OCTOBER 26, 2024

AUTISM SPECTRUM DISORDER

9:00 - 11:00 AM

Maryland
DEPARTMENT OF HEALTH

TAILORING TREATMENT:
Navigating Medication Use for Autistic and Neurodivergent Individuals

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Continuing Medical Education (CME) &
Pharmacy Continuing Education (ACPE) Seminar

Autism Spectrum Disorder
on
Saturday, October 26, 2024

8:55 am – Introductions	Maryland Department of Health Office of Pharmacy Services
9:00 am – Tailoring Treatment: Navigating Medication Use for Autistic and Neurodivergent Individuals	Michael J. Murray, MD Autism and Developmental Disabilities Sheppard Pratt
11:00 am – Closing Remarks	Maryland Department of Health Office of Pharmacy Services
11:15 am - Adjourn	

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Activity Type: Knowledge-Based

Michael J. Murray, MD / Medical Director, Autism and Developmental Disabilities / Sheppard Pratt

Tailoring Treatment:

Navigating Medication Use for Autistic and Neurodivergent Individuals

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Disclosures

Our agenda for this morning

Introduction

Objective 1: Core Issues

Objective 2: Co-occurring Conditions

Objective 3: Monitoring Interventions

Q&A

Neurodivergence

Understanding spectrum of potential challenge

- Definition of Neurodivergence
  - Neurodivergence refers to individuals whose brain functions significantly differently from what is typically expected or "neurotypical." This can include Autism Spectrum Disorder (ASD), ADHD, dyslexia, dyspraxia, and other neurological variations.
- Understanding the Spectrum
  - Neurodivergence exists on a spectrum, meaning that individuals may experience various combinations of strengths and challenges.
- Pharmacists' Role
  - Pharmacists must be aware of neurodivergence to provide individualized and person-centered care when discussing medications and potential side effects.

Autism Spectrum Disorder

The classic example of a spectrum disorder

- Key Characteristics of Autism
  - Autism is a developmental condition that affects how individuals perceive and interact with the world.
  - Common features include challenges in social communication, repetitive behaviors, and sensory sensitivities.
- Prevalence
  - Approximately 1 in 36 children are diagnosed with autism in the U.S. (Maenner et al., 2023).
- Unique Needs in Pharmacology
  - Autistic individuals may react differently to medications due to sensory sensitivities, difficulties in communicating side effects, and differences in metabolism.

Social communication

Core features of autism spectrum disorder

- Social Communication Differences
  - Difficulty with social reciprocity (e.g., taking turns in conversations), understanding nonverbal communication (e.g., gestures, facial expressions), and forming relationships.
  - Social challenges often persist into adulthood and may contribute to increased anxiety and stress.
- Impact on Pharmacological Care
  - Pharmacists should use clear, straightforward communication, possibly avoiding complex medical jargon.
  - Be mindful of the individual’s communication style—some may prefer written instructions or visual aids over verbal explanations.

Restricted and repetitive behaviors

Core features of autism spectrum disorder

- Repetitive Behaviors and Routines
    - Autistic individuals often exhibit repetitive behaviors (e.g., hand-flapping, rocking) and have strong preferences for routines.
    - Resistance to change can extend to their medication routines (e.g., specific timing, method of administration).
- Impact on Pharmacological Care
    - Consider introducing medication changes gradually, respecting the individual's preference for routine.
    - Encourage consistency in medication timing and delivery methods (e.g., capsules vs. liquids).

Sensory Sensitivities

Core features of autism spectrum disorder

- Hypersensitivity and Hyposensitivity
    - Autistic individuals may experience sensory hypersensitivity (e.g., sensitivity to loud noises, strong smells, certain textures) or hyposensitivity (e.g., not feeling pain or discomfort to the same degree).
- Impact on Pharmacological Care
    - Sensory sensitivities can influence medication adherence—taste, texture, and smell of medications can be challenging.
    - Pharmacists can offer alternative formulations (e.g., liquid vs. pill) or flavoring agents to accommodate sensory preferences.
- *Example*:
    - *Hypersensitivity to Textures: A child may refuse to take a medication in tablet form due to its texture but may accept a liquid form with flavoring.*

Sensory processing differences

And their impact on medication tolerability

- Variability in Sensory Processing
    - Sensory processing differences are common in autism, leading to varied tolerability of medications. Some individuals may be overly sensitive to even minor side effects like nausea or dizziness.
- Strategies for Pharmacists
    - Ask about unusual reactions or exaggerated side effects, especially with medications that impact the autonomic nervous system (e.g., stimulants, antidepressants).
    - Consider suggesting splitting doses or changing to extended-release formulations to mitigate immediate, overwhelming sensory experiences.

Cognitive Rigidity

Core features of autism spectrum disorder

- Cognitive Rigidity
    - Autistic individuals often exhibit "cognitive rigidity," meaning they may have difficulty adapting to changes, even in their treatment plans.
    - This can manifest in a need for strict adherence to routines or resistance to new experiences, including trying new medications.
- Impact on Pharmacological Care
    - Pharmacists should be prepared to support a gradual approach when suggesting medication changes, offering clear explanations, and collaborating with caregivers.
    - Explaining why a medication change is necessary and how it aligns with their established routines can improve adherence.

Case example

Sensory sensitivity concerns

- **Patient**: Henry is a16-year-old autistic male diagnosed with co-occurring ADHD.
- **Presenting Issue**: Difficulty swallowing pills due to the texture and gag reflex.
- **Pharmacist Intervention:** Recommended switching to a liquid formulation with extended-release properties of methylphenidate to maintain the therapeutic effect while addressing the sensory aversion.
- **Outcome:** The patient was able to take the medication daily without issues, leading to improved symptom management for ADHD.
- **Key Takeaway:** Sensory sensitivities need to be assessed and addressed to ensure optimal medication adherence and efficacy.

Complexities of care

The intersection of core features with co-occurring conditions

- Autism as a Spectrum
  - The core features of autism (social communication challenges, repetitive behaviors, sensory sensitivities) may intersect with other co-occurring conditions like anxiety, ADHD, or mood disorders.
  - Individuals may exhibit heightened responses to stimuli or stress, which can complicate treatment plans.
- Pharmacological Considerations
  - Careful monitoring is essential when co-occurring conditions are present, as medications for these conditions (e.g., SSRIs, stimulants) may exacerbate certain autism-related challenges (e.g., sensory overload, anxiety).

Complexities of care

Challenges identifying core features

- Masking and Camouflaging
    - Some autistic individuals, particularly women and girls, may mask or camouflage their core autistic traits to "fit in" socially. This can make it harder to identify autism and its associated needs in clinical settings.
    - Pharmacists may encounter patients who seem "neurotypical" but still struggle with unaddressed core features like anxiety, sensory sensitivities, or communication difficulties.
- Impact on Pharmacological Care
    - Pharmacists should be vigilant in asking open-ended questions to uncover potential core challenges that may not be immediately visible, particularly if the individual is struggling with medication adherence or side effects.
    - It’s important to build trust with neurodivergent patients to encourage them to express their concerns openly.

Person-Centered Care

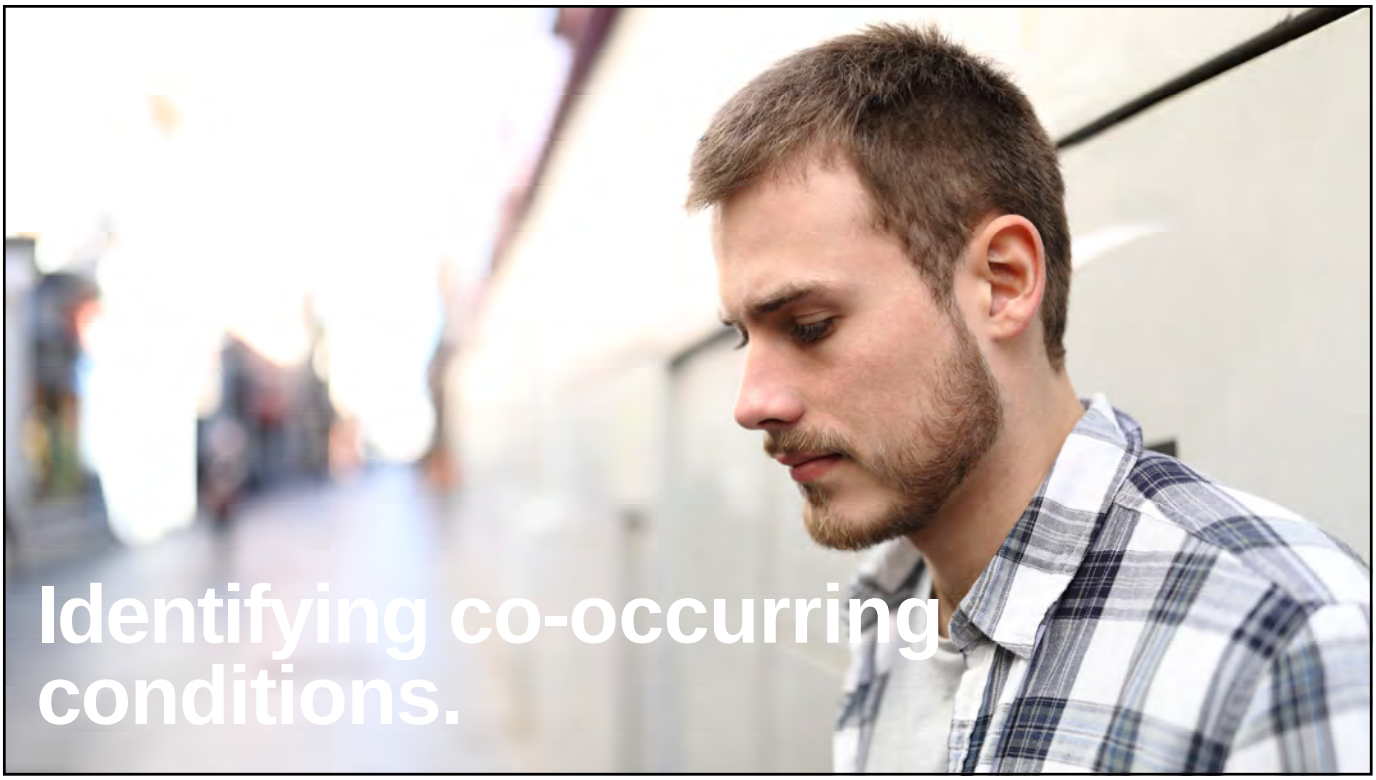
A critical factor for treatment efficacy

- Person-Centered Approaches in Autism
    - Tailoring care to each individual’s sensory, cognitive, and emotional preferences is essential to optimizing pharmacological treatment.
- Pharmacists’ Role in Person-Centered Care
    - Pharmacists are in a unique position to suggest adjustments to medication regimens based on the individual’s specific needs, such as formulations, dosages, and administration routes when necessary.
    - Collaborating with interdisciplinary teams, including doctors, therapists, and family members, ensures that pharmacological care is integrated with non-pharmacological supports, like behavioral interventions.

Key takeaways

Core features of autism spectrum disorder

- **Sensory Sensitivities and Medication Choice**
    - Offer suggestions about formulations (e.g., liquid vs. pill) and consider taste/texture preferences as indicated.
- **Support Cognitive Flexibility**
    - Introduce medication changes gradually, respecting the individual's routine and preferences.
- **Clear and Simple Communication**
    - Use direct, jargon-free language, and provide visual aids or written instructions when necessary.
- **Monitor for Side Effects in a Sensory Context**
    - Side effects like dizziness, nausea, or gastrointestinal discomfort may be perceived more intensely in autistic individuals due to sensory differences.
- **Collaboration is Key**
    - Work with interdisciplinary teams and caregivers to ensure that treatment plans are fully supportive of the individual's needs, both pharmacological and non-pharmacological.



Prevalence of co-occurring conditions

- Co-occurring Conditions Overview
  - Over 70% of autistic individuals have at least one co-occurring mental health condition, and 40% have two or more (Simonoff et al., 2020).
  - The most common co-occurring conditions include anxiety disorders, ADHD, mood disorders, obsessive-compulsive disorder (OCD), and catatonia.
- Impact on Pharmacological Care
  - Co-occurring conditions often complicate treatment strategies and require careful differentiation of symptoms to ensure that each condition is addressed without exacerbating other challenges.

Importance of Differentiating Core Autism Features from Co-occurring Conditions

- Overlap in Symptoms
  - Many symptoms of co-occurring conditions overlap with core features of autism, making it difficult to distinguish between them.
  - For example, social withdrawal could be a result of anxiety, depression, or autism itself.
- Pharmacists' Role
  - Pharmacists must collaborate with healthcare teams to differentiate symptoms of co-occurring conditions from autism traits, as treating the wrong condition may lead to inadequate results or adverse side effects.
  - Asking targeted questions about symptom patterns and timing can help clarify diagnoses.

Anxiety Disorders

The most commonly co-occurring condition in ASD

- Prevalence and Symptoms
    - Anxiety disorders affect 40-50% of autistic individuals (Hollocks et al., 2019).
        - Prevalence increases across the lifespan
    - Symptoms include excessive worry, social withdrawal, avoidance of certain stimuli, and physical complaints like headaches or stomachaches.

Pharmacalogical considerations

For anxiety disorders in ASD

- **Selective Serotonin Reuptake Inhibitors:** Shown to reduce anxiety symptoms in some autistic individuals, but dosing must be cautious due to potential activation or agitation (Vasa et al., 2019).
- **Buspirone**: May be helpful due to favorable tolerability and low sedation
- **Serotonin-Norepinephrine Reuptake Inhibitors:** useful in more treatment-resistant cases but may exacerbate sensory sensitivities.
- **Benzodiazepines:** for short-term use in acute crises but not recommended for long-term use due to dependency risks.
- **Beta blockers**: for individuals with extensive physiological arousal associated with their anxiety triggers

Attention deficit hyperactivity disorder in ASD

Manifests early like traditional ADHD

- Prevalence and Symptoms
  - ADHD co-occurs in 30-50% of autistic individuals (Antshel et al., 2020).
  - Symptoms include hyperactivity, impulsivity, and inattentiveness, which can be difficult to distinguish from sensory-seeking behaviors or executive functioning difficulties common in autism.
  - Need to differentiate intentional attention dysregulation from inattentiveness/heightened distractibility

Pharmacological considerations

For co-occurring ADHD in ASD

- Stimulants:
  - Effective for reducing hyperactivity and improving focus but may exacerbate anxiety or irritability in some autistic individuals (Handen et al., 2020).
  - Lower efficacy and more adverse effects
- Non-stimulants:
  - Guanfacine useful for individuals with ADHD symptoms and heightened anxiety/ physiological arousal. Clonidine can assist with sleep challenges. (Murray, 2010)
  - Atomoxetine has shown efficacy in treating ADHD in individuals with autism, particularly for those with co-occurring anxiety (Fried et al., 2020).

Mood Disorders

Can appear different than traditional manifestations

- Prevalence and Symptoms
    - Depression and bipolar disorder are common in autism, with depression rates as high as 20% and bipolar disorder in 7-8% of cases (Lai et al., 2019).
    - Symptoms include low mood, irritability, anhedonia, or mood swings that may mimic behavioral challenges associated with autism.
    - Extremely high rates of suicidal ideation/gestures/actions but tends to be impulsive and situational

Pharmacological considerations

For mood disorders co-occurring in ASD

- SSRIs for Depression:
    - May help manage depressive symptoms but should be monitored closely for increased anxiety or behavioral activation (Gordon et al., 2020).
- Mood Stabilizers for Bipolar Disorder:
    - Effective for managing mood swings, but regular blood monitoring which is necessary to avoid toxicity, particularly with lithium, can be difficult to obtain.
- Atypical Antipsychotics:
    - aripiprazole and risperidone have FDA approval for mood irritability in ASD
    - Can be useful for managing severe mood dysregulation but carry risks of weight gain, metabolic syndrome, and sedation.

Obsessive Compulsive Disorder in ASD

Can be extremely difficult to determine this co-occurrence.

- Prevalence and Symptoms
  - OCD is significantly more common in autistic individuals, with prevalence rates between 17-37% (Russell et al., 2019).
  - Symptoms include intrusive thoughts and compulsive behaviors (e.g., repeated hand-washing, checking routines) that can overlap with the repetitive behaviors seen in autism.
  - Important to clarify ego-syntonic from ego-dystonic thoughts and behaviors

Pharmacological considerations

For OCD co-occurring with ASD

- SSRIs:
  - Shown to reduce obsessive-compulsive behaviors, but dosage adjustments are often needed for autistic individuals (Rodgers et al., 2020).
- Clomipramine:
  - Reserved for treatment-resistant cases, due to its higher side effect profile, including sedation and cardiovascular risks.
  - Caution family/caregivers about high overdose risk

Catatatonia

Associated with neurodevelopment disorders

- Up to 12% of autistic individuals may develop catatonia, often in adolescence or early adulthood (Wachtel et al., 2019).
    - More likely to be male with co-occurring intellectual disability and/or seizure disorder
    - Peak onset late adolescence / early adulthood
- Symptoms include motor immobility, mutism, posturing, or extreme agitation.
- Can be life threatening due to dehydration and poor nutritional intake as well as autonomic instability

Treatment Considerations

For Catatonia associated with ASD

- Benzodiazepines: First-line treatment for catatonia, providing rapid improvement in symptoms (Dhossche et al., 2019).
    - Typically in high doses to resolve symptoms
- NMDA Receptor Antagonists (Rogers 2019):
    - Can be adjunctive therapy to BZDP during acute phase
    - Helpful with prophylaxis against recurrence
- Electroconvulsive Therapy (ECT): Used in severe or treatment-resistant cases with significant success in restoring motor and verbal abilities.

Case study

Co-occurring conditions

- **Patient:** Justin is a 28-year-old autistic male with ADHD and severe anxiety.
- **Presenting Issue:** Methylphenidate exacerbated anxiety symptoms, causing increased irritability and sleep disturbances.
- **Pharmacist Intervention:** Checked Justin's BP and HR. Called prescribed which resulted in a switch to atomoxetine and fluoxetine for anxiety.
- **Outcome:** Improved attention with a significant reduction in anxiety symptoms.
- **Key Takeaway:** Co-occurring conditions require careful medication balancing to avoid worsening symptoms.
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Key Takeaways

Consideration of co-occurring conditions

- **Symptom Overlap**
  - Differentiate between core autism features and symptoms of co-occurring conditions.
- **Medication Choice**
  - Consider potential interactions between treatments for co-occurring conditions.
- **Dosage Adjustments**
  - Start with low doses and adjust based on individual responses, especially in autistic individuals with heightened sensitivity to medications.
- **Collaborative Care**
  - Work closely with prescribing clinicians and caregivers to monitor for changes in symptoms or side effects.

Importance of monitoring

- Why Monitoring is Critical
  - Neurodivergent individuals may experience atypical or heightened responses to medications.
  - Co-occurring conditions often complicate medication regimens, making regular monitoring essential to ensure efficacy and safety.
- Pharmacists' Role
  - Pharmacists are uniquely positioned to provide ongoing monitoring of medication adherence, efficacy, and potential side effects, collaborating with patients and caregivers.

Best practices

For optimizing outcomes

- Start Low, Go Slow
    - Initiate medications at lower doses than usual and increase slowly to minimize side effects, especially in individuals with sensory sensitivities or cognitive rigidity.
- Regular Follow-Ups
    - Schedule regular check-ins to assess the patient's response to the medication, particularly for side effects like gastrointestinal discomfort, sleep disturbances, or mood changes.
- Use of Symptom Tracking Tools
    - Encourage patients or caregivers to track symptoms (e.g., mood, sleep, behavior) using journals or apps to provide objective data for evaluating treatment efficacy.

Common Adverse Effects

May be unusual manifestations

- Common Side Effects to Watch
    - Stimulants for ADHD: Appetite suppression, sleep disturbances, anxiety, irritability.
    - SSRIs for Anxiety/Depression: Activation (agitation, restlessness), gastrointestinal upset, insomnia.
    - Atypical Antipsychotics: Weight gain, metabolic syndrome, sedation.
    - Mood Stabilizers: Blood level toxicity (for lithium), tremors, gastrointestinal symptoms.
- Adjusting Based on Feedback
    - Encourage open communication about side effects and work with the healthcare team to adjust dosages or medications as needed.

Case Study

Medication interactions

- **Patient:** Ella, 12-year-old autistic female with epilepsy and depression, on multiple anti-seizure medications and beginning fluoxetine.
- **Presenting Issue:** Caregivers noticed increased irritability and mood swings after starting fluoxetine.
- **Pharmacist Intervention:** Identified a potential interaction between anti-seizure medications and fluoxetine. Collaborated with the healthcare team to adjust the SSRI dosage and monitor seizure control.
- **Outcome:** Improved mood stability and maintained seizure control.
- **Key Takeaway:** Regular monitoring for drug interactions is essential in complex cases with multiple medications.

Non-pharmacological interventions

Importance of balanced treatment plans

- Behavioral Therapies
  - Cognitive Behavioral Therapy (CBT): Effective for anxiety and depression, often used alongside pharmacological interventions (Rodgers et al., 2020).
  - Social Skills Training: Improves social communication and reduces anxiety in autistic individuals.
  - Applied behavior analysis: helpful for interfering behaviors and to help learn new skills
- Pharmacists' Role in Non-Pharmacological Interventions
  - Encourage the integration of behavioral therapies with medication management.
  - Monitor how non-pharmacological approaches may affect medication adherence and overall well-being.

Optimizing Monitoring Practices

Tracking data to guide clinical decision making.

- Involve Caregivers
    - Collaborate with family members or caregivers to gather data on the individual's behavior, mood, and medication adherence.
- Consider Sensory and Communication Preferences
    - Tailor monitoring practices to the individual's communication style (e.g., verbal, written, visual aids).
- Utilize Technology
    - Use digital tools like mood-tracking apps or electronic medication reminders to support consistent monitoring.

Key Takeaways

Monitoring interventions.

- **Pharmacists as Key Collaborators**
    - Pharmacists can play a critical role in ensuring that both pharmacological and non-pharmacological interventions are optimized for neurodivergent individuals.
- **Tailored Monitoring**
    - Every neurodivergent individual may have different needs, requiring tailored approaches for medication adherence, efficacy, and monitoring side effects.
- **Collaborative Care**
    - Engaging with caregivers and interdisciplinary teams ensures a holistic approach to treatment and monitoring.

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Neurodivergent Friendly Apps for Monitoring Symptoms

1. Daylio (Mood Tracker)

- **Purpose:** Track moods, activities, and mental health patterns.
- **Features:**
  - Users can track their mood daily through visual icons.
  - Provides an easy-to-use interface where individuals can log their daily activities (e.g., sleep, exercise, medication).
  - Offers mood trends over time to help identify patterns and correlations between activities and mental health.
- **Benefits for Neurodivergent Individuals:**
  - Simple, visual format that can be less overwhelming for those with cognitive or communication challenges.
  - Allows customization of activities to track specific behaviors or routines relevant to the individual's needs.

2. MoodPanda (Mood Tracking)

- **Purpose:** Real-time mood tracking with a focus on community support.
- **Features:**
  - Provides a simple interface for logging mood scores throughout the day.
  - Tracks mood changes over time and presents data in visual graphs.
  - Includes a supportive community feature where users can receive encouragement from others.
- **Benefits for Neurodivergent Individuals:**
  - Visual representation of mood changes makes it easier for individuals to communicate how they are feeling.
  - Integration of social support can help with emotional regulation and reduce feelings of isolation.

3. Sleep Cycle (Sleep Tracker)

- **Purpose:** Track and analyze sleep patterns to improve sleep quality.
- **Features:**
  - Monitors sleep patterns using sound analysis to determine sleep stages (light, deep, REM sleep).
  - Offers smart alarms that wake the user at the optimal time during their sleep cycle, enhancing restfulness.
  - Provides detailed sleep reports, showing sleep duration and quality trends.
- **Benefits for Neurodivergent Individuals:**
  - Autistic individuals often experience sleep disturbances, and this app can help track changes in sleep patterns before and after starting medication.
  - Offers visual data and graphs to help caregivers or healthcare providers better understand sleep issues.

4. Bearable (Mood, Sleep, and Symptom Tracker)

- **Purpose:** Comprehensive symptom tracking app for managing mood, pain, sleep, medications, and more.
- **Features:**
  - Users can track a variety of symptoms including mood, energy, pain, and specific health conditions.
  - Includes customizable daily logs where users can note factors such as sleep quality, diet, medication adherence, and social interactions.
  - Generates easy-to-read reports and graphs showing trends and correlations between symptoms and lifestyle factors.
- **Benefits for Neurodivergent Individuals:**
  - Customizable to each individual's needs—can track neurodivergent traits (e.g., sensory overload, emotional regulation) along with mood or medical symptoms.
  - Simple interface with options for setting daily medication reminders.

5. SleepScore (Sleep Tracker)

- **Purpose:** Sleep quality monitoring with detailed insights into sleep patterns.
- **Features:**
  - Uses patented sonar technology (via smartphone) to monitor sleep without the need for a wearable device.
  - Provides personalized sleep improvement recommendations based on sleep patterns and habits.
  - Tracks sleep stages, duration, and interruptions.
- **Benefits for Neurodivergent Individuals:**
  - Particularly useful for individuals with autism who may struggle with sleep disorders.
  - Offers easy-to-interpret sleep scores and trends over time.

6. Symple (Symptom Tracker)

- **Purpose:** Monitor symptoms, emotions, and overall health.
- **Features:**
  - Tracks up to 10 customizable symptoms (e.g., headaches, nausea, anxiety) and lifestyle factors (e.g., diet, exercise, sleep).
  - Provides graphs and reports to help visualize changes in symptoms over time.
  - Allows users to photograph and annotate symptoms, making it a useful tool for chronic health conditions.
- **Benefits for Neurodivergent Individuals:**
  - Customizable symptom tracking can be tailored to neurodivergent needs, including sensory sensitivities, emotional regulation, or communication difficulties.
  - Visual graphs can help users better understand patterns in their well-being.

7. eMoods (Bipolar and Mood Disorder Tracker)

- **Purpose:** Track mood fluctuations, specifically designed for bipolar disorder, but adaptable for mood monitoring in autism.
- **Features:**
  - Tracks mood episodes, sleep, anxiety, irritability, and medication adherence.
  - Provides charts that visualize patterns in mood and how they correlate with other factors like sleep and medications.
  - Users can export data to share with healthcare providers.
- **Benefits for Neurodivergent Individuals:**
  - Ideal for autistic individuals with mood disorders or emotional dysregulation, providing a detailed log of mood patterns over time.
  - Simple, straightforward design that is easy for users to navigate.

8. Medisafe (Medication Management App)

- **Purpose:** Helps users manage and remember medications.
- **Features:**
  - Provides reminders for taking medications and refill alerts.
  - Tracks adherence and allows for medication logging to note side effects.
  - Offers integration with health data to keep track of vital signs and symptoms related to medication use.
- **Benefits for Neurodivergent Individuals:**
  - Ideal for individuals who may have trouble remembering when to take medications or who need visual reminders to support adherence.
  - Can accommodate complex medication regimens, including PRN (as-needed) medications.
- **Relevance for Pharmacists:**
  - Allows pharmacists to understand medication adherence patterns and collaborate with patients on any issues they may be experiencing with side effects or forgetting doses.

Q and A

Thank you.

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Notes

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