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Drug Utilization Pattern of Psychotropic Medications Prescribed in the Outpatient Department of a Level III Hospital in Quezon City, Philippines

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Abstract

According to the WHO in 2019, mental illness is a major global health issue. In the Philippines, around 6 million people suffer from conditions like depression and anxiety, making it the country's third most common disability. The study employed a retrospective design to assess psychotropic medication use at a level III hospital in Quezon City, Philippines, by reviewing outpatient records from January to December 2023. Using non-probability purposive sampling, the target sample size was 123 based on standard calculations 95% confidence level, 5% margin of error, 50% estimated proportion, however 160 records were included. Most patients were young adults, mostly single, with a nearly equal gender distribution. Major depressive disorder was the common diagnosis, followed by generalized anxiety disorder and schizophrenia. Selective Serotonin Reuptake Inhibitors and benzodiazepines were frequently prescribed, with escitalopram being the most common. Prescribers largely followed the Department of Health's pharmacotherapeutic guidelines, though alprazolam was the most frequent non-adherent drug. Among 48 potential drug-drug interactions identified, most were moderate, often involving escitalopram, which may increase the risk of serotonin syndrome, QT prolongation, and arrhythmias when combined with drugs like risperidone or lithium. The study highlighted that there is an increasing usage of psychotropic medications, specifically in the Selective Serotonin Reuptake Inhibitors class, among young single adult females with major depressive disorder as the common diagnosis. In addition, the collected data highlighted that the prescribing practice of most prescribers adhered to the Department of Health's pharmacotherapeutic guidelines. Researchers emphasized the need for better mental health care,

personalized treatment plans, careful monitoring of drug interactions, and improved access to resources.

Subject Areas

Psychiatry & Psychology, Drugs & Devices

Keywords

Utilization, Retrospective, Psychotropics

1. Introduction

Mental illness remained a significant global health concern affecting numerous individuals worldwide, with schizophrenia, bipolar disorder, and major depressive disorder being major contributors (WHO, 2019). In 2019, the World Health Organization (WHO) launched the Special Initiative for Mental Health with the aim of promoting accessible and affordable mental health care (WHO, 2019). This initiative was implemented with the aim of addressing the mental health challenges faced by participating countries, including the Philippines, increasing understanding of these issues, and implementing effective solutions. In the Philippines, mental illness was the third most widespread disability, with approximately 6 million Filipinos suffering from conditions such as depression and anxiety [1].

Proper management of mental disorders often depended on the proper usage of psychotropic medications, which were essential in relieving symptoms and enhancing the quality of life of those who suffered from mental health concerns. The Department of Health's pharmacotherapeutic guidelines for mental health are crucial in prescribing psychotropic medications. Essential tools such as the International Classification of Diseases, 10th Revision (ICD-10), and the Anatomical Therapeutic Chemical (ATC) classification system play a pivotal role in standardizing the diagnosis and monitoring of drug utilization in mental health care. The ICD-10 provided a comprehensive framework for classifying psychiatric diseases, which assured accurate diagnosis, directed treatment decisions, and facilitated research by providing a standard set of codes for mental and behavioral disorders. In addition, the ATC system organizes pharmaceuticals according to the organs or systems they influence, as well as their therapeutic, pharmacological, and chemical qualities, allowing for systematic monitoring or prescription trends and encouraging rational prescribing practices. However, regardless of these advances, there is still a gap for better integration of real-world data and continuous evaluation of initiatives to improve prescription practices and patient outcomes. Many healthcare settings, specifically in low- and middle-income nations, continue to face challenges in collecting comprehensive data and evaluating the impact of policies or educational initiatives aimed at encouraging rational drug use. In this context, this current study uses the ICD-10 and ATC systems to examine prescription patterns and the prevalence of psychiatric diagnoses among outpatients at a Level

3 hospital in Quezon City, Philippines.

This study focused on the drug utilization patterns of psychotropic medications at a Level III hospital in Quezon City, Philippines. By analyzing out-patients' medical records, this research aimed to assess medication usage and prescription patterns, aligning them with global health classification and indicator systems such as ATC codes and ICD-10 codes guidelines. The purpose was to determine the classes and particular pharmaceuticals used in therapy, as well as the demographics of the patient population, to verify the psychotropic medications that were administered in accordance with the patients' diagnoses. Ultimately, this study aimed to contribute to enhancing patient safety and treatment efficacy in the Philippines' healthcare system by systematically evaluating the prescribing patterns and utilization of psychotropic medications for mental health disorders—specifically schizophrenia, bipolar disorders, and major depressive disorder—at a Level 3 hospital in Quezon City. By analyzing medical records to assess adherence to the ICD-10 classification, the Department of Health's pharmacotherapeutic guidelines, and the Anatomical Therapeutic Classification (ATC) system, the study aimed to identify gaps in prescription practices, monitor drug safety, and inform evidence-based interventions that address the Philippines' unique challenges in mental health care delivery.

2. Materials and Methods

2.1. Study Design

A retrospective, medical records-based descriptive study was conducted to determine the demographic characteristics, prescription patterns, and usage of psychotropic medications, as well as to assess the prevalence of diagnoses among patients from January 2023 to December 2023 in the Outpatient Department of a Level III hospital.

2.2. Population and Sampling Technique

The study included medical records with patients aged 18 and above who had complete records and were prescribed at least one psychotropic medication under ATC classification with a corresponding ICD-10 diagnosis. The study used a non-probability purposive sampling technique. This method was considered suitable because the study aimed to focus on a specific group of patients who met the predefined inclusion criteria. In a purposive sampling approach, patients who met the research objectives—such as those with a psychotropic condition and receiving psychotropic medications—were selected from the hospital records. The sample size was calculated using the standard formula for a finite population. A population size of 180 patients was based on data from the Quezon City Community-Based Mental Health Program. Using a 95% confidence level (Z = 1.96), a 5% margin of error, and an estimated proportion of 50% to ensure maximum variability, the computed sample size was approximately 123 medical records. However, based on the actual data collected, the study identified 160 medical records

with 212 psychotropic medications.

2.3. Research Instrumentation

Data was collected using a Google Spreadsheet consisting of fourteen (14) columns. The first column recorded the patient code, followed by columns for patient demographics, including age, sex, and marital status. The sixth column documented the psychotropic condition, and the seventh included the corresponding ICD code. The eighth column listed the prescribed drugs, while the ninth indicated the ATC code. The tenth column specified the treatment dose. The eleventh and twelfth columns noted adherence to the preferred regimen and treatment dose based on Department of Health guidelines. The thirteenth column listed other drugs prescribed to patients with multiple medications, and the final column categorized drug-drug interactions as minor, moderate, or major.

2.4. Data Collection

Data collection was conducted last February 2025. The process was divided into three major parts: (1) Pre-Implementation; (2) Actual-Implementation; and (3) Post-Implementation.

1) Pre-Implementation Procedures:

The data for the study were gathered from the Outpatient Department, with approval from the Medical Records Department of a Level III hospital. The research had received exemption and clearance from the Far Eastern University—Dr. Nicanor Reyes Medical Foundation Institutional Ethics Review Committee (FEU-NRMF IERC) and from the Data Privacy Office (DPO). Following approval from the Data Protection Officer and validation by the Chief Medical Officer, the researchers proceeded with gathering the study population.

2) Actual Implementation

The Medical Records Department provided a physical copy of the medical charts, which were accessed only within the premises of the department. A restricted Google Spreadsheet was created by the principal investigator for data protection. This sheet was accessible only to authorized individuals, such as the researchers and advisers. Data collection from the medical records included inputting the month, patient codes, demographics (age, sex, and marital status), age category, psychotropic conditions and their ICD code, drug lists and their ATC code, and other medications, as summarized in Table 1.

Drug-drug interactions were checked using Drugs.com to determine the severity of interactions between psychotropic medications and other drugs. The interactions were categorized as minor, moderate, or major.

Additionally, the researchers counted the number of patients in the Outpatient Department using the hospital logbook for the months of January 2023 to December 2023. The gathered data were securely stored and retained only until 2025, after which it was permanently and securely disposed of. Two laptops and three tablets were used to manually input the total population, which was summed as a

whole. For the maintenance of data anonymization, a 5-character patient code was assigned to each medical record.

Table 1. (a). Sample "data collection" sheet. (b). Continuation of sample "data collection" sheet.

(a)

JANUARY						
Patient no.	**Age**	**Age Category**	**Sex**	**Marital Status**	**Psychotropic Conditions**	**ICD Code**
001XM	18	Young age (18 - 44)	Male	Married	GAD	F41.1
002YS	45	Middle age (44 - 60)	Female	Single	Schizophrenia	F-20

(b)

Drug Lists	**ATC Codes**	**TX Dose**	**Adherence or Not (REGIMEN)**	**Adherence or Not (DOSE)**	**Other drugs**	**Categorize interactions**
Sertraline	N06AB06	12.5 mg	Adhered	Adhered	Buspirone	Major
Risperidone	N05AX08	2 mg	Adhered	Adhered	Cetirizine	Moderate

For the maintenance of data anonymization, a 5-character patient code was assigned to each medical record. Please see Figure 1 for the sample patient code and Table 2 for the legend.

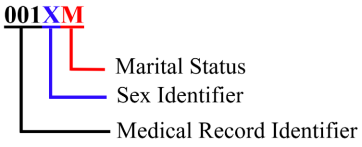

Figure 1. Template of patient code.

Table 2. Legend for assigned patient codes.

LEGEND	
Medical Record Identifier	3-character numerals
Sex Identifier	X = Male Y = Female
Marital Status	S = Single M = Married E = Separated D = Divorced W = Widow

3) Post Implementation

To ensure the proper disposal of data, the responsibility was handed over to the Data Protection Officer (DPO). Researchers submitted all copies of the data to the DPO's office. The collected information was kept anonymous and safeguarded throughout the study.

2.5. Data Processing and Analysis

Descriptive statistics were used for the analysis of quantitative data. Percentages were used to describe the commonly prescribed psychotropic medications, the

prevalence of psychiatric diagnoses among patients in the Outpatient Department of a Level III hospital, and the frequency and distribution of each medication class. Percentages were also used to show the distribution of age and gender among patients in the study population. Graphs were created for psychotropic conditions and medications to easily identify the most prevalent conditions and drug classifications.

2.6. Ethical Considerations

The research received exemption and clearance from Far Eastern University - Dr. Nicanor Reyes Medical Foundation Institutional Ethics Review Committee (FEU-NRMF IERC) on the 18th day of December 2024 before its commencement, under the FEU-NRMF IERC Code 2024-0124 and by the Data Privacy Office (DPO).

3. Results

3.1. Demographics

The demographic profile of the respondents is summarized in Table 3. Data from 160 medical records revealed that 76.88% were young adults (18 - 44 years), 12.50% were middle-aged (45 - 59 years), and 10.62% were seniors (60+ years). Gender distribution was nearly equal, with 49.38% males and 50.62% females. The majority were single (73.13%), followed by married (21.87%) and widowed (5%).

Table 3. Demographic profile of out-patients.

Characteristics	N	Percentage (%)
Age (Years)		
Young Adult (18 - 44)	123	76.88%
Middle Aged (45 - 59)	20	12.50%
Senior (>60)	17	10.62%
Sex		
Male	79	49.38%
Female	81	50.62%
Marital Status		
Single	117	73.13%
Married	35	21.87%
Widowed	8	5%
TOTAL	**160**	

3.2. Prevalence of Psychiatric Diagnoses

Among the 160 medical records, a total of 212 diagnoses were recorded, indicating some patients had multiple diagnoses, including 52 follow-up cases requiring closer monitoring. The most common conditions were Major Depressive Disorder (30.19%), Generalized Anxiety Disorder (27.83%), and Schizophrenia (12.74%). Other diagnoses included Panic Disorder (11.79%), Social Anxiety Disorder (6.60%), and Bipolar Disorder (6.60%). Less common conditions were Epileptic Seizure (2.83%) and Alcohol Use Disorder (1.42%). Anxiety and depression

symptoms may overlap, with GAD diagnosed when neither condition predominates. Standardized ICD codes were used for classification (See Table 4).

Table 4. Prevalence of psychotropic conditions and number of reported cases.

Psychotropic Conditions	# of cases	Percentage (%)	ICD Code
GAD	59	27.83%	F-41.1
Schizophrenia	27	12.74%	F-20
Major Depressive Disorder	64	30.19%	F-32.9
Panic Disorder	25	11.79%	F-41
Bipolar Disorder	14	6.60%	F-31
Epileptic Seizure	6	2.83%	G-40
Alcohol Use Disorder	3	1.42%	F-10
Social Anxiety Disorder	14	6.60%	F-40
TOTAL	212		

3.3. Prevalence of Psychotropic Medications

The data on psychotropic drug prescriptions revealed a total of 212 medications. Selective Serotonin Reuptake Inhibitors (SSRIs) were the most prescribed, comprising 48.58% of all prescriptions. Escitalopram was the most frequently prescribed SSRI (31.13%), followed by Sertraline (8.96%) and Fluoxetine (8.49%). Benzodiazepines made up 24.53%, with Alprazolam and Clonazepam each accounting for 12.26%. Atypical antipsychotics represented 20.57%, with Risperidone being the most common (9.43%), followed by Quetiapine (5.19%) and Olanzapine (3.30%). Clozapine was the least prescribed atypical antipsychotic (0.94%), and typical antipsychotics were limited to Chlorpromazine (0.47%). The anticonvulsant class, often used as mood stabilizers, accounted for 2.48%, with Valproate (1.42%) being the most prescribed. Lithium and Mirtazapine each represented 0.47% of prescriptions (See Table 5).

Table 5. Prevalence of psychotropic drugs and number of drugs.

Class of Psychotropic Drugs	Number of Drugs	Percentage (%)	ATC Code
SSRI:	103	48.58%	
Escitalopram	66	31.13%	N06AB10
Sertraline	19	8.96%	N06AB06
Fluoxetine	18	8.49%	N06AB03
Benzodiazepines:	52	24.53%	
Alprazolam	26	12.26%	N05BA12
Clonazepam	26	12.26%	N03AE01
Atypical Antipsychotics:	44	20.75%	
Risperidone	20	9.43%	N05AX08
Quetiapine	11	5.19%	N05AH04
Olanzapine	7	3.30%	N05AH03
Aripiprazole	4	1.89%	N05AX12
Clozapine	2	0.94%	N05AH02

Continued

Anticonvulsants:	6	2.83%	
Valproate	3	1.42%	N03AG01
Levetiracetam	2	0.94%	N03AX14
Carbamazepine	1	0.47%	N03AF01
Pantoprazole	3	1.42%	A02BC02
Chlorpromazine	1	0.47%	N05AA01
Lithium	1	0.47%	N05AN01
Mirtazapine	1	0.47%	N06AX11
Propranolol	1	0.47%	C07AA05

3.4. Potential Drug-Drug Interactions

Among 212 medication records, 48 potential drug-drug interactions were identified. These interactions were classified as potential because they were identified through interaction checkers, specifically Drugs.com, rather than confirmed clinical effects. Most were moderate (79%), followed by minor (13%) and major (8%) interactions. Escitalopram was most involved in interactions (19%), followed by Olanzapine (15%) and Risperidone (13%) (See Table 6).

Table 6. Summary of drug-drug interaction severity and potential effects.

Severity	n	Percentage (%)	Top 3 Drug-Drug Interactions	Potential Effect
Minor	6	12.5%	1. Escitalopram + Pantoprazole 2. Sertraline + Paracetamol 3. Fluoxetine + Digoxin	Minimal clinical effect, generally well tolerated. Defined as an interaction that is unlikely to cause significant harm or require a change in therapy (Drugs.com)
Moderate	38	79.17%	1. Olanzapine + Valproic Acid 2. Risperidone + Biperiden 3. Clonazepam + Diphenhydramine	Increased sedation, CNS depression, metabolic disturbances (Drugs.com)
Major	4	8.33%	1. Escitalopram + Risperidone 2. Escitalopram + Risperidone (repeated in another month) 3. Fluoxetine + Serum Lithium	Risk of serotonin syndrome, QT prolongation, cardiac arrhythmias (Drugs.com)

Among patients undergoing psychotropic treatment, Figure 2 displays the most common comorbidities were seizures and allergies, followed by Gastroesophageal reflux disease (GERD) and hypertension/Parkinson's disease. Less common conditions included hyperlipidemia and insomnia, while urinary tract

infection (UTI), anemia, and arrhythmias were the least prevalent.

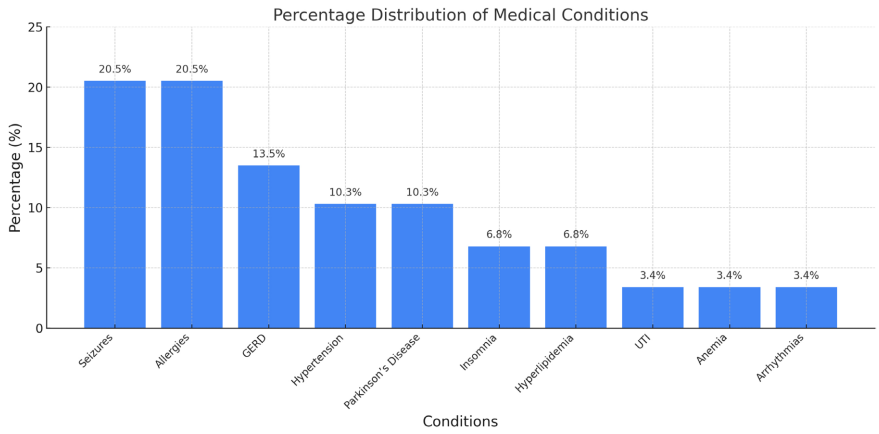

Figure 2. Prevalence of non-psychotropic conditions.

3.5. Adherence to the DOH Pharmacotherapeutic Guidelines

Out of 160 medical records, Table 7 shows that 71.23% adhered to the Department of Health (DOH) pharmacotherapeutic guidelines for regimen, while 28.77% did not. Regarding dosage, 64.62% followed the recommended dose, while 35.38% were non-adherent. These findings indicate that while most prescriptions followed DOH guidelines, a notable portion did not, likely due to physicians following alternative clinical practice guidelines more suited to specific patient conditions.

Table 7. Adherence to the DOH pharmacotherapeutic guidelines.

Month	Regimen			Dose		
	N	Adhered	Not	N	Adhered	Not
January	17	12	5	17	10	7
February	20	17	3	20	16	4
March	22	16	6	22	13	9
April	14	11	3	14	11	3
May	18	13	5	18	13	5
June	24	21	3	24	17	7
July	17	15	2	17	11	6
August	15	14	1	15	14	1
September	17	11	6	17	11	6
October	15	7	8	15	7	8
November	19	9	10	19	9	10
December	14	5	9	14	5	9
TOTAL	212	151	61	212	137	75
PERCENTAGE	100%	71.23%	28.77%	100%	64.62%	35.38%

In Figure 3, the non-adherent drugs are predominantly benzodiazepines, which are often avoided due to their high risk of withdrawal, dependence, and adverse effects like falls, fractures, and cognitive impairment, particularly in the elderly.

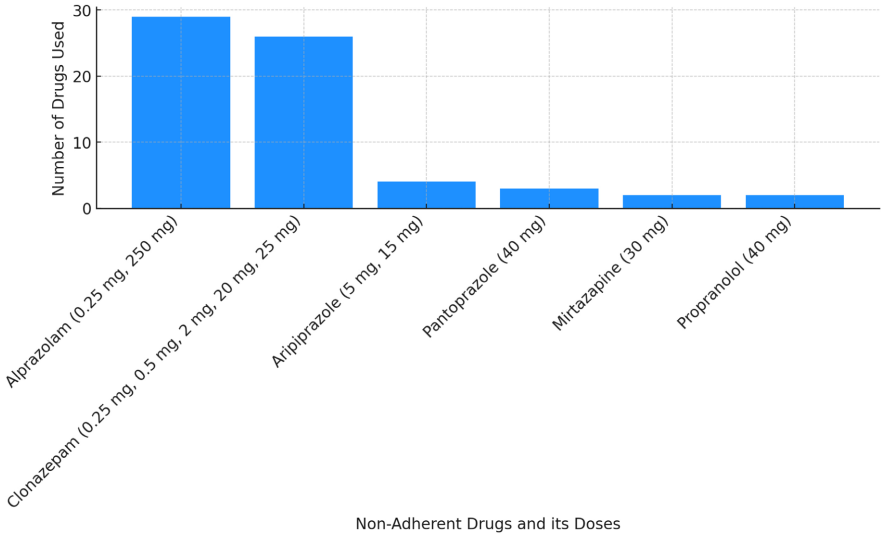

Figure 3. Non-adherent drugs and its doses.

4. Discussion

The findings of this study emphasized the significant burden of mental health disorders among young adults, who made up the majority (76.88%) of the outpatient population. The prevalence of mood and anxiety-related disorders, such as major depressive disorder (30.19%) and generalized anxiety disorder (27.83%), reflected larger global trends in mental health challenges among young people. The rise has been attributed to factors such as the COVID-19 pandemic, social media exposure, and economic pressures [2]. The findings were also consistent with regional research from South Asia and the Middle East, which found low mental health resources, significant treatment gaps, and cultural barriers [3].

Young adults were identified as a critical period for the onset of psychiatric conditions due to life transitions, stressors, and increased independence. Alongside with this, co-occurring disorders were common as well, with schizophrenia, panic disorder (11.79%), social anxiety disorder (6.60%), and bipolar disorder (6.60%) frequently observed. The "p factor," which explains the increase of multiple psychiatric symptoms, highlights the complexities of mental health difficulties in this population [4]. The study also found gender equality in mental health disorders among young adults, but noted potential differences in symptom presentation and treatment responses. In terms of marital status, marriage frequently provided social support that reduced anxiety and depression rates; however, bad marital experiences may have worsened mental health disorders [5].

The Department of Health (DOH) in the Philippines demonstrated strong adherence to international and national mental health guidelines by integrating the ICD-10 classification system and pharmacotherapeutic protocols regarding psychotropic medication use aligning with the World Health Organization's Special Initiative for Mental Health. Through the efforts of these organizations which aimed to improve access, affordability, and quality of mental health services which includes standardized prescribing and monitoring practices. However, despite

these efforts, numerous social determinants of health (SDOH) like cultural practices, stigmas, financial constraints, and limited access to mental health facilities continued to hinder medication adherence and treatment outcomes. Therefore, while the DOH adherence to guidelines ensured a structured approach to mental health care, addressing these SDOH barriers remained critical to improving adherence to psychotropic medications.

The researchers also discovered a significant trend in psychotropic medication which highlighted a preference for selective serotonin reuptake inhibitors (SSRIs), which accounted for 48.58% of prescriptions, with escitalopram being the most prescribed due to its safety and efficacy profile. Having benzodiazepines as the second most prescribed drug class (24.53%), which is concerning considering its dependence and withdrawal risks [6]. Meanwhile, atypical antipsychotics were chosen over typical antipsychotics due to improved tolerability and efficacy, with risperidone being the most used drug. While clozapine remained underutilized due to its severe side effects, which required continuous monitoring [7].

After gathering the prescribed medications of the patient, drug interactions were noted. Moderate interactions were most common (79.17%), which required careful monitoring to avoid adverse effects such as sedative or metabolic disturbances. For example, olanzapine combined with valproic acid increased sedation and metabolic risks but demonstrated better efficacy in managing acute manic episodes compared to monotherapy [8]. On the other hand, though less frequent, major interactions posed serious concerns such as serotonin syndrome or QT prolongation when certain drugs like fluoxetine or escitalopram were used with other treatments [9].

The study of drug utilization patterns of psychotropic medication emphasized the complexity of mental health issues, driven by co-occurring disorders, life stressors, and systemic challenges in medication management. The findings indicated the need for comprehensive approaches that integrate personalized treatment plans, vigilant monitoring of drug interactions, and improved access to mental health resources to address the multifaceted challenges effectively.

5. Conclusion

The study highlighted that there is an increasing usage of psychotropic medications, specifically in the Selective Serotonin Reuptake Inhibitors class, among young single adult females with major depressive disorder as the common diagnosis. In addition, the collected data highlighted that the prescribing practice of most prescribers adhered to the Department of Health's pharmacotherapeutic guidelines. To build on these findings, future studies should adopt prospective methodologies with a longer data collection period to address limitations of retrospective reviews. Data from both inpatient and outpatient settings should be included for a more comprehensive analysis. Further investigation into benzodiazepine prescribing patterns should be conducted to assess alignment with current treatment guidelines. Additionally, comparing local drug utilization patterns with

evidence-based practices is recommended. Lastly, research should focus on the therapeutic consequences of identifying side effects and drug-drug interactions to improve patient safety and treatment effectiveness.

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Conflicts of Interest

The authors declare no conflicts of interest.

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