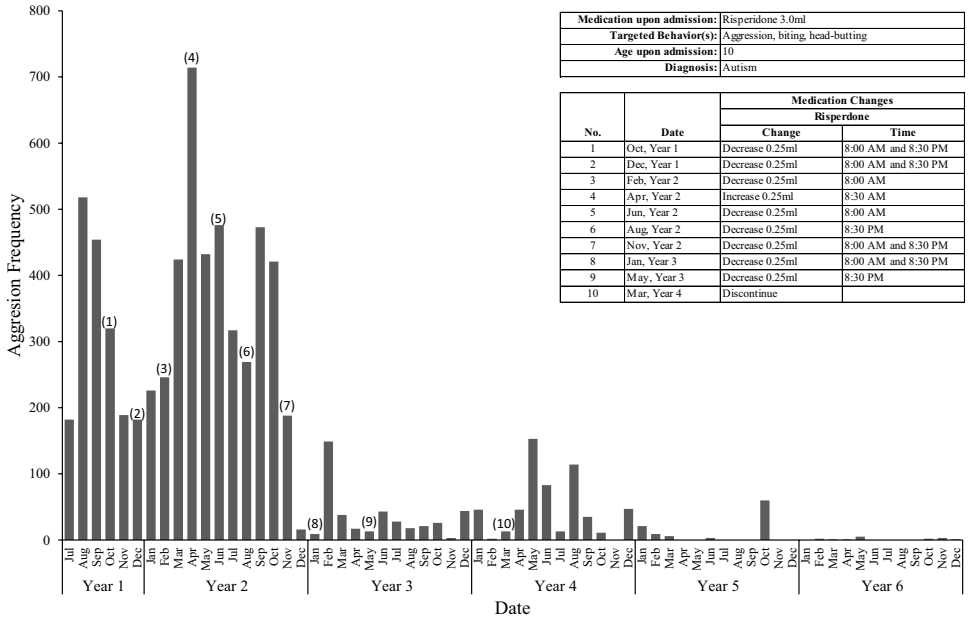

Fig. 2 Frequency of Aggression per Month During 6-year Medication-Reduction Evaluation with Bill

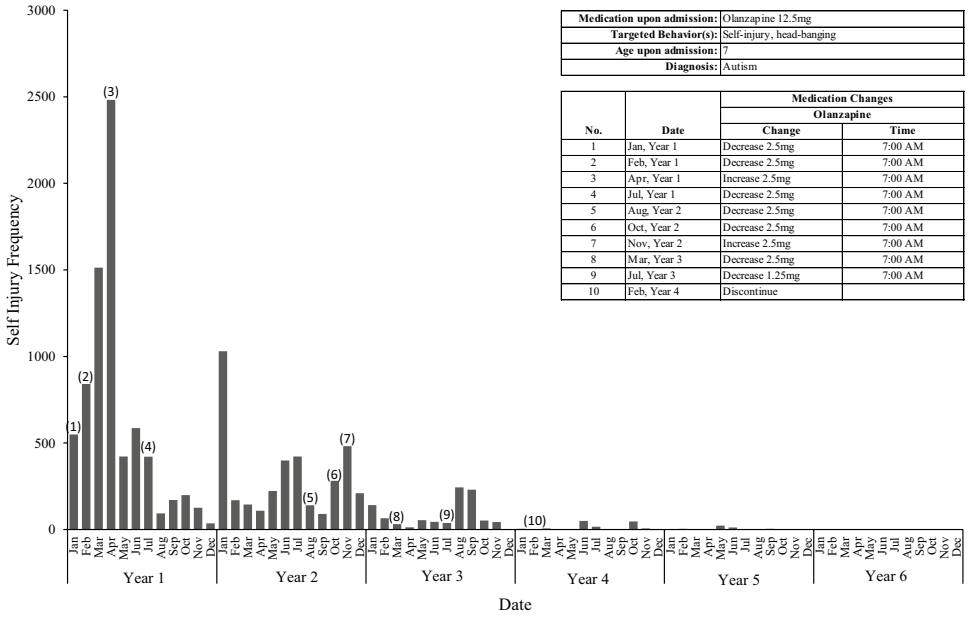

Fig. 3 Frequency of Self-Injury per Month During 6-year Medication-Reduction Evaluation with Charles

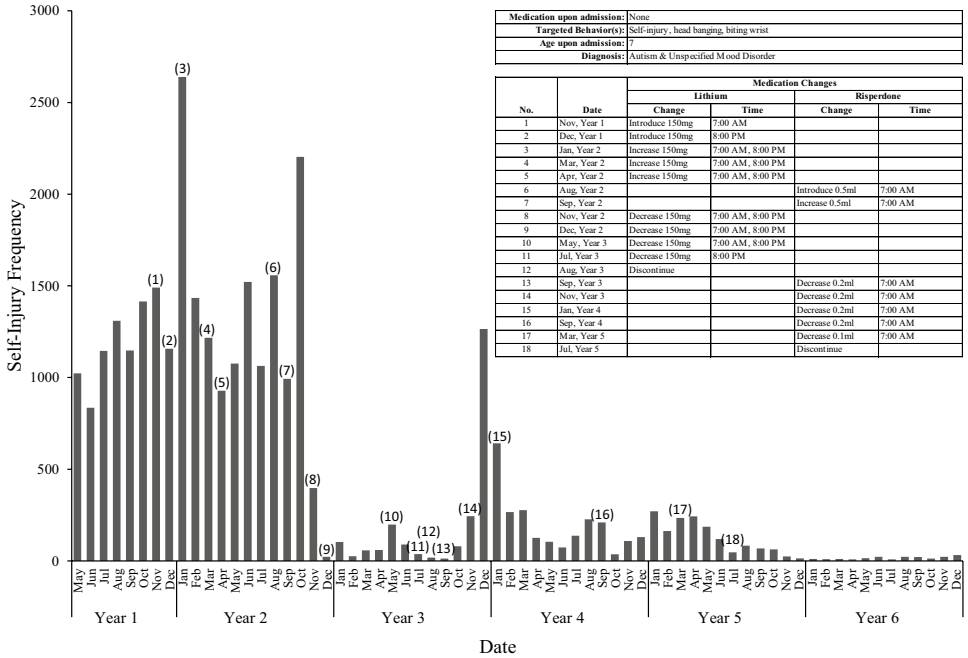

Fig. 4 Frequency of Self-Injury per Month During 6-year Medication-Reduction Evaluation with Donald

prescribed psychotropic medications for severe challenging behavior and were determined to need residential care to effectively deliver educational and treatment services.

The figures document a 4- to 6-year period of IRT-informed medication adjustments made contemporaneously with behavioral intervention for self-injury and aggression. It is beyond the scope of this program description and evaluation to detail every intervention change made with the students over many years, suffice it to say that all of them had behavior support plans (BSPs) that featured antecedent manipulation, differential reinforcement, communication-enhancement, and extinction procedures. The BSPs were formulated from functional behavioral assessment (FBA) that hypothesized social attention, access to tangible items, and activity avoidance-escape as controlling influences on aggression and self-injury. In addition, functional analysis sessions were conducted with the students yearly and when challenging behavior increased unexpectedly or sources of control appeared to change. Further, all of the students possessed verbal, cognitive, and adaptive skills consistent with a diagnosis of severe intellectual disability.

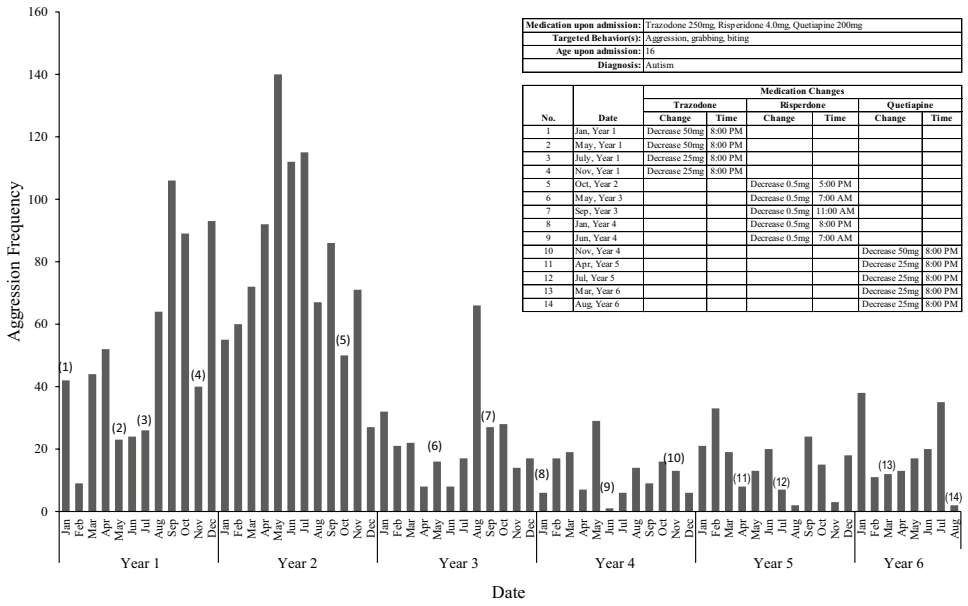

Fig. 5 Frequency of Aggression per Month During 6-year Medication-Reduction Evaluation with Edward

With four students (Adam, Bill, Charles, and Donald), medication dosages were gradually reduced and the medications eventually discontinued while problem behavior steadily decreased to near-zero frequencies. The fifth student (Edward), who had been prescribed three psychotropic medications before admission, was able to safely tolerate sizeable dosage decreases and demonstrated associated behavior reduction that was clinically significant. Several data trends illustrate the IRT process of adding-discontinuing psychotropic medications and increasing and decreasing dosages based on behavior data. For example, in three students (Adam, Bill, Charles), the month with the highest frequency of aggression and self-injury resulted in a dosage increase that was later decreased in response to behavior reduction. With another student (Donald), one medication (lithium) was increased in the month with the highest frequency of self-injury, increased for 2 months, then decreased after a second medication (risperidone) was introduced. Both medications were gradually decreased as self-injury occurred less frequently, then discontinued successfully. The data presented for the fifth student (Edward) illustrate variable increases and decreases in aggression over a multiyear period of reducing the dosages of three psychotropic medications and settling on the lowest amounts deemed necessary.

Social Validity Assessment

We conducted social validity assessment with clinicians and nurses ($N = 15$) and parents-guardians ($N = 28$) who regularly attended IRT meetings. The respondents completed an online questionnaire that requested they rate six written statements about the IRT process according to a 5-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree). Table 3 presents the questionnaire statements and the average clinician-nurse and parent-guardian ratings. The results demonstrated consistently high average ratings in both groups ($M = 4.6$ across questionnaire statements) for the objectives, procedures, acceptability, and approval of the IRT model.

Discussion

The IRT model described and evaluated in this report was developed at a human services organization for children with ASD in order to monitor the effects of psychotropic medications prescribed for challenging behavior in a residential setting. It should be noted that pharmacological treatment is conducted frequently with this population but decisions about medication are often based on clinical judgement without objective outcome measures (Poling et al., 2017; Spencer et al., 2013). Further, the combined effects from behavioral-pharmacological intervention can be difficult to assess without controlled analysis (Li & Poling, 2018; Matson & Dempsey, 2008). Establishing a system of data-informed and coordinated decision making about psychotropic medications is built on the expertise of multiple disciplines and defining standards of care for children and their families. We discuss below several administrative and operations functions of an IRT model to assist other human services organizations in adopting similar processes.

First, we designed IRT policies and procedures within a human services setting committed to ABA and organizational behavior management (OBM) practices with persons

Table 3 Average Rating of Clinicians-Nurses ($N = 15$) and Parents-Guardians ($N = 28$) on Social Validity Assessment Questionnaires

Statements	Average Rating
Clinicians-Nurses	
The IRT facilitates discussion about a student's behavior profile, clinical procedures, and role of medication	4.6
IRT decisions about medication are based on a student's behavior and health data	4.6
IRT decisions seeks to minimize medication changes when revision to a student's clinical plan is being considered	4.6
IRT decisions seek to minimize clinical plan changes when revision to a student's medication regimen is being considered	4.5
Clinicians-nurses are critical members of the IRT and their input is carefully considered by the consulting psychiatrist	4.4
IRT members understand applied behavior analysis methods for evaluating behavioral-medication interventions	4.3
Parents-Guardians	
As a parent, I play an active role in the medication decisions for my child	4.9
As a parent, I have confidence in the IRT making medication decisions for my child	4.9
The IRT facilitates discussion about a student's behavior profile, clinical procedures, and role of medication	4.8
IRT decisions about medication are based on a student's behavior and health data	4.8
The consulting psychiatrist makes informed decisions about medication from clinician, nurse, and parent data	4.8
The consulting psychiatrist reviews how medications work, treatment objectives, long-term outcomes, and side effects	4.8

1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree

who have intellectual and neurodevelopmental disabilities (Luiselli et al., 2021; Maguire et al., 2022). Our fundamental considerations are setting objective treatment goals in the best interest of students, assessing medication effects from continuous data recording, and adjusting behavioral-pharmacological interventions based on the empirical evidence. The organization promotes productive relationships between medical and behavior analysis professionals towards mutually supportive and ethical interdisciplinary collaboration (Brodhead, 2015; Newhouse-Oisten et al., 2017). Summarizing these points, our overriding philosophy is that psychotropic medications can be prescribed with good results among children with ASD but minimizing and ultimately discontinuing medication is desirable, whenever possible. Formal assessment of pharmacotherapy is also needed on a clinical level. Assembling interdisciplinary teams make it possible to manage therapeutic, health, and safety concerns associated with psychotropic medications.

The 3-year descriptive analysis of the IRT process, case examples, and social validity assessments we presented suggests that the model has been implemented effectively and is approved by team members. Several factors may be responsible for these results, starting with a psychiatrist and nurses who are able to work comfortably within an ABA-OBM setting that emphasizes evidence-based treatment and data-sensitive progress monitoring. Our organization acknowledges the medical expertise demonstrated by these professionals and is guided by the ethical principles that apply to interdisciplinary treatment in ASD (Brodhead et al., 2018; Cox, 2019). This compatibility originates from IRT members speaking a common language, gaining knowledge from each discipline, reaching consensus on clinical objectives, and avoiding subjective judgement as the basis for treatment decisions.

Third, IRT success is dependent on within group communication that is clear, immediate, and comprehensive. Team members receive an agenda and review documents preceding meetings, summary meeting notes are distributed, medication orders are routed to correct sources (e.g., nursing department, families, pharmacy), and all other paperwork is deposited in student electronic files. Updated behavior graphs and similar data displays, so crucial for student evaluations, are always available at meetings and accessed from file storage.

The continuous evaluation and refinement of the IRT process from clinical effects documented with students and input from team members also contributes to implementation efficacy and success. Co-leadership by the organization's chief clinical officer contributes to interdepartmental coordination, communication, records keeping, and related activities within and between IRT meetings. In this role, the chief clinical officer additionally directs training initiatives with the senior clinicians, educational coordinators, and special education teachers who conduct student reviews. Their training and follow-up performance management focuses on compiling, presenting, and explaining behavior data, being fully informed about student clinical profiles, speaking coherently and responding to questions cogently during meetings, and completing agreed action plans. We propose that this level of involvement from a high-ranking organization leader is necessary for the IRT model to function effectively in most human services organizations.

Finally, the five students we presented were evidence of a gradual approach to medication titration conducted

Table 4 Practice recommendations for design and implementation of psychotropic medication monitoring within human services organizations

Draft organizational policies and procedures that describe a treatment philosophy and orientation towards psychotropic medications
Enlist IRT members from the disciplines of medicine, nursing, education, psychology, behavior analysis, and allied health services
Prepare guidelines for IRT operations: meetings, content, data sharing, attendance, reporting
Secure the services of a board-certified physician (psychiatry, neurology) with expertise in psychopharmacology and neurodevelopmental disabilities
Define behavior-specific criteria that justify prescription of psychotropic medications and changes to medication type and dosage
Design electronic databases for storing, retrieving, and displaying data presented at IRT meetings
Make IRT operations and coordination the responsibility of a senior clinician with administrative oversight
Emphasize informed consent for IRT-targeted children and adults as a priority with parents-guardians
Focus on interpersonal-communication skills that facilitate collaborative relationships among IRT members
Construct a standardized IRT meeting form that lists agenda items, discussion points, and medication decisions
Document and provide performance feedback to IRT members who present and discuss cases
Reference and discuss the peer-reviewed literature concerning behavioral pharmacology and pharmacotherapy
Distinct contributions from behavior analysts should be:
• Designing data recording forms and protocols
• Reporting results from functional behavioral assessment and functional analysis
• Graphing outcome measures and interpreting findings
• Training IRT members in data analysis via visual inspection
• Advising about single-case designs for evaluating medication effectiveness
• Assessing social validity of medication monitoring objectives, methods, and utility

over several years of changes to drug type, dosage, and time of administration. Adjustments were always made in the context of ongoing student education plans and behavioral interventions while recognizing health status and medication tolerance. As such, multiple factors may have been responsible for the decreases and in some cases elimination of problem behavior. Person-specific time-series analysis in these cases allows human services organizations to address the use of psychotropic medications with children who have ASD comprehensively, safely, and always considering the optimal combination of behavioral-pharmacological interventions for achieving treatment objectives.

We propose that human services organizations for children and youth with ASD consider our IRT model for monitoring psychotropic medications in the context of behavioral-pharmacological intervention. Table 4 lists several general recommendations and considerations for behavior analysts practicing in such settings. In addition to these recommendations, research can advance practice in several ways. For example, further study on the interactive effects of conducting functional analysis while persons receive psychotropic medications has merit (Cox & Viruse-Ortega, 2022; Valdovinos et al., 2016). Researching outcomes from performance diagnostic assessment (Wilder et al., 2020) would be useful for identifying and correcting organizational barriers that thwart implementation of comprehensive medication monitoring. Lastly, studies concerned with social validity assessment (Luiselli, 2021; Wolf, 1978) can provide consumer feedback to human services organizations and with such information, design the most effective, efficient, and acceptable models of interdisciplinary review.

Data Availability All data generated and analyzed in this project are included in the published article,

Declarations

Competing Interests The authors disclose they have no financial or nonfinancial competing interests related to the work presented in the article.

Ethical Approval All procedures comprising the interdisciplinary review team process were approved by senior administration at the human services organization.

Informed Consent Informed consent was obtained from professional staff participating in the interdisciplinary team review process and the parents-guardians of the students who were evaluated.

References

Aarons, G. A. (2005). Measuring provider attitudes towards evidence-based practice: Consideration of organizational context and individual differences. *Child & Adolescent Psychiatric Clinics, 14*, 255–267. https://doi.org/10.1016/j.chc.2004.04.008

Bakaki, P. M., Horace, A., Dawson, N., Winterstein, A., Waldron, J., Staley, J., Pestana Knight, E. M., Meropol, S. B., Liu, R., Johnson, H., Golchin, N., Feinstein, J. A., Bolen, S. D., & Kleinman, L. C. (2018). Defining pediatric polypharmacy: A scoping review. *PLOS ONE, 13*, 1–23. https://doi.org/10.1371/journal.pone.0208047

Bertelli, M. O., Rossi, M., Keller, R., & Lassi, S. (2016). Update on psychopharmacology for autism spectrum disorders. *Advances in Mental Health & Intellectual Disabilities, 10*, 6–26. https://doi.org/10.1108/AMHID-10-2015-0049

Brodhead, M. T. (2015). Maintaining professional relationships in an interdisciplinary setting: Strategies for navigating the non-behavioral treatment recommendations for individuals with autism.

Behavior Analysis in Practice, 8, 70–79. https://doi.org/10.1007/s40617-015-0042-7

Brodhead, M., Cox, D., & Quigley, S. (2018). *Practical ethics for effective treatment of autism spectrum disorder.* Academic Press. ISBN: 978-0-12-814098-7

Call, N. A., Scheithauer, M. C., & Mevers, J. L. (2017). Functional behavioral assessments. In J. K. Luiselli (Ed.), *Applied behavior analysis advanced guidebook: A manual for professional practice* (pp. 41–71). Elsevier/Academic Press.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). *Applied behavior analysis* (3rd ed.). Pearson.

Coury, D. L., Anagnostou, E., Manning-Courtney, P., Reynolds, A., Cole, L., McCoy, R., Whitaker, A., & Perrin, J. M. (2012). Use of psychotropic medication in children and adolescents with autism spectrum disorders. *Pediatrics, 130*, S69–S76. https://doi.org/10.1542/peds.2012-0900d

Cox, D. L. (2019). Ethical considerations in interdisciplinary treatments. In R. D. Rieske (Ed.), *Handbook of interdisciplinary treatments for autism spectrum disorder* (pp. 49–61). Springer.

Cox, A. D., & Viruse-Ortega, J. (2022). Long-term functional stability of problem behavior exposed to psychotropic medications. *Journal of Applied Behavior Analysis, 55*(1), 214–229. https://doi.org/10.1002/jaba.873

Deb, S., Unwin, G., & Deb, T. (2015). Characteristics and the trajectory of psychotropic medication use in general and antipsychotics in particular among adults with intellectual disability who exhibit aggressive behavior. *Journal of Intellectual Disability Research, 59*, 11–15. https://doi.org/10.1111/jir.12119

Dixon, M. R., & Loukus, A. K. (2013). Importance of organizational infrastructure. In D. D. Reed, F. D. DiGennaro Reed, & J. K. Luiselli (Eds.), *Handbook of crisis intervention and developmental disabilities* (pp. 7–26). Springer.

Goel, R., Hong, J. S., Findling, R., & Ji, N. Y. (2018). An update on pharmacotherapy of autism spectrum disorder in children and adolescents. *International Review of Psychiatry, 30*, 78–95. https://doi.org/10.1080/09540261.2018.1458706

Hoagwood, K., Burns, B. J., Kiser, L., Ringeisen, H., & Schoenwald, S. K. (2001). Evidence-based practice in child and adolescent mental health services. *Psychiatric Services, 52*, 1179–1189. https://doi.org/10.1176/appi.ps.52.9.1179

Li, A., & Poling, A. (2018). Board certified behavior analysts and psychotropic medications: Slipshod training, inconsistent involvement, and reason for hope. *Behavior Analysis in Practice, 11*, 350–357. https://doi.org/10.1007/s40617-018-0237-9

Luiselli, J. K. (2021). Social validity assessment. In J. K. Luiselli, R. M. Gardner, F. L. Bird, & H. Maguire (Eds.), *Organizational behavior management approaches for intellectual and developmental disabilities* (pp. 46–66). Routledge.

Luiselli, J. K., Gardner, R. M., Bird, F. L., & Maguire, H. (Eds.). (2021). *Organizational behavior management approaches for intellectual and developmental disabilities*. Routledge.

Lunsky, Y., Khuu, W., Tadrous, M., Vigoud, S., Cobigo, V., & Gomes, T. (2018). Antipsychotic use with and without comorbid psychiatric diagnosis among adults with intellectual and developmental disabilities. *Canadian Journal of Psychiatry, 63*, 361–386. https://doi.org/10.1177/0706743717727240

Madden, J. M., Lakoma, M. D., Lynch, F. L., Rusinak, D., Owen-Smith, A. A., Coleman, K. J., Quinn, V. P., Yau, V. M., Qian, Y. X., & Croen, L. A. (2017). Psychotropic medication use among insured children with autism spectrum disorder. *Journal of Autism & Developmental Disorders, 47*, 144–154. https://doi.org/10.1007/510803-016-2946-7

Maguire, H., Gardner, R. M., Bird, F., & Luiselli, J. K. (2022). *Training, supervision, and professional development in human services organizations: EnvisionSMART: A Melmark model of operations and administration*. Elsevier.

Matson, J. L., & Dempsey, T. (2008). Autism spectrum disorders: Pharmacotherapy for problem behaviors. *Journal of Developmental & Physical Disabilities, 20*, 175–191. https://doi.org/10.1007/s10882-007-9088-y

Munetz, M. R., & Benjamin, S. (1988). How to examine patients using the AIMS. *Hospital & Community Psychiatry, 39*, 1172–1177. https://doi.org/10.1176/ps.39.11.1172

Murray, M. L., Hsia, Y., Glaser, K., Simonoff, E., Murphy, D. G., Asherson, P. J., Ekland, H., & Wong, I. C. J. (2014). Pharmacological treatments prescribed to people with autism spectrum disorder in primary health care. *Psychopharmacology, 231*, 1011–1021. https://doi.org/10.1007/s00213-013-3263-x

Newhouse-Oisten, M. K., Peck, M. K., Conway, A. A., & Frieder, J. E. (2017). Ethical behavior considerations for interdisciplinary collaboration with prescribing professionals. *Behavior Analysis in Practice, 10*, 145–153. https://doi.org/10.1007/s40617-017-0184-x

Park, S. Y., Cervesi, C., Galling, B., Molteni, S., Walyzada, F., & Ameis, S. (2016). Antipsychotic use trends in youth with autism spectrum disorder and/or intellectual disability: A meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry, 55*, 456–468. https://doi.org/10.1016/j.jaac.2016.03.012

Poling, A., Ehrhardt, K., & Li, A. (2017). Psychotropic medications as treatment for people with autism spectrum disorders. In J. L. Matson (Ed.), *Handbook of treatments of autism spectrum disorder (pp. 459–476.)*. Springer. https://doi.org/10.1007/978-3-319-61738-1_25

Rieken, C. J., Griffith, A. K., D'Angelo, J. H., & Re, T. (2019). Psychotropic medication prescription of autism: Data sources and decision making. *Advances in Neurodevelopmental Disorders, 3*, 1–7. https://doi.org/10.1007/s41252-018-0078-0

Schroeder, S. R., Hellings, J. A., & Courtemanche, A. B. (2013). How to make effective evaluation of psychotropic drug effects in people with developmental disabilities and self-injurious behavior. In D. D. Reed, F. D. DiGennaro Reed, & J. K. Luiselli (Eds.), *Handbook of crisis intervention and developmental disabilities* (pp. 299–316). Springer.

Sheehan, R., Hassiotis, A., Walters, K., Oshorn, D., Strydom, A., & Horsfall, L. (2015). Mental illness, challenging behavior, and psychotropic drug prescribing in people with intellectual disability: UK population-based cohort study. *British Medical Journal, 351*, 326–329. https://doi.org/10.1136/bmj.h4326

Siegel, M., & Beaulieu, A. A. (2012). Psychotropic medications in children with autism spectrum disorders: A systematic review and synthesis for evidence-based practice. *Journal of Autism & Developmental Disorders, 42*, 1592–1605. https://doi.org/10.1007/s10803-011-1399-2

Spencer, D., Marshall, J., Post, B., Kulakodlu, M., Newschaffer, C., Dennen, T., Azocar, F., & Jain, A. (2013). Psychotropic medication use and polypharmacy in children with autism spectrum disorders. *Pediatrics, 132*, 833–840. https://doi.org/10.1542/peds.2012-3774

Stortz, J. N., Lake, J. K., Cobigo, V., Quellette-Kuntz, H. M. J., & Lunsky, Y. (2014). Lessons learned from our elders: How to study polypharmacy in populations with intellectual and developmental disabilities. *Intellectual & Developmental Disabilities, 52*, 60–77 http://aaiddjournals.org/

Valdovinos, M. G., Henninger-McMahon, M., Schieber, E., Beard, L., Conley, B., & Haas, A. (2016). Assessing the impact of psychotropic medication changes on problem behavior in individuals with intellectual disabilities. *International Journal of Developmental Disabilities, 62*, 200–211. https://doi.org/10.1080/20473869.2016.1177301

Weeden, M., Ehrhardt, K., & Poling, A. (2010). Psychotropic drug treatments for people with autism and other developmental disabilities: A primer for practicing behavior analysts. *Behavior Analysis in Practice, 3*, 4–12. https://doi.org/10.1007/BF03391753

Wilder, A. A., Cymbal, D., & Villacorta, J. (2020). The performance diagnostic checklist-human services: brief review. *Journal of Applied Behavior Analysis, 53*, 1170–1176. https://doi.org/10.1002/jaba.676

Williams, P. G., Woods, C., Stevenson, M., Davis, D. W., Radmacher, P., & Smith, M. (2012). Psychotropic medication use in children with autism in the Kentucky Medicaid population. *Clinical Pediatrics, 51*, 923–927.

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*, 203–214. https://doi.org/10.1901/jaba.1978.11-203