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PSYCHIATRY UPDATE 2021 SPRING ABSTRACT COMPENDIUM

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PSYCHIATRY UPDATE 2021 SPRING ABSTRACT COMPENDIUM

ABSTRACT 1

Gambling Disorders and the Risk of Suicide Among Hospitalized Bipolar Disorder Patients

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INTRODUCTION: Studies have shown that patients with bipolar disorder are more likely to have gambling

disorders compared in patients with major depressive disorder or the general population (Jones et al. 2015). Bipolar disorder is associated with an increased risk of suicide. However, there is a paucity of data on the risk of suicidality in patients with bipolar disorder along with gambling disorders.

OBJECTIVE: The primary goal of our study was to assess if gambling disorders are associated with increased risk of suicide among patients with bipolar disorder.

METHODS: The National Inpatient Sample (NIS) dataset (<https://www.hcup-us.ahrq.gov/>) (2016-2018) was utilized. Adult patients were selected with a primary diagnosis of bipolar disorders with a secondary diagnosis of gambling disorders (BPD with GD). The control group composed of primary

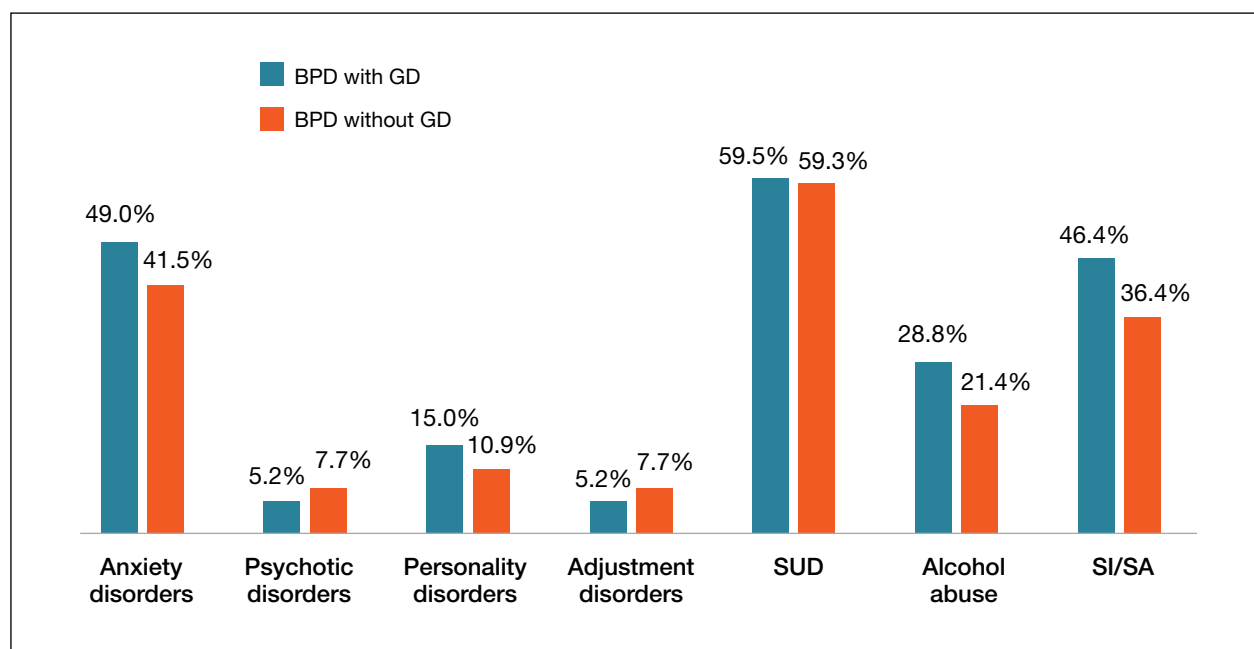


FIGURE.

BPD: bipolar disorders; GD: gambling disorders; SUD: substance use disorders; SI: suicidal ideation; SA: suicide attempt

diagnosis of bipolar disorder without gambling disorders (BPD without GD) was selected by performing 1:4 age-gender propensity score-matched population. Groups were compared for baseline, clinical characteristics, and suicidality (suicidal ideation/attempt). Multivariate logistic regression was performed for suicidality (outcome) and “BPD with GD vs. BPD without GD” (predictor) by controlling for age, gender, race, borderline personality disorders, alcohol abuse, and substance abuse.

RESULTS: A total of 765 patients were included in the BPD with GD population and 3060 patients in the BPD without GD population (mean age: 48, female: 56.9%). More patients in the BPD+G group were White (83% vs 72%). Prevalence of alcohol abuse was higher in the BPD+G group compared with BPD without GD (28.8% vs. 21.4%, $P = .05$). However, the prevalence of substance use disorder was similar (59.5% vs. 59.3%, $P = .97$). Suicidal behavior (suicidal ideation/attempt) was higher in the BPD with GD group (46.4% in the BPD with GD group and 36.4% in the BPD without GD group). After controlling for age, sex, race, alcohol abuse, substance use disorders, and borderline personality disorders, odds of having suicidal behaviors were 51% higher in the BPD with GD group compared with BPD without GD (odds ratio: 1.46, 95% confidence interval: 1.06-2.10, $P = .04$).

CONCLUSION: As there is an increased risk of suicidal behavior and alcohol abuse among bipolar disorder patients with comorbid gambling disorders, clinicians should screen for gambling disorders in patients with bipolar disorder.

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ABSTRACT 2

Antidepressants for the Treatment of Bipolar Depression: A Meta-Analysis

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BACKGROUND: Antidepressants are the most widely prescribed class of psychotropic medications. Antidepressants are often used to treat bipolar depression even though the evidence base supporting their use is mixed at best. Previous meta-analyses of randomized, placebo-controlled trials have failed to demonstrate a significant benefit of antidepressants for bipolar depression. However, these meta-analyses have relied on dichotomous outcomes, such as response and remission, as opposed to continuous measures, such as symptom improvement, that have increased statistical power.

OBJECTIVE: Our goal was to conduct a meta-analysis of randomized placebo-controlled trials assessing the efficacy of antidepressants for treatment of bipolar depression, examining continuous measures of treatment outcome, such as improvement in depressive symptoms.

METHOD: We conducted a PubMed search to identify all double-blind, randomized, placebo-controlled trials examining the efficacy of antidepressant medications for the treatment of bipolar depression. Our primary outcome was the standardized mean difference in score on depression measures, including Hamilton Rating Scale for Depression (HAM-D) and Montgomery-Asberg Depression Rating Scale (MADRS). Secondary outcomes were response, remission rates, and risk of manic events.

RESULTS: We identified 216 sources in the original search, and a total of seven randomized

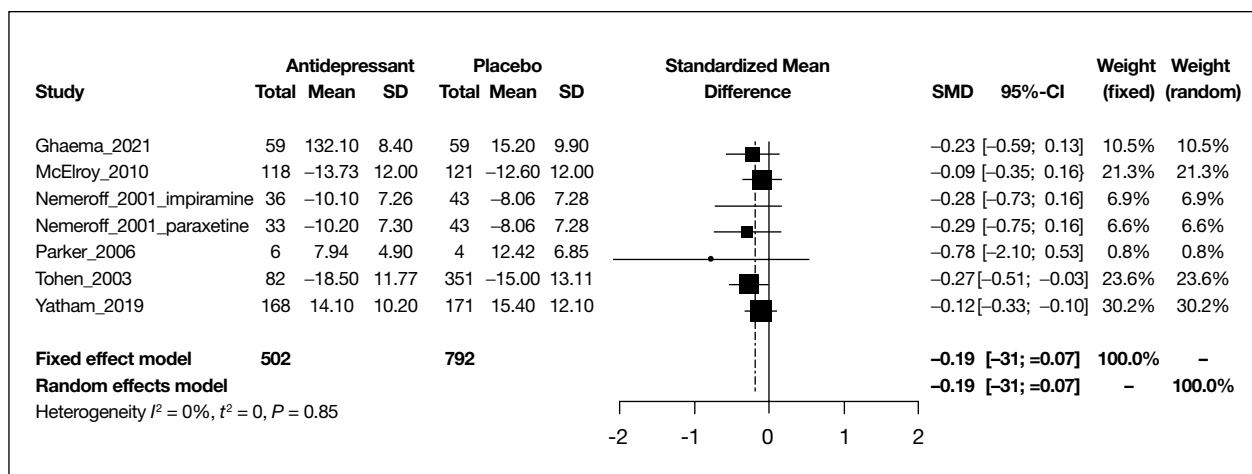


FIGURE.

placebo-controlled trials involving 1,294 participants met criteria for inclusion in this meta-analysis. Participants in all studies were adults that met DSM-5 criteria for bipolar I or bipolar II disorder. Antidepressant agents significantly improved depressive symptoms when compared with placebo (standardized mean difference [SMD] = -0.19 ; 95% CI $[-0.31; -0.07]$; $z = -3.15$; $P = .0016$). There were no significant differences in fixed or random effects analysis for treatment response (RR = 1.075, 95% CI $[0.93; 1.25]$, $z = 0.95$, $P = .3422$), remission (RR = 1.06, 95% CI $[0.87; 1.30]$, $P = .5308$), or affective switch (RR = 1.23, 95% CI $[0.86; 1.75]$, $z = 1.13$, $P = .2576$) for antidepressants compared with placebo.

CONCLUSION: Antidepressants demonstrated a small, but statistically significant, improvement in treating depressive symptoms of bipolar disorder. The magnitude of this treatment benefit is slightly smaller but consistent with the benefits measured for antidepressant agents in meta-analyses of unipolar depression. Previous meta-analyses likely overlooked this small but therapeutic effect by relying on dichotomous outcomes, which have reduced statistical power. Future studies should further examine the relative efficacy of different classes of medication for bipolar depression and use machine learning techniques to examine which patients and symptoms are most likely to respond to different interventions.

ABSTRACT 3**Social Media Exposure and Mental Well-Being During COVID-19 Outbreak**

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BACKGROUND: Frequent social media exposure in a pandemic may lead to depression and anxiety in the population (Huang Y et al. Psychiatry Research 2020).

OBJECTIVES: The study investigates the relationship of social media exposure with the prevalence of depression and anxiety among the general public in Lahore, Pakistan, during the COVID-19 outbreak.

METHODS: A web-based cross-sectional study was conducted via Google forms in June–July 2020 among Pakistani citizens aged ≥18 years. Purposive convenient sampling was done. The questionnaire comprised socio-demographic data, information regarding social media exposure, and scales to assess depression and anxiety. Social media exposure was measured by a questionnaire based on previous literature (Gao J et al. Plos One 2020), and depression and anxiety were measured by WHO-Five Well-Being Index (WHO-5) (WHO Collaborating Centre in Mental Health) and Generalized Anxiety Disorder (GAD-7) scale (Spitzer R et al. Arch Intern Med 2006), respectively. Chi-square test was used to examine differences in depression and anxiety between groups and their associations with their social media use.

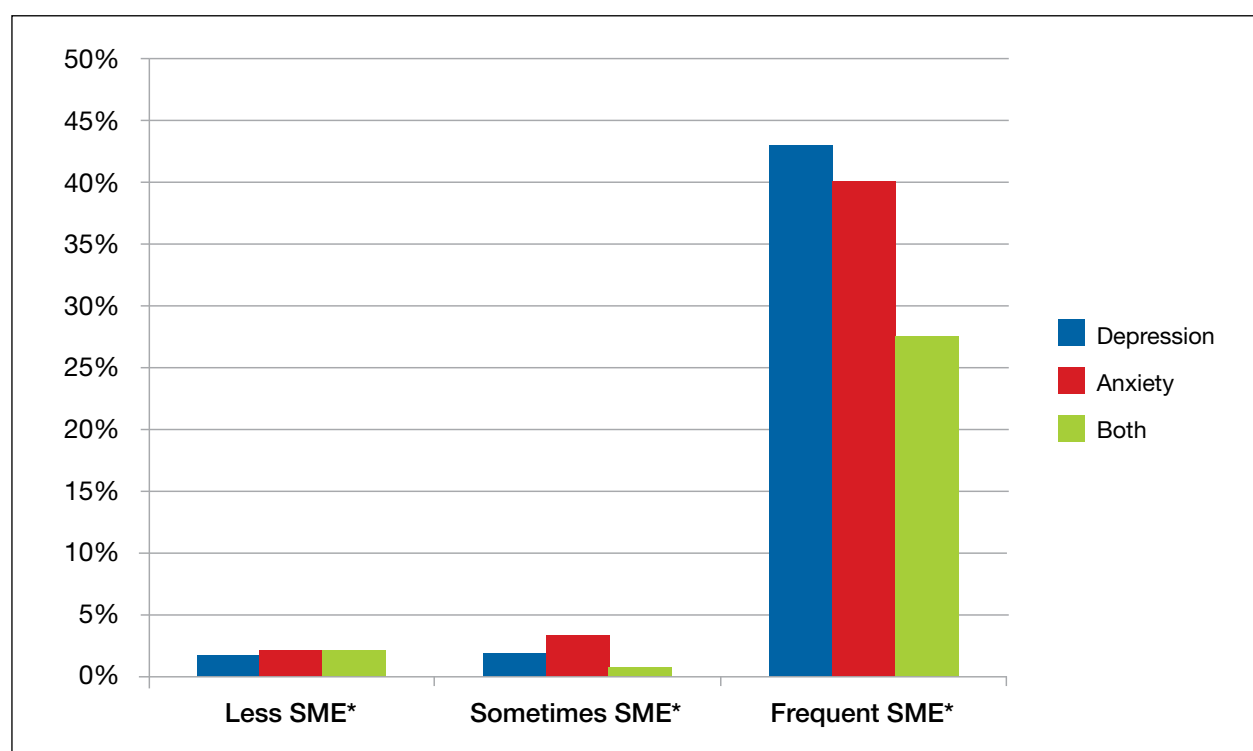


FIGURE 1: Prevalence of Depression, Anxiety, and Combination of Depression and Anxiety in Different Categories of Social Media Exposure

*SME = Social Media Exposure

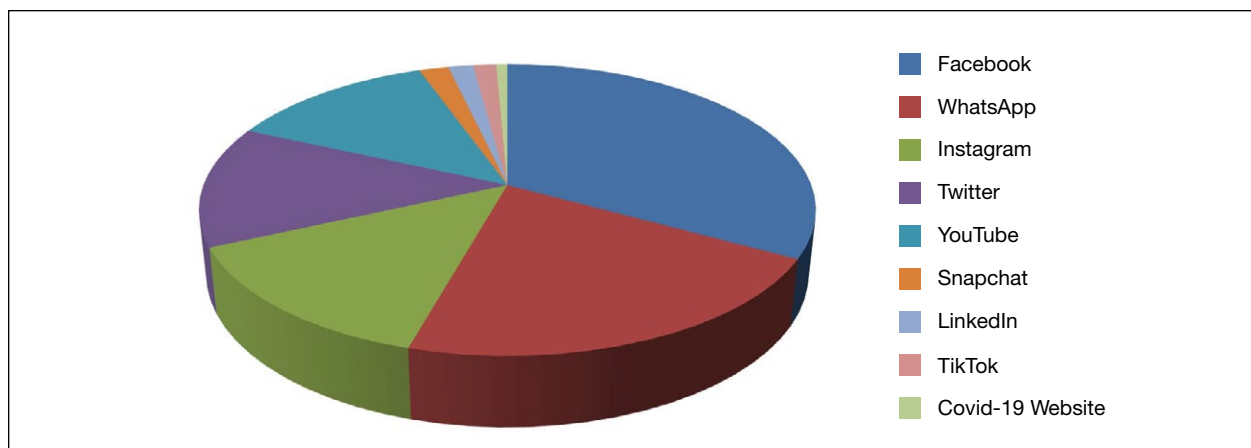


FIGURE 2: Frequency of Use of Different Social Media Platforms Among the Participants

RESULTS: A total of 516 participants completed the questionnaire. In all, 86.6% of the participants had frequent exposure to social media. Facebook (66.9%) and WhatsApp (43.4%) were the most used platforms to obtain COVID-19–related news. The prevalence of depression, anxiety, and combined depression and anxiety in the sample was 46.3%, 45.5%, and 29.7%, respectively. Chi-square revealed a statistically significant association between depression and social media exposure ($P < .001$) and the combination of depression and anxiety and social media exposure ($P < .05$), but not with anxiety in our sample. Of participants, 56% believed that publishing more COVID-19–related news leads to fear and panic.

CONCLUSION: People with frequent social media exposure during COVID-19 experienced detrimental effects on mental health. It is imperative that the use of social media is limited to an extent where it can be used for improving social support and communication in times of social isolation and lockdown, but doesn't cause detrimental effects on the mental

well-being of people. The precedent set from previous pandemics as well as health governing bodies' devised strategies in collaboration with social media platforms about limiting social media exposure during the pandemic is required to safeguard the mental well-being of the people (Chen Q et al. Computers in human behavior 2020).

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ABSTRACT 4**Coping During COVID-19: Experiences of College Students With a Mental Health Disorder**

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BACKGROUND: The COVID-19 pandemic has strained an already overloaded mental health service system within college campuses across the nation. Indeed, the percentage of students entering a university with a mental health disorder has increased by 180.6% since 2008 (ACHA, 2008, 2019). Students who enter college with a mental health disorder are particularly vulnerable to destabilization and deleterious outcomes. According to a NAMI survey of college students with a mental health diagnosis, 60% withdrew from the university due to destabilization (Gruttadaro and Crudo, 2012). The COVID pandemic has added additional financial, social, and health stressors affecting the mental health of college students, yet published research is lacking on the experiences of this vulnerable population.

OBJECTIVES: The objective of this research was to examine the impact of COVID-19 on the experiences of college students with a mental health disorder.

METHOD: A cross-sectional, descriptive design was used. After IRB approval was obtained, college students (ages 18-25) with a self-reported mental health diagnosis were invited to take an online survey consisting of investigator-developed questions and standardized measures. Questions included several open-ended prompts for students to describe their experiences during the COVID-19 pandemic.

RESULTS: A total of 140 students (M age = 20.7; SD = 1.88) completed the survey. The most frequent mental health diagnoses included anxiety disorders (77.1%) and depression (75%). Over 17% reported a previous suicide attempt. Only 6.5% had filed for 504 accommodations. Reasons for not filing included lack of knowledge regarding what these were (61.4%) and a belief that they would not qualify for these services (25.7%). COVID-19 infection requiring hospitalization

TABLE 1. Sample Characteristics (N=140)

Variable	n (%)
Age	M=20.67 (SD=1.88)
Sex assigned at birth	
Female	125 (89.3)
Male	15 (10.7)
Sexual orientation	
Heterosexual/straight	111 (79.3)
Gay or lesbian/homosexual	2 (1.4)
Bisexual	24 (17.1)
Prefer not to say/self-describe	3 (2.1)
Hispanic/Latinx	
Yes	40 (28.6)
No	100 (71.4)
Race	
Black or African American	10 (7.1)
White	103 (73.6)
Asian or Pacific Islander	9 (6.4)
Mixed race	13 (9.3)
Other	5 (3.6)
Current residence	
House	35 (25)
Dormitory	34 (24.3)
Apartment/condo	69 (49.3)
Mobile home	1 (.7)
Homeless	1 (.7)

of a family member or close friend was reported by 18.6% and 22.1%, respectively. Job losses were experienced by students (12.9%) and family members (20.7%), and nearly 60% reported high levels of anxiety about finances. Free text responses spoke to financial stressors (53.06% of responses) followed by health-related concerns (18.36%) and the inability to be with loved ones due to COVID-19 restrictions (6.12%).

CONCLUSIONS: The impact of COVID-19 adds to the emotional burden of college students with a mental health disorder. The frequently reported financial concerns and concerns for the health of family members affects their ability to focus on academic requirements.

With so few students filing for 504 accommodations, this removes the safety net that is available for students with a mental health disorder. It is essential for students and their family to be educated on 504 accommodations, and health care providers can play a key role in this education. Additionally, universities must emphasize to students the rights they have to file for accommodations and the rationale in order to encourage more students to access this valuable service.

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ABSTRACT 5

Inpatient Psychiatric Treatment in the Community Mental Health Setting During COVID-19

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INTRODUCTION: COVID-19 lockdowns have created significant challenges for inpatient psychiatric treatment. The present study was carried out to determine how COVID-19 affected inpatient psychiatric treatment in the community mental health setting.

OBJECTIVES: This study aims to describe the diagnosis of patients who accessed inpatient treatment, the length of stay and readmission rates, and the severity of mental illness as indicated by the type of admission (voluntary/involuntary) during peak COVID-19 restrictions.

METHODS: This study used data from a community-based, short-term care inpatient psychiatric facility located in New Jersey (NJ). The population included patients who were admitted from March 21, 2020 (the start of the stay-at-home order in NJ), to June 9, 2020 (the end of the stay-at-home order in NJ). The control group included patients admitted between March 21, 2019, and June 9, 2019. The information was sourced from the hospital database.

RESULTS: The study and control groups included 292 and 523 patients, respectively. Compared with the control group, the study group had significantly more patients admitted on voluntary status, a lower number of severe mental illnesses (SMIs), shorter length of stay, and lower readmissions.

CONCLUSION: Patients admitted on voluntary status and with less severe illness sought inpatient treatment more than others during lockdown. It's important to understand which factors contributed to patients with SMI not being admitted during lockdown and why length of stay and readmissions decreased.

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ABSTRACT 6**Behavioral and Emotional Problems in Children With Pre-Existing Psychiatric and Neurodevelopmental Problems During COVID-19 Pandemic**

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BACKGROUND: The COVID-19 pandemic may lead to a parallel pandemic of psychosocial problems,

particularly in children with pre-existing psychiatric or neurodevelopmental disorders, Brooks SK et al. Lancet 2020.

OBJECTIVES: The present study aimed to explore the prevalence of various emotional and behavioral changes associated with the COVID-19 outbreak experience on children with pre-existing psychiatric or neurodevelopmental illness.

METHODS: Following ethical approval, data were collected in July-August, 2020. Parents of children receiving treatment from child mental health services in a tertiary care hospital were contacted and a structured questionnaire based on previous literature was used to collect data on emotional and behavioral changes noticed in their children, impact on daily routine, and educational activities since the lockdown (Orgilés M et al. Frontiers in Psychology 2020). Data were analyzed by SPSS-26.

RESULTS: A total of 225 parents participated. The mean age of children was 8.67 ± 4.25 and 59% were male. Neurodevelopmental disorders and emotional problems were the predominant diagnoses in children. A significant proportion of parents (143; 63.6%)

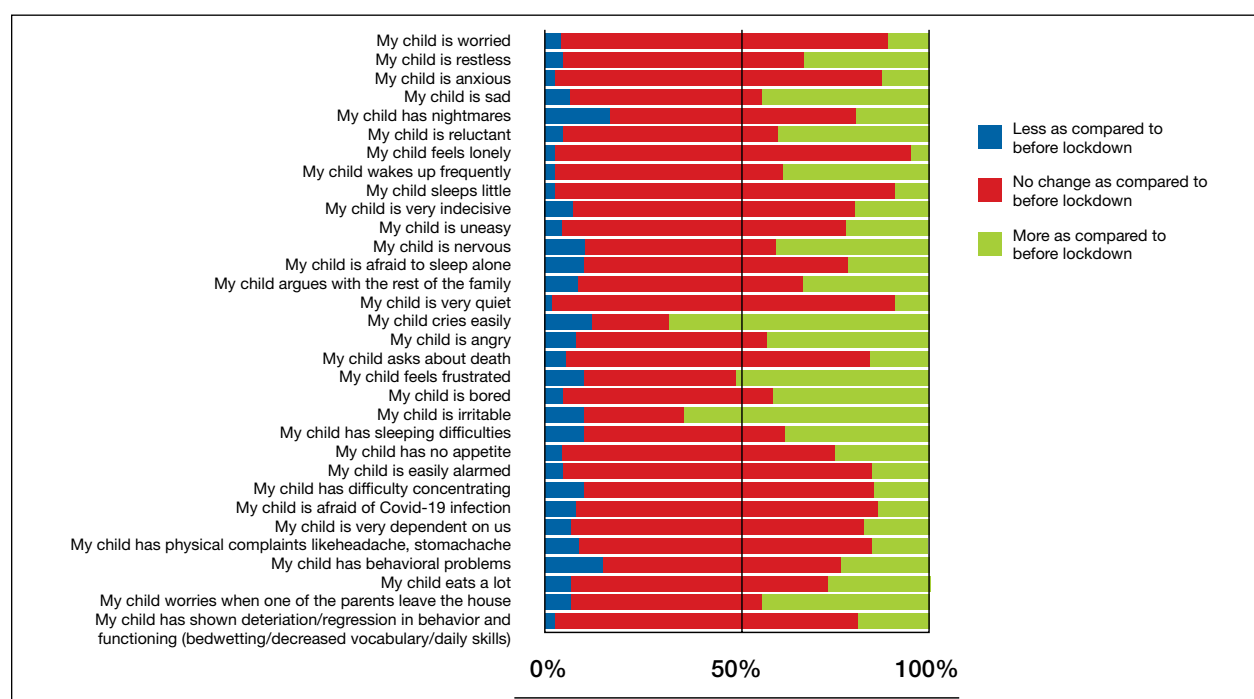


FIGURE 1. Parents' Perception of the Emotional and Behavioral Effects of the Quarantine in Their Children With Preexisting Psychiatric Difficulties

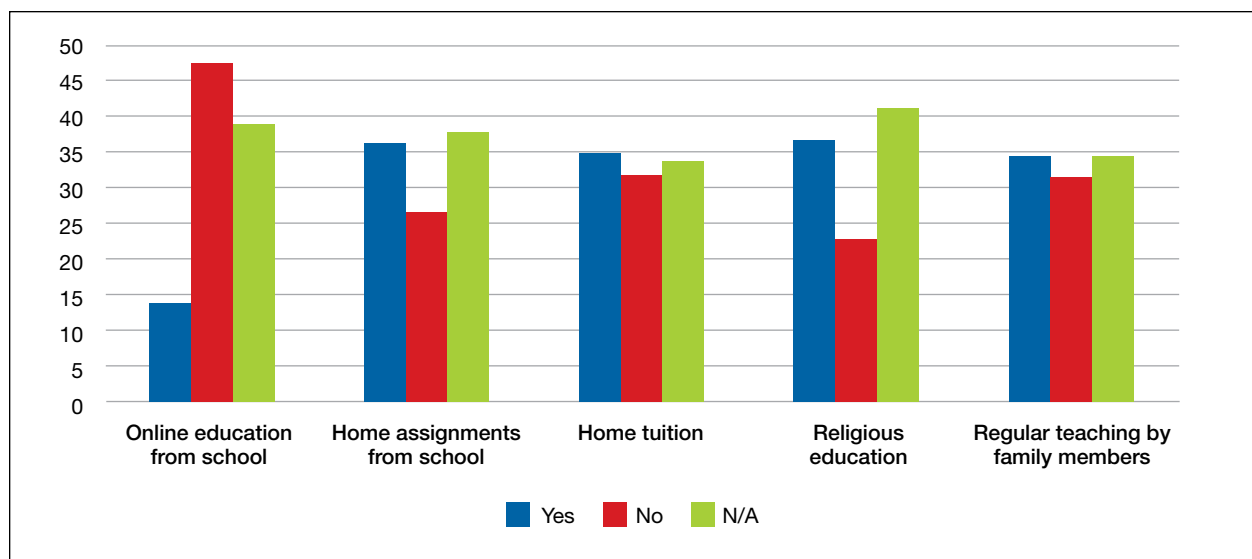


FIGURE 2: Children's Engagement in Education During Lockdown Among the Sample

noticed changes in their children's emotional state and behaviors during the lockdown. Two-thirds of the parents believed that their child's anger worsened during lockdown with the increased likelihood of getting into arguments with family (49.8%), more behavioral problems (43.1%), and being more irritable (39%). Every fourth parent reported worsening anxiety and nervousness in their children. The majority of parents mentioned disruption in children's routines with increased screen time, less physical activities, and adverse impact on educational activities. More than a third (35%) of parents admitted to feeling stressed and facing difficulties in managing their children's behavior in the prevailing situation.

CONCLUSIONS: The ramifications of COVID-19 on the emotional and behavioral health of children with pre-existing psychiatric problems cannot be

underestimated (Imran N et al. Pakistan Journal of Medical Sciences 2020). Policies should take into consideration the implications of the lockdown for this most vulnerable group, and supportive interventions for the present and the future should be promoted (Buonaguro EF et al. Advances in Mental Health and Intellectual Disabilities 2021).

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ABSTRACT 7**Mindfulness-Based Interventions in the Mitigation of Adverse Psychological Outcomes Among Healthcare Workers During COVID-19**

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BACKGROUND: In recent years, there has been increasing evidence for utilizing mindfulness-based interventions (MBIs) in treating various mental health conditions and symptoms, including anxiety, depression, posttraumatic stress disorder (PTSD), and burnout.

AIM: To evaluate the use, feasibility, and efficacy of MBIs used during the novel coronavirus pandemic (COVID-19) in improving mental health symptoms of front-line health care workers.

METHODS: Following PRISMA2 guidelines, three databases (PubMed, CINAHL, Embase) were searched and studies were evaluated by three independent researchers. Inclusion criteria consisted of quantitative pre- and post-intervention studies or clinical trials that focused on health care workers and implemented MBIs during COVID-19.

RESULTS: A total of four quantitative studies met the inclusion and exclusion criteria. Interventions used were cost-effective and included structured weekly group-based sessions held onsite or online and brief team-based mindfulness practice sessions. All studies collected pre- and post-intervention data using clinical instruments or questionnaires that measured self-reported stress levels, burnout, resiliency, mental health symptoms, and emotion regulation. All studies found statistically significant improvements in outcomes post-intervention.

CONCLUSION: Implementing MBIs is an effective, economical, and logistically feasible strategy for hospitals and medical centers to utilize during COVID-19 to help mitigate adverse mental health outcomes in frontline health care workers.

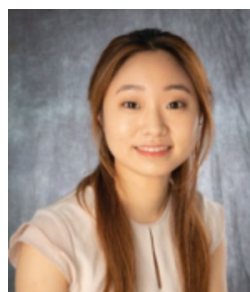
KEYWORDS: mindfulness, health care, COVID-19, mental health

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Sneha Banka, MSN, RN is currently a Doctor of Nursing Practice (DNP) candidate in Psychiatric/Mental Health at Columbia University. Prior to the program, Sneha obtained a Master of Science in Nursing at Columbia University, an 18-month accelerated and condensed program, and received her Registered Nurse license in October 2019. She has also graduated with a Bachelor of Science in Psychology from University of California, Davis. During her time at UCD, Sneha participated in research at the Healthy Emotions, Relationships and Development Lab where she was responsible for interpreting and coding data for a study analyzing parent-child relationships. As part of the DNP program, Sneha is currently completing an internship at Columbia Doctors Nurse Practitioner Group, where she treats a higher functioning patient population with psychotherapy and medication management under supervision. Sneha plans to work with the veteran and adult population upon receiving her licensure as a nurse practitioner.



Fabiola Yun, MSN, RN is completing her Doctor of Nursing Practice in psychiatry and mental health at Columbia University in August 2021. Through the clinical experience at Gracie Square Hospital, she has completed more than 700

hours of acute, inpatient psychiatric and mental health services with the concentration of psychiatric medication management. Prior to her doctorate degree, she earned a Bachelor of Science in biology at Trinity

College located in Hartford, Connecticut, and a Master of Science in Nursing at Columbia University School of Nursing. Previously, she worked as a nurse manager at Lenox Hill Neighborhood House Casa Mutua and resigned nurse leader at Chemical Dependency Crisis Center at Bowery Residents' Committee. By working at both non-profit organizations in Manhattan, Ms. Yun gained tremendous experience of working with the homeless population, utilizing therapeutic communication and de-escalating skills, and navigating complicated social welfare systems in New York City. With the belief that true leadership comes from the heart of a servant, Ms. Yun hopes to become a psychiatric mental health nurse practitioner who can debunk the stigma associated with mental illnesses in our society.



Javier Agat-Torres MSN, RN is also a currently DNP candidate at Columbia University. He is a first-generation Cuban immigrant and scholar, whose passion for mental health, philanthropy, and leadership led him to aspire to a career in

nursing. He earned his Bachelor of Arts in Psychology with an emphasis in Couple and Family Therapy at the University of Nevada, Las Vegas. Javier's research interests include understanding how to incorporate psychometric tools as a way to identify risk factors associated with suicide amongst health care workers, pornography addiction in young adults, and nonpsychotic auditory and visual hallucinations in individuals with personality disorders and severe trauma.

ABSTRACT 8

Patient Attitudes Toward Receiving Psychiatric Care Using Telehealth at 10 Months Into the COVID-19 Pandemic

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BACKGROUND: Stay-at-home orders and limitation of movement during the COVID-19 pandemic led to rapid introduction of outpatient mental health care using telehealth (telemental health care) in the U.S. The pandemic expedited telemental health adoption out of necessity; however, little is known about patients' preferences and experiences. While a report from early in the pandemic indicated high levels of satisfaction (Guinart et al. JMIR Mental Health, 2020), ease of use, quality of care, and attitudes about using telemental health care in the future are areas in need of further study.

OBJECTIVES: The primary purpose of this study is to broadly understand patients' satisfaction with and attitudes toward receiving telemental health care provided by psychiatrists and other mental health professionals through phone and video calls during the COVID-19 pandemic.

METHODS: Between December 2020 and January 2021, patients receiving mental health care with providers at Northwestern Medicine clinics were invited to participate in a survey. The questionnaire was designed to garner comprehensive feedback for telemental health care specifically, as well as to gauge desire to use it in the future. Study data were collected and managed using REDCap. Survey questions were rated on 5-point Likert scale covering a variety of topics focusing on satisfaction, comfort, and ease of use. Additional questions compared telemental health appointments with in-person appointments in terms of quality of care, satisfaction, and ease of use. Participants were asked about their desire to continue telemental health care in the future.

RESULTS: A total of 602 participants responded to the survey. A majority of participants reported favorable

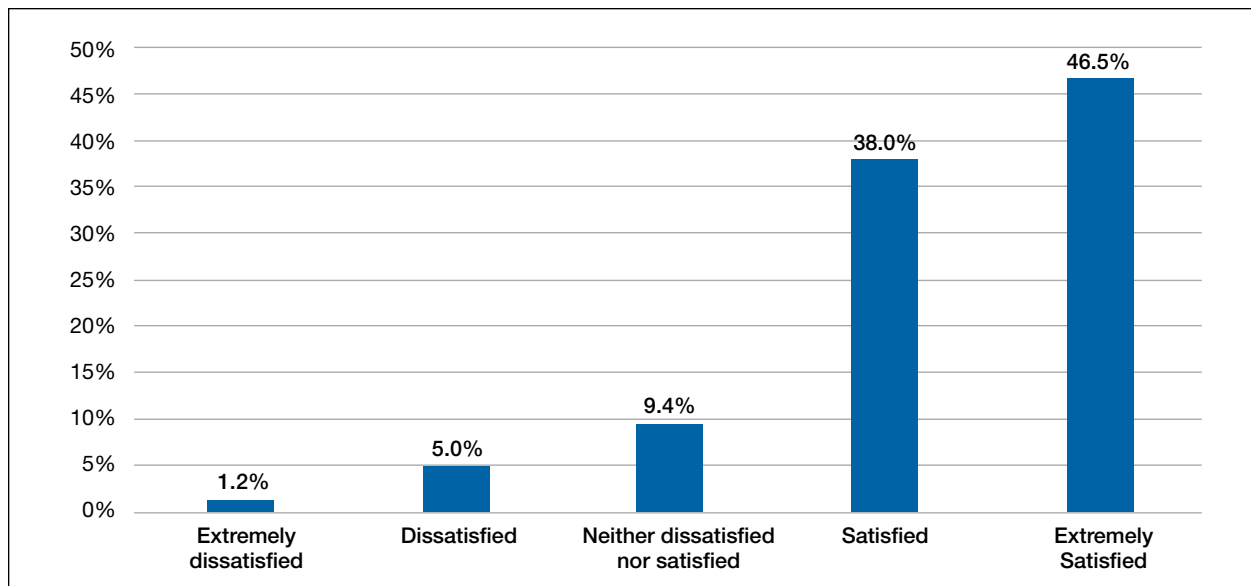


FIGURE 1. Satisfaction With Telehealth (N=598)

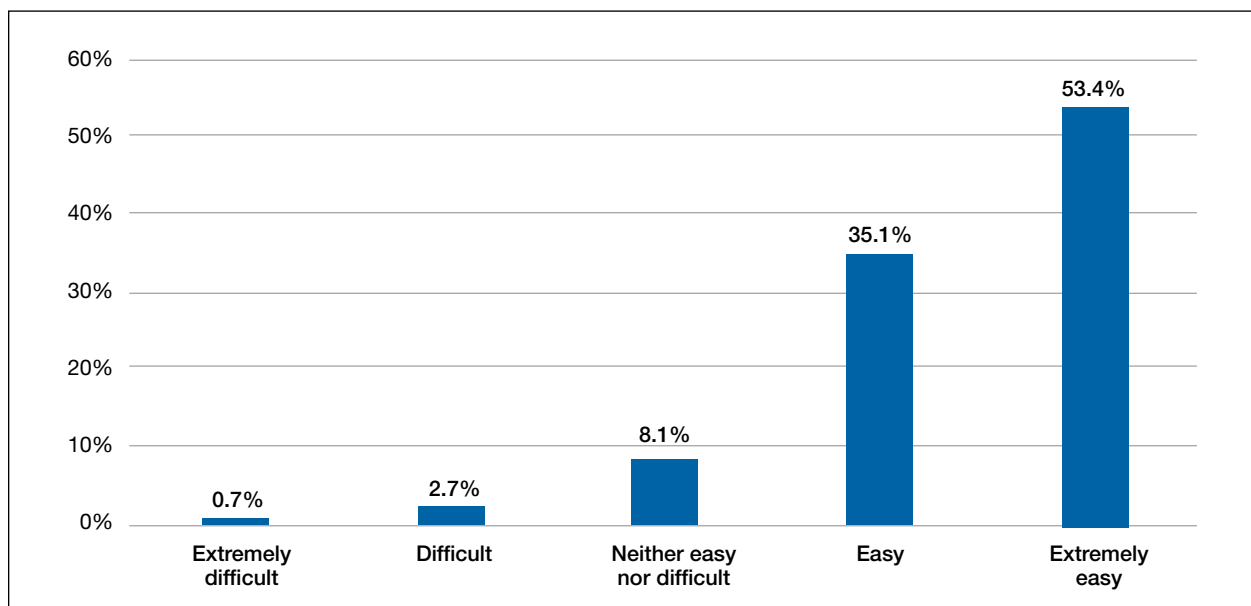


FIGURE 2. Ease of Using Telehealth (N=595)

experiences with telemental health care. 84.4% were satisfied or extremely satisfied ($P < .001$, $d = 1.37$) (**Figure 1**) and ease of using telehealth was rated extremely easy or easy by 88.5% of participants ($P < .001$; $d = 1.72$) (**Figure 2**). A majority felt at ease using a private and quiet space to communicate using telehealth. Perceived benefits of telemental health care were varied and included improved ability to manage work and family obligations. Quality of

care was comparable to in-person visits ($P = .04$, $d = -0.12$). A majority (86.88%) of participants would like to have telemental health offered as an option in the future, even after the pandemic resolves.

CONCLUSIONS: Nearly a year into the pandemic, telehealth for mental health care appears to be well accepted by patients. Satisfaction, comfort, ease of use, and quality of care were all highly

rated. Patients consider telemental health care as a care delivery option with its own distinct benefits. Tangible benefits were identified, such as time and money savings, while intangible benefits included increased flexibility and decreased stress. Consideration should be given to making telehealth an available and accessible mental health care option in the postpandemic future.

ABSTRACT 9

Performance of a Novel Software-Based Autism Spectrum Disorder Diagnostic Device for Use in a Primary Care Setting

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OBJECTIVES: There is currently an average delay of three years between first parental concern and diagnosis of autism spectrum disorder (ASD). Specialist

workforce shortages and lack of diagnostic tools that can be used in primary care settings contribute to this delay and highlight the need for new diagnostic models. This study examined the performance of an artificial intelligence–based device designed to aid primary care physicians (PCPs) in the diagnosis of ASD.

METHODS: This was a prospective, multi-site pivotal study conducted in six states using a double-blind active comparator design with 425 completed subjects (36% female) ages 18-72 months with concern for developmental delay. Previous research developed, tuned, and tested a device that uses a gradient boosted decision tree machine learning algorithm to analyze 64 behavioral features obtained from three distinct inputs: 1) caregiver questionnaire; 2) 2-4 minutes of home videos analyzed by trained video analysts; and 3) PCP questionnaire. Device results were compared with diagnosis by independent agreement of specialist clinicians based on clinical assessment, which included a modified CARS-2 and DSM-5 criteria. Specialists included child psychiatrists, child psychologists, pediatric neurologists, and developmental behavioral pediatricians with experience in diagnosing ASD.

RESULTS: Comparison of the device results with specialist diagnosis found the PPV was 80.8% [95% CI, 70.3%-88.8%], the NPV was 98.3% [90.6%-100%], sensitivity was 98.4% [91.6%-100%], and specificity was 78.9% [67.6%-87.7%] for subjects with determinate device results [32%]. Covariate analysis demonstrated consistent performance of the device across subject's gender, race/ethnicity, income, and education level.

CONCLUSIONS: Using this device in conjunction with clinical assessment, PCPs could efficiently, accurately, and equitably diagnose a subset of children 18-72 months old. This could streamline the need for specialist referral and facilitate earlier ASD diagnosis and ASD-specific interventions. Additionally, the study results provide preliminary evidence of the potential for this diagnostic device to help PCPs address some of the disparities that exist in time to diagnosis for children who are non-White, female, and with lower socio-economic status.

ABSTRACT 10**Telepsychiatry for Assessing and Managing Tardive Dyskinesia: Expert Insights From a Cross-Disciplinary Virtual Treatment Panel**

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BACKGROUND: Virtual medical visits in psychiatry are becoming increasingly useful and will likely continue beyond current societal circumstances. Recognizing and assessing tardive dyskinesia (TD), a persistent and potentially disabling movement disorder associated with antipsychotics and other dopamine receptor blocking agents, is difficult in person and even more challenging in virtual settings. Insights were solicited from an expert panel of six neurologists, three psychiatrists, and three psychiatric nurse practitioners on the diagnosis and treatment of TD in real-world settings.

OBJECTIVES: To understand the benefits, limitations, and best practices of assessing for TD within telepsychiatry visits.

METHODS: In July 2020, the expert panel participated in individual semistructured interviews about how TD is assessed and managed in their practices. In November 2020, a virtual roundtable was conducted to consolidate findings from the individual interviews.

RESULTS: The panel agreed that telepsychiatry offers benefits and opportunities to both patients (for instance, easier access, reduced time/cost) and clinicians (for instance, fewer missed appointments, soliciting partner/caregiver feedback on symptoms and quality of life, ability to assess patients in their own environments). However, the panel also agreed that virtual visits cannot completely replace in-person visits. Given the challenges of differentiating TD from other drug-induced movement disorders, most new patients may initially require an in-person

evaluation. For follow-up, all patients should have an in-office visit at least once a year if possible. The panel agreed that video is preferable and often necessary for telepsychiatry visits; telephone visits alone are not sufficient for assessing TD. Key challenges for telepsychiatry include technology issues, time constraints, absence of a standardized approach, and difficulty observing the patient's whole body for a comprehensive assessment of TD movements. For pre-appointment preparation, suggested best practices include ensuring that patients have adequate access/equipment and educating them on how to set up their environments and videos for optimal assessment. During the appointment, medical history and clinical review can be conducted similarly to in-person visits. For overall assessment of movements, patients can be instructed to walk around with someone else holding a smart phone or computer with camera. For more specific assessments, clinicians can demonstrate the type of movement that they would like the patient to try. If movements are unclear, a follow-up in-person visit may be required.

CONCLUSIONS: Telepsychiatry allows clinicians to ask patients and caregivers about bothersome movements and how these movements affect functional ability and quality of life. Telepsychiatry also presents an opportunity to educate both patients and caregivers about TD, including FDA-approved treatment options (for, valbenazine) that improve patient outcomes.

ABSTRACT 11**Efficacy and Safety of AXS-05, an Oral NMDA Receptor Antagonist With Multimodal Activity, in Major Depressive Disorder: Results From the GEMINI Trial**

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BACKGROUND: Major depressive disorder (MDD) is a debilitating, chronic, biologically based condition. Current oral antidepressants act mainly via monoamine mechanisms and are associated with high rates of inadequate response and suboptimal time to response (Rush AJ et al. *Am J Psychiatry* 2006). There is an urgent need for faster-acting, more effective, and mechanistically novel treatments. AXS-05 (dextromethorphan-bupropion) is a novel, oral, investigational NMDA receptor antagonist with multimodal activity. AXS-05 utilizes a proprietary formulation and dose of dextromethorphan and bupropion, and metabolic inhibition technology, to modulate the delivery of the components. The dextromethorphan component of AXS-05 is an uncompetitive NMDA receptor antagonist and sigma-1 receptor agonist, and the bupropion component serves to increase the bioavailability of dextromethorphan.

OBJECTIVE: To evaluate the efficacy and safety of AXS-05 versus placebo in MDD.

METHODS: GEMINI was a phase 3, randomized, double-blind, placebo-controlled, multicenter, U.S. trial that enrolled subjects with a confirmed diagnosis of moderate-severe MDD. Subjects (N=327) were randomized (1:1) to receive AXS-05 (dextromethorphan 45 mg-bupropion 105 mg) or placebo, twice daily for 6 weeks. The primary efficacy endpoint was the change in the MADRS total score from baseline to week 6.

RESULTS: On the primary endpoint, AXS-05 demonstrated a statistically significant mean reduction from baseline in the MADRS total score of 16.6

points versus 11.9 for placebo ($P = .002$). AXS-05 demonstrated rapid, statistically significant improvement versus placebo on the key secondary endpoint of change from baseline in the MADRS total score at week 1, the earliest time point measured ($P = .007$), and all time points thereafter. Rates of response were statistically significantly greater for AXS-05 versus placebo at week 1 ($P = .035$) and at all time points thereafter, being achieved by 54% of AXS-05 patients versus 34% of placebo patients at week 6 ($P < .001$). Remission rates were statistically significantly greater for AXS-05 versus placebo at week 2 ($P = .013$) and at all time points thereafter, being achieved by 40% of AXS-05 patients versus 17% of placebo patients at week 6 ($P < .001$). Antidepressant effects translated into early and statistically significant improvements in daily functioning and quality of life.

AXS-05 was safe and well tolerated, with the most common adverse events being dizziness, nausea, and headache. AXS-05 was not associated with psychotomimetic effects, weight gain, or increased sexual dysfunction.

CONCLUSION: Treatment with AXS-05 resulted in rapid, substantial, durable, and statistically significant improvements in depressive symptoms across multiple efficacy endpoints versus placebo in patients with MDD. Symptomatic benefits translated into statistically significant improvements in daily functioning and quality of life. AXS-05 was safe and well tolerated.

ABSTRACT 12**Sustained Efficacy With Long-Term Treatment With AXS-05: Results From the COMET Phase 3 Trial, a Long-Term, Open-Label Study Evaluating the Efficacy and Safety of AXS-05 for the Treatment of MDD**

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Herriot Tabuteau

Axsome Therapeutics

BACKGROUND: Major depressive disorder (MDD) is a debilitating, chronic, biological disorder. Current oral antidepressants act mainly via monoamine mechanisms and are associated with high rates of inadequate response and suboptimal time to response (Rush AJ et al. *Am J Psychiatry* 2006). There is an urgent need for novel, faster-acting, more efficacious treatments with durable effects. AXS-05 (45 mg dextromethorphan-105 mg bupropion) is a novel, oral, investigational NMDA receptor antagonist with multimodal activity. The dextromethorphan component of AXS-05 is an uncompetitive NMDA receptor antagonist and sigma-1 receptor agonist, and the bupropion component serves to increase the bioavailability of dextromethorphan. The efficacy of AXS-05 has been demonstrated in two double-blind, randomized, controlled, 6-week studies.

OBJECTIVE: To evaluate the long-term efficacy and safety of AXS-05 in MDD.

METHODS: COMET was a phase 3, open-label trial of AXS-05 in MDD patients treated twice daily for up to 12 months. The study enrolled both de novo (newly enrolled) patients and patients rolling in from prior trials with AXS-05. Here we present the results from the de novo patients. Efficacy outcomes included MADRS total score, remission, response, and functioning.

RESULTS: A total of 611 de novo patients were enrolled. Treatment with AXS-05 resulted in rapid and substantial improvement in depression, demonstrated by mean reductions in the MADRS total score of 9.1 points at week 1, 14.0 points at week 2, and 21.1 points at week 6. Mean MADRS total score

reductions after 6 and 12 months of treatment were 23.9 points and 23.0 points, respectively. Clinical response on the MADRS ($\geq 50\%$ improvement) was achieved by 18.8% of patients at week 1, 39.7% at week 2, and 73.2% at week 6. Clinical response on the MADRS total score after 6 and 12 months of treatment was achieved by 84.6% and 82.8%, respectively. Remission (MADRS ≤ 10) was achieved by 8.3% of patients at week 1, 21.5% at week 2, and 52.5% at week 6. After 6 and 12 months of treatment, remission was achieved by 68.7% and 69.0%, respectively. Clinical response on the SDS (total score of ≤ 12) was achieved by 42.9% of patients at week 1, 55.1% at week 2, and 70.7% at week 6. Clinical response on the SDS after 6 and 12 months of treatment was achieved by 80.6% and 75.9% of patients, respectively.

AXS-05 was well tolerated with a safety profile consistent with that previously reported in controlled studies. The most commonly reported adverse events (AEs) were dizziness, nausea, headache, dry mouth, and decreased appetite, which occurred at rates similar to those observed in controlled trials. Discontinuations due to AEs occurred in 8.4% of patients during the 12-month trial, with no individual AE occurring in more than 1.5% of patients.

CONCLUSION: Patients with MDD treated with AXS-05 experienced rapid, substantial, and durable improvements in depressive symptoms and functional impairment, sustained over 12 months.

ABSTRACT 13**Pharmacology of Valbenazine and Deutetrabenazine: A Narrative Review**

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BACKGROUND: Valbenazine (VBZ) and deutetrabenazine (DTBZ) are vesicular monoamine transporter 2 (VMAT2) inhibitors that are approved for the treatment of tardive dyskinesia (TD). Although these medications are both VMAT2 inhibitors, there are important pharmacologic differences that can have clinical implications.

OBJECTIVES: To provide a narrative review of VBZ and DTBZ pharmacology.

METHODS: A PubMed search was conducted from January 2012 to May 2021 using the search terms: “valbenazine” or “deutetrabenazine”+ “pharmacol*”

or “pharmacokin*.” Per judgment of the authors, articles that presented research findings related to the pharmacology, mechanism of action, metabolism, and/or pharmacokinetics of these medications were included for review. The most current prescribing information for each medication was also used for this narrative review.

RESULTS: A total of 20 articles were included for preliminary review (VBZ, n=5; DTBZ, n=7; both, n=8). Key pharmacologic and pharmacokinetic differences between the medications, including molecular structure, metabolism, half-life, and binding affinity for VMAT2 and other off-target receptors, are presented in **Table 1**. Differences in clinical dosing and other prescribing information are presented in **Table 2**.

CONCLUSIONS: The efficacy and safety of valbenazine and deutetrabenazine in the treatment of TD are well-established; however, there are some important differences in their pharmacologic profiles and prescribing recommendations. Understanding these differences may aid in optimizing TD treatment for individual patients.

TABLE 1. Pharmacologic and Pharmacokinetic Characteristics of Valbenazine and Deutetrabenazine

	Valbenazine	Deutetrabenazine
Molecular structure	Valine ester of [α] HTBZ ¹	Deuterated tetrabenazine (a racemic mixture of two enantiomers) ²
Metabolism	The primary metabolic pathways are hydrolysis of the valine ester to form the active metabolite, [α] HTBZ, and mono-oxidation by CYP3A4 to form NBI-136110 (the major inactive metabolite); [α] HTBZ appears to be further metabolized in part by CYP2D6 ^{1,3,4}	Reduced by carbonyl reductase to 4 active HTBZ stereoisomers: [α], [β], [α], [β], which are metabolized primarily by CYP2D6 ^{2,5}
Half-life	15-22 hours ⁴	9-10 hours ⁵
Pharmacologic binding profile of HTBZ metabolites	[α] HTBZ is the most potent and selective VMAT2 inhibitor of the HTBZ metabolites with negligible off-target receptor affinity ^{1,6}	Although not specifically published for deutetrabenazine, PK studies of tetrabenazine suggest that [β] HTBZ is the major deutetrabenazine metabolite with appreciable effects on VMAT2; the [α], [β], and [β] metabolites have off-target receptor affinity (that is, dopaminergic, serotonergic, and/or adrenergic receptors) ^{1,6}

CYP, cytochrome P450; HTBZ, dihydrotetrabenazine; PK, pharmacokinetic; VMAT2, vesicular monoamine transporter 2

TABLE 2. Prescribing Information for Valbenazine and Deutetrabenazine

	Valbenazine	Deutetrabenazine
Dosing	<ul style="list-style-type: none"> Once-daily dosing Initial dose is 40 mg once daily; after 1 week, increase to recommended dose of 80 mg once daily A dosage of 40 mg or 60 mg once daily may be considered depending on response and tolerability Recommended dose is 40 mg for CYP2D6 poor metabolizers, patients taking strong CYP3A4 or CYP2D6 inhibitors, and patients with moderate or severe hepatic impairment No dosage adjustment required for elderly patients Administer with or without food 	<ul style="list-style-type: none"> Twice-daily dosing Initial dose is 12 mg/day (6 mg twice daily) for TD; increase at weekly intervals in 6 mg increments to maximum total daily dosage of 48 mg Administer total daily doses ≥ 12 mg in 2 divided doses per day Maximum recommended dose is 36 mg (18 mg twice daily) for CYP2D6 poor metabolizers or patients receiving strong CYP2D6 inhibitors In general, dose selection for elderly patients should be cautious, usually starting at the low end of dosing range, reflecting the greater frequency of hepatic, renal, and cardiac dysfunction, and of concomitant disease or other drug therapy^a Administer with food Swallow tablets whole (do not chew, crush, or break tablets)
Contraindications/warnings	<ul style="list-style-type: none"> Do not use in patients with known hypersensitivity to valbenazine Do not use in patients taking MAOIs or strong CYP3A4 inducers Somnolence (may impair ability to drive/operate complex machinery) QT prolongation Parkinsonism 	<ul style="list-style-type: none"> Do not use in patients with Huntington disease who have active suicidal thoughts or untreated depression Do not use in patients with hepatic impairment or who are taking MAOIs, reserpine, or other VMAT2 inhibitors Neuroleptic malignant syndrome Akathisia, agitation, restlessness Hyperprolactinemia Somnolence (may impair ability to drive/operate complex machinery) QT prolongation Parkinsonism Binding to melanin-containing tissues

^aClinical studies of deutetrabenazine did not include sufficient numbers of subjects aged ≥ 65 years. Other reported clinical experience has not identified differences in responses between the elderly and younger patients.
CYP, cytochrome P450; MAOI, monoamine oxidase inhibitor; TD, tardive dyskinesia; VMAT2, vesicular monoamine transporter 2.

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ABSTRACT 14**Case of T4 Deficiency and Elevated Total T3 With Normal TSH With Symptoms of Severe Hypothyroidism in a 54-Year-Old Woman With Liothyronine Treatment Alone Often Prescribed as Treatment for Depression**

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BACKGROUND: Treatment-resistant depression is defined as depression that is unresponsive to trials of two or more antidepressants with different mechanisms of action for adequate duration (McIntyre et al. *J Affect Disord.* 2014).¹ Current guidelines suggest augmentation of antidepressants for individuals with treatment-resistant unipolar depression (Lam RW et al. *J Affect Disord.* 2009).^{2,3} Thyroid hormone triiodothyronine (T3 or liothyronine) is one of the several augmenting agents. T3 causes changes in sensitivity and transcription of serotonin (5-HT) receptors and possibly a net increase in serotonin signaling (Newman ME et al. *J Neuropsychopharmacol.* 2000).⁴ Patients with treatment-dependent depression are routinely prescribed liothyronine. We present our case of a 54-year-old woman who was treated with liothyronine alone who presented with severe symptoms of hypothyroidism and T4 deficiency. We emphasize the importance of close follow-up in such patients taking high-dose liothyronine (T3) alone for treatment of depression and need for combination therapy (T4+T3) in patients with hypothyroidism.

OBJECTIVE: Learn about the short term and long-term consequences of T3 treatment alone.

CASE: A 54-year-old woman was referred to the endocrinology service by her primary care physician for management of hypothyroidism. She was initially diagnosed with hypothyroidism secondary

to Hashimoto's thyroiditis at age 29. She took levothyroxine and armor thyroid until about 11 years ago, when her thyroid hormone treatment was switched to liothyronine 25 mcg, once a day. She complained of multiple symptoms of thyroid disease, including fatigue, weight gain, heat and cold intolerance, irregular heartbeat, and orthopnea. She was also experiencing anxiety, muscle aches, and weakness. Her recent labs showed a normal serum TSH of 1.41mIU/L, and a low total T4 of 2.4 mcg/dl (4.5-11.7 mcg/dl), and an elevated T3 of 305 ng/dl (80-210 ng/dl). The elevated total T3 is attributed to the high dose of T3, considering the kinetics and effects on biochemical and physiologic parameters of T3 administration. (Jonklaas J et al. *Ther Drug Monit.* 2015).⁵ Serum TSH is in the normal range with daily T3 therapy. Her symptoms of hypothyroidism were attributed to sustained supply of thyroid hormone throughout the day. We started on levothyroxine 50 mcg by mouth daily and reduced her liothyronine dose to 5 mcg by mouth daily, which is a better physiological replacement of thyroid hormone. Her symptoms are expected to improve with normalization of T3 and T4 levels. This case also highlights the importance of checking thyroid hormone levels with TSH in patients with persistent symptoms of thyroid disease.

DISCUSSION: The thyroid gland produces the thyroid hormones. The production rate of T4 is 80 to 100 mcg per day (Engler D et al. *Endocr Rev.* 1984).⁶ The extrathyroidal pool of T4 contains 800 to 1,000 mcg, most of which is extracellular. T3 is formed by deiodination of T4 in the peripheral tissue. TSH secretion is inhibited by very small increases in serum T4 and T3 concentrations, and it increases in response to very small decreases in serum T4 and T3 concentrations. In this patient, the daily higher-than-physiologic dose of liothyronine normalized her TSH levels, despite having a low total T4. Liothyronine (T3) peaks at 2.5 hours and has a short half-life in comparison with T4, which has a half-life of 4-7 days. Our patient has supra-physiologic level of T3 every morning for a few hours while she has low levels of available T4 throughout the day, which explains the ongoing symptoms she is experiencing. This is further supported by her labs demonstrating a normal TSH, low total T4, and an

isolated elevation of T3. This case demonstrates the ill effects of continued T3 replacement without T4. It highlights the importance of follow-up in patients taking supraphysiologic dose of liothyronine for depression. It also demonstrates that doing a serum TSH level alone may not be enough, as her serum TSH level is normal despite the low total T4 levels and the ongoing symptoms.

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ABSTRACT 15

Increased Knowledge of Non-Stimulant Clinical Data and Mechanisms Accompanied by Increased Confidence of Therapeutic Selection for ADHD Among Psychiatrists Following Participation in an Online Medical Education Program

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INTRODUCTION: Attention deficit/hyperactivity disorder (ADHD) is associated with difficulty focusing, paying attention, and controlling behavior. As a result, patients with ADHD can experience substantial impairments in academic, vocational, social,

and interpersonal functioning. Although stimulant medications control ADHD symptoms in most patients, some will not have an adequate response or will suffer from intolerable adverse effects. In these patients or those where substance abuse is a concern, nonstimulant ADHD medications can be considered. Previous data have indicated that psychiatrists lack knowledge and confidence regarding the use of nonstimulant medications in ADHD. A study was undertaken to evaluate the effectiveness of an online educational intervention to improve knowledge and confidence among psychiatrists regarding both the mechanism of action and clinical trial outcomes relating to the use of nonstimulant therapies for the management of ADHD.

METHODS: The online continuing medical education (CME) activity consisted of a 30-minute video discussion among three ADHD experts. Educational effect was assessed by comparing a matched sample of neurologists' responses to four identical questions presented before and after exposure with the intervention. A paired samples t-test for overall and McNemar's test at the question level (5% significance level, $P < .05$) assessed statistical significance. Cohen's d was used to calculate the effect size of the education. Data were collected between January 26, 2021, and April 14, 2021.

RESULTS: Participation in the CME intervention improved knowledge as indicated by a moderate educational effect size among psychiatrists ($n=2288$; $d=.087$). The following areas showed significant ($P < .05$) pre- vs. posteducational improvements: identification of the nonstimulant medication studied in adult patients with ADHD (178% relative pre- vs. posteducation improvement), identification of the nonstimulant ADHD medication that has function at the norepinephrine and serotonin receptors but not dopamine receptors (62% relative pre- vs. posteducation improvement), and the identification of the nonstimulant ADHD medication that is a serotonin, norepinephrine, and dopamine reuptake inhibitor (34% relative pre- vs. posteducation improvement). After participation, 36% of psychiatrists had a measurable increase in their confidence in their ability to appropriately tailor medications for the patients with ADHD and comorbidities.

CONCLUSIONS: The CME-certified video discussion among physician experts was effective at improving knowledge of the mechanisms of action of nonstimulant medications and related clinical trial outcomes in patients with ADHD. Given the substantial positive educational response to this program, future education should continue to address the scientific and clinical aspects of nonstimulant medications for the management of ADHD.

ABSTRACT 16

Adverse Childhood Experiences and Impact on Sleep in Adults: A Systematic Review

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KEYWORDS: adverse childhood experiences, sleep, adults

BACKGROUND: Adverse childhood experiences (ACEs) such as emotional, physical, or sexual abuse, neglect, or other forms of household dysfunction experienced before age 18 years are pervasive and noteworthy public health concerns (Chapman DP et al. *J Affect Disord.* 2004). The national survey of Children's Exposure to Violence found that 13.7% of children had experienced maltreatment, 8.0% had experienced emotional abuse, and 3.7% had experienced physical abuse in the year before the survey (Finkelhor D et al. *JAMA Pediatr.* 2013). ACEs are

associated with an increased risk of psychiatric disorders, such as substance misuse and abuse, depression, anxiety, suicide ideation, suicide attempts, and sleep disturbances in later life (Kajepeta S et al. *Sleep Med.* 2015; Dong M et al. *Child Abuse Negl.* 2004).

OBJECTIVE: In this study, we conduct a systematic review to explore the effects of ACEs on sleep in adulthood.

METHODS: Using Medical Subject Headings (MeSH) keywords, we searched MEDLINE, PubMed, PubMed Central (PMC), the American Psychological Association (APA) PsycArticles, and PsychInfo databases to evaluate the association between ACE and sleep disturbance in adults.

RESULTS: The final search result yielded 62 articles relevant to our study objective, which met our inclusion criteria and were included in our study. ACEs increased the odds of developing chronic short sleep duration, that is, <6 hours of sleep per night compared with optimal sleep duration of 7-9 hours per night during adulthood. The ACEs affected sleep in a time-dependent and dose-response nature (Sullivan K et al. *Sleep* 2019). Childhood trauma has lasting detrimental consequences on an individual's emotional and physical health, sleep quality, and stress reactivity (Beilharz J E et al. *Aust N Z J of Psychiatry.* 2020). In addition, traumatic childhood experiences are positively associated with poor sleep characteristics such as short sleep duration and long-term sleep onset latency (Gaston S A et al. *Int J Beh Med.* 2020). Individuals with higher cumulative ACEs were significantly found to have higher odds of reporting sleep disturbances (Dorji N et al. *Public Health* 2020).

CONCLUSION: The collective evidence from this review showed that ACE could lead to sleep disturbance later in adult life. Clinicians should pay close attention to developmental trauma care, access community health programs, and help develop better coping skills, resiliency, and good sleep habits in their patients.

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ABSTRACT 17

Aggressive Behavior in Children and Parenting Styles – A Cross-Sectional Study

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BACKGROUND: Parenting styles have a significant role in behavioral development in children. Based on parental warmth and parental control, four different styles of parenting have been identified: authoritarian (strictness without warmth), authoritative (warmth and strictness), permissive (warmth without strictness), and uninvolved (neither warmth nor strictness) (Maccoby, Martin et al. Handbook of child psychology, 1983).

OBJECTIVES: The objective of our study was to assess a relationship between different styles of parenting and aggressive behavior of children, level of aggression, and gender differences.

METHODS: The research design was descriptive and explorative. The data were collected from two schools, International School and Muslim High School, Multan. The sample consisted of 100 children and 100 adolescents (50% males and 50% females) ranging between 6 and 19 years of age. Two instruments were used for the purpose of data collection in the study: the Parental Authority Questionnaire (PAQ) (Buri et al. Journal of Personality Assessment, 1991); and the Aggression Scale (AS) (Orpinas, Frankowski et al. The Journal of Early Adolescence, 2001). The statistical methods used for the analysis of the current study were chi-square test and z-test.

RESULTS: The permissive ($\chi^2=44.984$, $P = .007$) and authoritarian ($\chi^2=38.507$, $P = .031$) parenting style were significantly related to aggression in the children. In adolescents, only permissive parenting style was significantly related to aggression ($\chi^2=37.988$, $P = .035$). The level of aggression was higher among children ($z=-1.49$, $P = .932$) versus adolescents. The level of aggression was higher among boys ($z=0.236$, $P = .0089$) as compared with girls.

CONCLUSION: Our study shows that different parenting styles have a direct impact on aggression in children and adolescents. Parents should adopt a pleasant strategy that maintains a balance of regular supervision, discipline, and affection in order to give their child a steady, relaxed residence and healthy lifestyles throughout the period of childhood.

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ABSTRACT 18**Assessing Cardiac QTc Interval Risk in Hospitalized Psychiatric Patients**

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BACKGROUND: In the United States, the rate of sudden cardiac death in the psychiatric population is 2.25 times higher compared with the general population (Murray-Thomas T et al. *Cardiovas Psychiatry Neurol* 2013). This is likely caused by the effects of psychotropics on the cardiovascular system, the most concerning being ventricular tachyarrhythmias – for example, torsade de pointes (TdP) (Fadi T et al. *Cardiology Research and Practice* 2014). A QTc interval ≥ 500 msec carries a substantially higher risk of developing TdP (Abdelmawla N et al. *Adv Psychiatr Treat* 2006). The American Heart Association recommends monitoring QTc before initiating psychotropic medication to reduce the risk of adverse cardiac events (Drew B et al. *Circulation* 2010).

OBJECTIVES: This retrospective analysis studied modifiable and nonmodifiable risk factors affecting QTc and determined electrocardiogram (ECG) compliance rates at a behavioral health hospital.

METHODS: Retrospective cohort analyses were conducted in a behavioral health hospital from 2016 to 2019 to determine compliance rates and by comparing adult patients, ages 18-90+, with normal EKGs and patients whose baseline QTc was ≥ 500 msec. 4,383 patients were included in the dataset. Logistical regression analyses were used to predict

the association between QTc ≥ 500 msec and clinical and demographic variables.

RESULTS: The patients with the highest risk factors for adverse cardiac events were older patients and patients diagnosed with cardiovascular disease, hepatic disease, chronic kidney disease, and pacemakers. Patients with cardiovascular diagnosis (dx) were 1.45-2.52 times more likely to experience a severe QTc as opposed to those without a cardiovascular dx, patients with hepatic disease dx were 1.45-3.88 times more likely to experience a severe QTc as opposed to those without a hepatic disease dx, and patients with a pacemaker were 1.36-3.28 times more likely to experience a severe QTc as opposed to those without a pacemaker. Additionally, compliance rates with current practice guidelines for obtaining ECGs and reporting QTc intervals in the behavioral health hospital are high, 94% of patients received an ECG during hospitalization.

CONCLUSIONS: All patients admitted to a behavioral health hospital should receive a baseline ECG prior to the initiation of psychotropic agents. Also, our findings recommend close monitoring of hospitalized psychiatric patients who are of advanced age, have a pacemaker, suffer from cardiovascular disease, chronic kidney disease, and/or hepatic disease because of higher risk of QTc interval prolongation and consequent fatal ventricular arrhythmias or sudden cardiac death.

ABSTRACT 19**Improving Appointment Adherence in a Rural Outpatient Mental Health Clinic: An Analysis of Successful Strategies in Reducing No-Show Rates**

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ABSTRACT: There have been multiple studies of the reasons for no-show rates in all medical specialties, which have yielded a range from 20% to 70% of no-shows for patients, especially those who receive Medicaid or are located in rural regions. While there are many established treatment barriers, our clinic found that a lack of transportation and social support contributed most to decreasing patient appointment adherence. This poster explores a rural outpatient mental health clinic which has improved treatment adherence with its unique model and utilization of a Psychiatric Rehabilitation Program (PRP). We reviewed patient demographics, social history, and enrollment in PRP along with their symptom severity in DSM V cross-cutting measures and compared the data with missed or cancelled appointments. We found that at least 68% of patients with severe mental illness in a largely Medicaid population with limited education, transportation, finances, and social supports adhered to their appointments because of PRP assistance. The availability of a PRP program in a rural clinic has a major positive impact on treatment adherence and mental health outcomes. This program should be used in conjunction with other biopsychosocial strategies to boost appointment adherence, which in turn results in lower hospitalization rates, increased ability to carry out IADLs, improving quality of life, and decreasing morbidity and mortality.

KEYWORDS: Treatment adherence, community mental health, psychiatric rehabilitation program

ABSTRACT 20**Forced Normalization— A Literature Review**

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OBJECTIVES: 1) To understand the concept and diagnostic criteria of Forced Normalization; 2) To understand how it is different from other psychiatric manifestations of epilepsy.

METHOD: Review of literature using different search engines – Google scholar, Pubmed, Elsevier, Dynamed. The search was narrowed from 1999–2021 and included articles focusing on Forced Normalization. We also used the references listed in these publications to read the landmark studies. This review includes a basic understanding of the rare phenomenon. A total of 13 studies were reviewed.

The link between epilepsy and psychosis has been extensively studied. It is interesting to understand the antagonistic relationship between the two. On one end of the spectrum, ECT induces seizures in order to treat treatment-resistant schizophrenia, while on the other end, patients with epilepsy have an eightfold increased risk of psychosis.⁶ Psychosis of epilepsy (ictal vs postictal vs forced normalization) has intrigued many neurologists and psychiatrists. In this review, we studied the concept of Forced Normalization which has been described as the onset of psychotic or mood symptoms after the resolution of seizures (or remission of >50% of seizures) as evidenced by normal EEG. It was first described in the 1950s and has been extensively studied in the 19th century. The age of onset in the cases has been seen as early as 8 years of age to 71 years of age (mean of 28.3). The exact mechanism is still unknown. However, different factors have been linked to this phenomenon like kindling, neurotransmitter, and so on. The concept of Forced Normalization is often confused with post-ictal psychosis or possible side effects of anticonvulsant medications. In this literature review, we attempt to summarize the phenomenon, suggested diagnostic criteria, and distinguishing features between different clinical entities linked with epilepsy.

RESULTS: Forced normalization is a rare entity partially because it is hard to diagnose and because of possible overlap with other clinical entities like post-ictal or as a side effect of AED. The prognosis seems to be favorable depending on the trigger for the symptoms, that is, resolution of seizures was achieved by surgery vs. AED, where AED had better prognosis. When seeing the resolution, mood disorders had worse prognosis than dissociation and psychosis. There is a need for more clinical evidence and more research to gain better understanding and to aid in better clinical care.

ALTERNATIVES/KEY WORDS: Forced Normalization, alternative psychosis, convulsions, epilepsy, ictal, post-ictal psychosis, case report, case series, psychosis of epilepsy.

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ABSTRACT 21

Insight and Its Relationship with Depressive Symptoms and Functionality in Patients with Schizophrenia on Clozapine Treatment

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BACKGROUND: Our study was aimed to contribute to clinical practice and the literature by examining insight and factors related to it in patients on

clozapine treatment and giving suggestions in line with the findings.

MATERIALS AND METHODS: Correlations between insight and its subscales, and sociodemographic variables were examined in 54 patients with schizophrenia who had applied to outpatient clinics between December 2019 and February 2020 and have been on clozapine treatment for at least the last 6 months. Insight levels of patients were evaluated cross-sectionally with "Schedule for Assessing the Three Components of Insight," functionality levels with "Global Assessment of Functioning," and depressive symptoms with "Calgary Depression Scale for Schizophrenia."

RESULTS: Insight and depression symptoms were found to be milder in female patients with schizophrenia on clozapine when compared with male patients with schizophrenia. A positive correlation was found to exist between age and treatment compliance subscale in patients with schizophrenia on clozapine. While depressive symptoms worsen as the scores obtained from recognition of having a mental illness subscale of insight increases, no relationship was found between the treatment compliance subscale and depressive symptoms.

CONCLUSION: A positive correlation was found between insight and depressive symptoms in patients on clozapine. While the treatment compliance subscale of insight was not found to be in correlation with depressive symptoms, it was found to be in a positive correlation with functionality. Thanks to these advantages, the treatment compliance subscale can guide clinicians in terms of interventions related to insight.

KEYWORDS: Schizophrenia, clozapine, insight, functionality, depressive symptoms

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ABSTRACT 22**A Qualitative Study of Psychological Impact on Mothers of Children With COVID-19 in Hospital Setting**

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BACKGROUND: Hospitalization of children leads to physical and emotional exhaustion for the parents (Dudley SK et al. Journal of Pediatric Nursing 2004).

OBJECTIVE: This study investigates the psychological impact of COVID-19-related children's hospitalization on mothers and the various sources from which psychological distress stem during hospital stay (Cluver L et al. Lancet 2020) (Wang G et al. Lancet 2020).

METHOD: This is qualitative research. Following informed consent and purposive sampling technique, demographic details of both child and mother were collected. In-depth semistructured telephonic interviews were conducted (until the point of data

Psychological impact on mothers

- Stress and anxiety
- Irritability and anger
- Dental
- Fear of death
- Fear of infection of other family members
- Bereavement reaction
- Self guilt / blame

Sources of distress for others

- Problems being faced in hospital
- Inability to communicate with family
- Separate admission of family members to different facilities
- Mistrust / infodemic
- Worry about child's physical health and emotional and behavioral reactions
- Concerns about children at home / home responsibilities
- Social stigma and rejection

FIGURE: Main Themes and Subthemes Extracted From Interviews With Mothers During Hospital Stay With Children

saturation) with 24 mothers of COVID-19-positive children admitted at Mayo Hospital Lahore. Thematic analysis was done to explore the psychological distress experienced by mothers.

RESULTS: The 24 mothers were interviewed with mean age of 33.96 ± 5.6 . A total of 3 mothers had lost a family member to COVID-19. Worry ($n=8$, 25%), sleep difficulties ($n=8$, 25%), and irritability ($n=7$, 21.9%) were the common behavioral and emotional changes noticed by mothers in their children since hospitalization. Psychological impact on mothers included stress and anxiety, irritability, grief, and fear of death and infecting others. Problems experienced during hospital stay, worry about admitted child physical and emotional health, family members' admissions in different hospitals, care provision for children left at home, infodemic, and stigma and social rejection were the most commonly identified sources of worry among the participants.

CONCLUSION: Mothers staying in hospital with their children having COVID-19 illness experience many psychosocial consequences; thus, psychological support should be provided to safeguard their well-being (Thompson RR et al. Clinical Psychological Science). Knowledge generated from this study as well as precedent set from previous pandemics enhance the ability of health care providers to provide care that is congruent with the needs of admitted mothers and children.

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TABLE 1: Demographic Characteristics of Mothers (N=24)

Characteristics	No. (%)
Number of Days Since Admission to Hospital	
Mean (SD)	6.88 (3.3)
COVID-19 Test Result	
Positive	19 (79.2)
Awaiting Result	5 (20.8)
Any Other Family Member Also Suffering From COVID-19	
Yes	19 (79.2)
No	5 (20.8)
Death of Close Family Member Due to COVID-19	
Yes	3 (12.5)
No	21 (87.5)
Age	
Mean (SD)	33.96 (5.6)
Occupation	
Housewife	14 (58.3)
Unskilled worker	4 (16.6)
Skilled worker	6 (25)
Education	
Illiterate	1 (4.2)
Up to grade 5	3 (12.5)
Up to matric	11 (45.8)
Graduation	3 (12.5)
Professional degree	6 (25)
Area	
Urban	22 (91.7)
Rural	2 (8.3)
Travel History	
Yes	0 (0)
No	24 (100)
History of Contact With COVID-19 Patient	
Yes	14 (58.3)
No	10 (41.7)
History of Any Previous Medical Illness	
Yes	5 (20.8)
No	19 (79.2)
History of Any Previous Psychiatric Illness	
Yes	2 (8.3)
No	22 (91.7)

ABSTRACT 23**Making a Case for Equal Opportunity and Right of Representation for Transgender Individuals**

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BACKGROUND: Transgender is a term used to describe individuals whose gender identity does not match their assigned sex at birth. The distress or discomfort that may occur when a person's biological sex and gender identity are not aligned is termed Gender Dysphoria. "Biological sex" refers to the reproductive organs, "gender identity" to the inner sense of being a "man" or a "woman", and "gender presentation" to how an individual expresses gender on a "feminine" to "masculine" scale (Atkinson SR et al. Aust Fam Physician. 2015). Symptoms of gender dysphoria manifest at different developmental stages, but following the development of secondary sexual characteristics they become more debilitating (American Psychiatry Association. DSM-5). Gender minorities have become increasingly visible and there are rising concerns regarding the health and welfare of these groups. Transgender individuals are more likely to have mental health issues ranging from anxiety and depression to self-harm and suicidal ideation as compared with cisgender individuals. Stigmatization and discrimination against transgender individuals are important factors in increased risk for morbidity and mortality in this vulnerable minority. We refer to the growing body of evidence showing improved health care and wellbeing of transgender individuals with system improvements with appropriate endocrine treatment and surgical reassignment.

CASE: A 33-year-old transwoman from Pakistan reached out to the endocrinology team for guidance and assistance with legal and societal issues that she

has been facing while applying for a job in her home country. She is fighting against the established education and employment system, which is largely biased to gender binarism and is failing to provide equal opportunities to the sexual minorities such as transgender individuals. Unlike other individuals in her situation, she became successful in overcoming obstacles in attaining higher education, with a masters of philosophy degree in Urdu literature. While filling out paperwork for the competitive exam to attain a lectureship position, she noticed only two choices provided for gender selection, either male or female. Not relating with either of the choices, she appealed to the high court for additional options to be provided for the sexual minorities and her right for representation. The court initially upheld her rights but she is now being challenged by the Islamic council in the country. She is seeking not only for her right to be identified as her preferred gender but also an equal representation in work force and education as a transwoman with creation of special quota assigned to nonbinary population.

She was born as a normal biological male child, grew normally, and received all required vaccinations. She can recall her thoughts that her physical appearance did not align with her gender identity. Upon expressing these feelings, she was ridiculed and ostracized by immediate family members and friends. She was forced to adapt to the societal gender norms which led to an identity crisis with an adjustment disorder. She consequently left her family to join the Hijra community (a group of individuals that do not fit in the gender binary system), as most of the nonbinary people in her country end up doing for survival and support.

DISCUSSION: Transgender individuals face enormous health care disparities with higher prevalence of psychiatric problems such as anxiety and depression. They also have higher prevalence of medical problems because of the lack of availability of primary medical care. Transgender people bear the economic consequences of discrimination, including high rates of poverty and unemployment, discrimination in education, and homelessness. Transgender individuals experience higher rates of physical and sexual violence. Prepubescent transgender children have shown comparable rates of depression and

only slightly elevated rates of anxiety symptoms compared with the general population. (Olson KR et al. Paediatrics 2016). Transgender individuals have various other health needs such as hormonal therapies and gender reassigning surgeries. We stress the importance of improving health care systems and delivery to the transgender population to alleviate morbidity and mortality in this vulnerable population.

ABSTRACT 24

Substance Use Disorders Among Homeless Patients: Age-Gender Matched Study

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BACKGROUND: Studies have shown that there is a high prevalence of substance use disorders (SUD) among the homeless population (Fisher et al. 1991). However, there are no studies conducted for the prevalence of substance use disorders among the hospitalized homeless population from the large dataset and compared with age-gender matched housed population.

OBJECTIVES: Our objective was to compare the prevalence of SUD between homeless and housed population.

METHODS: Age and gender-matching (1:1) was performed between the adult (age ≥ 18) U.S. homeless patients admitted to the hospital with housed individuals using the propensity score matching technique. We used the nationwide inpatient sample (NIS) dataset (2016-2017) for the study (<https://www.hcup-us.ahrq.gov/>). Groups were compared

for the overall as well as specific substance use disorders.

RESULTS: A total of 614,390 (average age: 46.1 years and 71.9% male) homeless patients were included and matched with the same number of age-gender matched housed population. The prevalence of SUD was significantly high in the homeless population (73.3% vs. 31.0%, $P < .001$) compared with the housed population. After controlling for age, gender, race, and psychiatric comorbidities, odds of having SUDs were 5.35 times higher in the homeless population (odds ratio: 5.35, 95% confidence interval: 5.22-5.49). When stratified for specific substance types, prevalence of cannabis use disorder was 18.6% (vs. 5.8%, $P < .001$), and prevalence of cocaine use disorder was 15.7% (vs. 2.7%, $P < .001$). There was also a high prevalence of opioid use disorder (15.5% vs. 4.5%, $P < .001$) and nicotine use disorder (55.3% vs. 24.5%, $P < .001$).

CONCLUSIONS: All the substance use disorders were significantly high among homeless individuals. The treatment challenges faced in treating and preventing substance use disorders among the homeless population needs to be studied further.

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ABSTRACT 25**Beating All Odds: A Rare Presentation of Edwards Syndrome (Trisomy 18)**

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INTRODUCTION: Trisomy 18 syndrome (also called Edwards syndrome) is the second most common trisomy detected in live births, manifesting about once in 5,000 live births. Edwards syndrome is associated with a wide range of body abnormalities, leading to a very poor prognosis, with only 5-10% of children with the condition surviving past their first birthday. Even with survival there is severe, lifelong intellectual disability. In this case report we present a 24-year-old African American male with Edwards syndrome who not only beat the odds of being in the 5-10% surviving past his first birthday, but also has celebrated his 24th birthday in the last months of 2018.

CASE: The patient was seen as psychiatric consultation for agitation and aggressive behavior. Upon initial survey, the patient was met squatting on the floor, and soon started pacing around the hallway soon after. He was breathing heavily, drooling, making repeated hand wringing motions, and holding his hands up to his ears. Physical findings include microcephaly, hypertonia, prominent occiput, flexed fingers, with the index finger overlapping the third finger and the fifth finger overlapping the fourth. Cognitive and behavioral findings include mental retardation, developmental delay, mood disorder, and agitation. The patient is dependent in all activities of daily living and eats a puree diet supplemented with Ensure pudding. The patient is completely nonverbal and noncognizant, with safety and aspiration precautions.

TREATMENT PLAN: The current medication treatment plan is to continue quetiapine, 125 mg by mouth QAM and 300 mg by mouth QHS, olanzapine 2.5 mg by mouth PRN Q8H (agitation), docusate sodium, ergocalciferol, magnesium oxide (impulse control), and pyridoxine (impulse control). Music

therapy, art therapy, and one-one visits were recommended to promote overall development and awareness.

DISCUSSION: The patient in question shares many of the physical characteristics commonly found in those diagnosed with trisomy 18. However, it remains to be seen if the patient will also develop many of the complications common to those affected by the condition. No treatment exists for the chromosomal abnormality, and management is usually directed at improving the patient's disposition and cognitive performance, and maximizing the patient's ability to function. Medical therapy is targeted toward symptoms and improving quality of life. The most well-known, longest recorded survival time of a patient with Edwards Syndrome was in Elaine Fagan, who passed away at age 25. Like her, the patient in this case has reached an age that less than 1% of newborns diagnosed with Edward's Syndrome will.

ABSTRACT 26**Psychiatric Illnesses in Adult Women With Elective Abortion History: An Insight into the U.S. National Inpatient Data**

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BACKGROUND: Abortion is one of the most common obstetric surgical procedures among women in the United States (Biggs MA et al. Am J Public Health 2015). Per the U.S. Centers for Disease Control and Prevention, approximately 18% of all pregnancies end in abortion (Kortsmit K et al. MMWR Surveill Summ, 2020). The most frequently cited reasons for having abortions are interference with school or career, unreadiness, financial difficulties, single motherhood, and relationship problems (Chae S et al. Contraception 2017). Abortion is a difficult

decision that may cause some women to experience varying levels of emotional distress (Reardon DC, SAGE Open Medicine 2018).

OBJECTIVE: We studied the prevalence and association of psychiatric comorbidities and SUDs in women who had an elective abortion compared with uncomplicated full-term delivery in the U.S.

METHODS: We used data for the years 2016-2018 from the NIS database. Study population was divided into two groups. The first group consisted of patients who had an elective abortion (Group 1), and the second group consisted of patients who had an uncomplicated full-term delivery (Group 2). We assessed the association between elective termination of pregnancy and psychiatric comorbidities using univariate and multivariate logistic regression methods. Intergroup comparisons were also made for various socioeconomic and demographic characteristics using complex survey analysis techniques, independent sample t-test, and Rao-adjusted Chi-Square test.

RESULTS: Patients in Group 1 (elective abortions) had 13.2 times higher odds of having a psychiatric illness (OR: 13.2, 95% CI: 9.18-18.90, $P < 0.001$). Prevalence of SUD too was higher in this group (10.2% vs. 0.6%). The Group 1 cohort with patients having an elective abortion more often consisted of patients who were older (mean 29.6 vs. 27.4 yrs.), Hispanic (21.6% vs. 15.5%), more likely to be from either the west or northeast region (52.7% vs. 36.6%), more likely to visit a government hospital (25.9% vs. 12.1%), and with private insurance (46.8% vs. 41.5%), as compared with the Group 2 cohort of patients having an uncomplicated full-term delivery.

CONCLUSION: In summary, our estimates are based on the sizeable national-level data, which provided strong population-based statistics on the demographic and clinical characteristics of patients who had elective abortions and uncomplicated deliveries in the United States between 2016 and 2018. We found higher overall odds of psychiatric and substance use disorders among women who had elective abortions.

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ABSTRACT 27

Stellate Ganglion Nerve Blockade in Veterans With Post-Traumatic Stress Disorder – A Systematic Review of Randomized Control Trials

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BACKGROUND: Post-traumatic stress disorder (PTSD) is a mental health condition occurring in individuals who have experienced/witnessed trauma, with a prevalence of 35% among veterans (Xue C et al. *PLoS one* 2015) as compared with 3.5% in the general population (Kessler RC et al. *Archives of General Psychiatry* 2005). Commonly used treatment options for PTSD are psychotropic medications and behavioral therapy. Stellate ganglion block (SGB) is an outpatient procedure using a local anesthetic to block the cervical sympathetic chain. Recent studies have shown a promising effect of SGB as an adjunctive treatment in patients with PTSD.

OBJECTIVE: Our aim was to review the randomized controlled trials (RCTs) that used SGB for PTSD treatment in veterans and describe the short- and long-term efficacy of SGB.

METHODS: Studies were included if they were: 1) RCTs published between 2010 and the present, and 2) assessed efficacy of SGB in the veteran population with PTSD. The scales used were 1) Clinician-Administered PTSD Scale for DSM-5 (CAPS-5), and 2) Clinician-Administered PTSD Scale (CAPS). An improvement in these scores was used as a measure of effective treatment. Using four electronic databases, we identified 23 original studies. After deleting duplicates, 21 unique studies were identified and 2 RCTs were included in the final review. We extracted data for study demographics and efficacy outcomes.

RESULTS: Overall, 168 (males=134, females=21) participants were enrolled in the trials, with mean number of treatments=2 and mean follow-up time=10 weeks. In trial one, (n=108, mean age=37.3 years SD=6.7, males=100) CAPS-5 scores dropped by 12.6 points in the SGB group (95% CI, -15.5 to -9.7 points) versus 6.1 points (95% CI, -9.8 to -2.3 points) in the sham treatment group at 8 weeks ($P = .01$), (Rae Olmsted KL et al. *JAMA Psychiatry* 2019). The second trial (n=42, age >18, males=34) revealed a significant statistical and clinical improvement after a second SGB treatment. CAPS score dropped by 10.6 points in SGB group (mean=86.96, SD=14.15 at baseline to mean=76.36, SD=18.56) versus 7.73 points in sham group (mean=86.40, SD=14.76 at baseline to mean=78.67, SD=5.44) at 8 weeks ($P < .05$), (Hanling SR et al. *Regional Anesthesia and Pain Medicine* 2016).

CONCLUSION: These trials showed a strong effect of SGB in PTSD symptoms among veterans. Future trials should focus on individual characteristics that are associated with symptom responsiveness, effects of single and multiple treatments, safety, and the long-term effects of the treatment (beyond 6 months). To allow generalizability of findings, the study group must be larger with different symptom scores, and not limited to military populations.

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