

The Impact of Attention-Deficit/Hyperactivity Disorder on Postoperative Orthopedic Complications in Total Shoulder Arthroplasty: A Retrospective Cohort Study

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Background: Attention-deficit/hyperactivity disorder (ADHD) is a prevalent neurodevelopmental disorder characterized by impulsiveness and challenges with adherence, potentially affecting surgical outcomes. While the effects of other mental health disorders, such as anxiety and depression, on orthopedic surgery complications, have been studied, the impact of ADHD – particularly on total shoulder arthroplasty (TSA) – remains unexplored.

Purpose: This study aims to assess the influence of adult ADHD on postoperative outcomes following TSA.

Methods: Using the TriNetX Database, adults undergoing TSA with and without a diagnosis of ADHD were identified. Cohorts were matched 1:1 using propensity score matching on demographic variables and comorbidities, including substance and mood disorders. Statistical tests, including risk ratios (RR) with 95% confidence intervals, independent t-tests, and chi-square tests, were employed to compare outcomes. Primary outcomes were orthopedic complications measured at two and four years postoperatively.

Results: At 90 days postoperatively, patients with ADHD had a higher risk of prosthetic joint infection (PJI) (RR=1.75; P=0.015), deep infections (RR=1.57; P=0.028), and mechanical complications (RR=1.96; P=0.006). At the two-year follow-up, patients with ADHD had a higher risk of prosthetic dislocation (RR=1.79; P=0.009), overall mechanical complications (RR=1.75; P<0.001), and PJI (RR=1.62; P<0.001). Risks remained significant at four years postoperatively for PJI (RR=1.53; P<0.001), prosthetic dislocation (RR=1.57; P=0.031), overall mechanical complications (RR=1.72; P<0.001) and mechanical loosening (RR=2.06; P=0.012).

Conclusion: Adult ADHD is associated with a significantly increased risk of postoperative orthopedic complications following TSA, including PJI, prosthetic dislocation, overall mechanical complications, and mechanical loosening up to four years after surgery. These findings suggest that ADHD-related behavioral factors may adversely affect postoperative recovery. Enhanced preoperative and postoperative counseling, tailored management, and vigilant long-term monitoring are recommended to mitigate risks and improve outcomes for this patient population.

What this study adds: This is the first large-scale study demonstrating that adult ADHD is associated with persistently elevated risks for major orthopaedic complications following TSA.

Potential impacts on research, practice, or policy: ADHD remains prevalent in the adult population and may have important implications for outcomes following total shoulder arthroplasty, potentially influencing complication rates and postoperative recovery. Further research is needed to understand why these associations exist and inform clinical practice guidelines and policy decisions regarding preoperative evaluation and postoperative management in these patients.

Study Design: Retrospective Cohort Study

Level of Evidence: Level III

Keywords: Prosthetic joint infection; Mechanical loosening; Complications; Mental health; Shoulder prosthesis; Orthopaedics.

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Introduction

Total shoulder arthroplasty (TSA) is a commonly performed, cost-effective operation that provides notable functional improvement, pain relief, and high patient satisfaction [1][2]. Nonetheless, postoperative complications and unplanned readmissions are prevalent. As TSA procedures continue to increase worldwide, identifying risk factors for these complications are important [3].

Psychiatric comorbidities—including depression, anxiety, schizophrenia, and dementia—are increasingly recognized for their substantial impact on surgical outcomes across various orthopedic procedures, including TSA. These conditions have been associated with an increased likelihood of medical and orthopedic complications, prolonged hospital stays, and increased post-discharge care needs [4][5][6].

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity [7]. In addition to these characteristics, other traits, including clumsiness, rule-breaking, and risk disregard, contribute to the high prevalence of accidental injuries among individuals with ADHD [8][9][10]. Children and adults with ADHD have a higher risk of injuries, with a 1.3-fold higher risk of fractures [8][11][12]. While ADHD persists into adulthood for over 90% of patients and affects approximately 6% of the United States adult population [13],

previous research on its impact on surgical outcomes has predominantly focused on pediatric or adolescent populations [14].

The association between ADHD and surgical complications has been explored for bariatric surgery and a pooled sample of multiple procedures [15][16]. However, there is a paucity of data focusing on postoperative outcomes of orthopedic procedures, such as TSA. This paper aims to fill this gap by examining the relationship between ADHD and postoperative orthopedic outcomes following TSA. We hypothesize that patients with ADHD have a greater risk of orthopedic complications at four years postoperatively.

Methods

We conducted a retrospective analysis using the globally federated TriNetX Database, which provides access to electronic medical records including diagnoses, procedures, medications, and laboratory values from more than 134 million patients from 95 healthcare organizations (HCOs). An advantage of this database is that the HCOs in the Research Network span from hospitals and primary-care units to specialists and include both insured and uninsured patients. Clinical variables are derived directly from clinical documents through an established Natural Language Processing system, ensuring robust quality assurance at the time of extraction before inclusion in the database.

Ethics Statement

TriNetX is compliant with the Health Insurance Portability and Accountability Act (HIPAA). This data is a secondary analysis of existing data, does not involve intervention or interaction with human subjects, and is de-identified per the de-identification standard defined in Section §164.514(a) of the HIPAA Privacy Rule. TriNetX is certified to the ISO 27001:2013 standard and maintains an Information Security Management System (ISMS) to ensure the protection of the healthcare data it can access and to meet the requirements of the HIPAA Security Rule. This formal determination was refreshed in December 2020 by a qualified expert. Our institutional review board (IRB) deemed this study as exempt under DHHS regulations (IRB00386952).

Cohorts and Propensity Score Matching

Demographic information and diagnosis were based on the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM codes), Procedural Codes (ICD-10-PCS) and Current Procedural Terminology (CPT) codes. Adults undergoing TSA were further stratified based on ADHD (ICD-10: F90) diagnosis. To reduce confounding biases, the cohorts were matched one-to-one using propensity score matching using greedy nearest neighbor algorithms with a caliper width of 0.1 pooled SD. Variables chosen based on previous literature indicating risk factors for negative outcomes following TSA [17][18][19][20][21][22][23], including sex, race, diabetes mellitus, body mass index (30-39 or ≥ 40), rheumatoid arthritis, alcohol use disorders, essential (primary) hypertension, nicotine dependence, dependence on renal dialysis, chronic obstructive pulmonary disease, osteoarthritis of the shoulder, iron deficiency anemia, long term use of steroids, major depressive disorder, generalized anxiety disorder, and end-stage renal disease (**Supplementary Material 1**). A standardized difference of < 0.1 was considered sufficient for matching.

Outcomes

The primary outcomes were orthopedic complications comprising periprosthetic fractures, mechanical loosening, implant dislocation, prosthetic joint infection (PJI), and revision procedures at 90 days, two years, and four years after TSA (**Supplementary Material 1**). Secondary outcomes were medical complications such as sepsis, superficial soft tissue infection (SSTI), myocardial infarction (MI), pulmonary embolism (PE), deep vein thrombosis (DVT), emergency services usage, wound dehiscence, acute kidney injury (AKI), pneumonia, hospital readmission, and urinary tract infection (UTI) at 90 days postoperatively.

Statistical Analysis

All statistical analyses were performed using the TriNetX analytics tool package on October 25th, 2024. We assessed measures of association by calculating risk ratios with their corresponding 95% confidence intervals. Differences between cohorts were analyzed using independent t-tests for continuous data, presented as mean and standard deviation, and chi-square tests for categorical data, presented as frequency and percentage. For all analyses, p -values < 0.05 were considered statistically significant.

Results

Demographic and Characteristics of Cohorts Before and After Matching

Before propensity score matching, the ADHD cohort included 1,247 patients, while the non-ADHD cohort had 93,790 patients. After matching, both cohorts contained 1,246 patients each. Significant demographic and comorbidity differences were observed between the two groups before matching, as shown in **Table 1**. The average age at index was 61.3 ± 10.7

years in the ADHD cohort and 68.2 ± 10.7 years in the non-ADHD cohort ($P < 0.001$, standardized difference [SD] = 0.644). Regarding race, 89.5% of patients with ADHD were White compared to 81.1% of patients without ADHD ($P < 0.001$, SD = 0.238), while 2.9% of patients with ADHD were Black or African American compared to 6.1% of patients without ADHD ($P < 0.001$, SD = 0.154). Female representation was similar between groups, with 54.1% in the ADHD cohort and 53.5% in the non-ADHD cohort ($P = 0.683$, SD = 0.012). Comorbidities also varied significantly between the cohorts before matching. For instance, essential hypertension was present in 63.9% of patients with ADHD compared to 52.0% of patients without ADHD ($P < 0.001$, SD = 0.242). Similarly, major depressive disorder was reported in 25.3% of patients with ADHD but only 4.4% of patients without ADHD ($P < 0.001$, SD = 0.615). Nicotine dependence was also more common ($P < 0.001$, SD = 0.350) in patients with ADHD (23.1%) compared to those without ADHD (10.2%).

After matching, demographic and comorbidity differences between the ADHD and non-ADHD cohorts were minimized (**Table 2**). The average age was 61.3 ± 10.7 years for the ADHD cohort and 61.6 ± 11.7 years for the non-ADHD cohort ($P = 0.47$, SD = 0.029). The racial composition became balanced, with 89.5% of patients with ADHD and 91.3% of patients without ADHD identified as White ($P = 0.118$, SD = 0.063). Female representation also remained comparable at 54.2% in the ADHD cohort and 54.6% in the non-ADHD cohort ($P = 0.841$, SD = 0.008). Comorbidities were similarly balanced after matching. For example, essential hypertension was reported in 63.9% of patients with ADHD and 65.9% of patients without ADHD ($P = 0.294$, SD = 0.042). Major depressive disorder was present in 25.3% of the ADHD cohort and 24.8% of the non-ADHD cohort ($P = 0.781$, SD = 0.011). Nicotine dependence was also similar between the groups, with rates of 23.0% in patients with ADHD and 22.6% in patients without ADHD ($P = 0.774$, SD = 0.011). These results indicate that matching successfully balanced the two cohorts, allowing for more accurate comparisons in subsequent analyses.

90-day postoperative medical and orthopedic complications

At 90 days postoperatively, the cohort with ADHD had a 75% higher risk of PJI (RR = 1.75 [95% confidence interval: 1.107–2.766]; $P = 0.015$) and a 56.8% higher risk of deep infections (RR = 1.57 [1.046–2.35]; $P = 0.028$) compared to the non-ADHD cohort. Patients with ADHD also experienced higher rates of overall mechanical complications (RR = 1.96 [1.205–3.182]; $P = 0.006$). No other orthopedic or medical complications were significantly different between the cohorts (**Table 3**).

2-year postoperative orthopedic complications

As shown in **Table 4**, at the 2-year time point, patients with ADHD were 79% more likely to have prosthetic dislocation (RR = 1.79 [1.146–2.805]; $P = 0.009$) and experience overall mechanical complications (RR = 1.75 [1.294–2.378]; $P < 0.001$) compared to the non-ADHD cohort. They also had higher rates of PJI (RR = 1.62 [1.218–2.154]; $P < 0.001$).

4-year postoperative orthopedic complications

At 4 years postoperatively, the risks for PJI, prosthetic dislocation, and overall mechanical complications persisted in the ADHD cohort (**Table 5**). Specifically, patients with ADHD had a 53.3% higher risk of PJI compared to the non-ADHD cohort (RR = 1.53 [1.19–1.976]; $P < 0.001$). They also had a 57.1% higher risk of prosthesis dislocation (RR = 1.57 [1.036–2.383]; $P = 0.032$) and a 72.4% higher risk of overall mechanical complication (RR = 1.72 [1.314–2.261]; $P < 0.001$). Additionally, the risk of mechanical loosening was significantly higher in the ADHD cohort, with a 105.9% increased risk (RR = 2.06 [1.16–3.655]; $P = 0.012$).

Table 1. ADHD Cohort (N = 1,247) and Non-ADHD Cohort (N = 93,790) Characteristics Before Propensity Score Matching.

Characteristic	ADHD (N = 1,247)	Without ADHD (N = 93,790)	P-value	Standardized Difference
Age at index (Mean ± SD)	61.3 ± 10.7	68.2 ± 10.7	<0.001	0.644
Race				
White	1,116 (89.5%)	76,097 (81.1%)	<0.001	0.238
Black or African American	36 (2.9%)	5,689 (6.1%)	<0.001	0.154
Asian	10 (0.8%)	1,191 (1.3%)	0.142	0.046
Sex				
Female	675 (54.1%)	50,224 (53.5%)	0.683	0.012
Male	544 (43.6%)	40,929 (43.6%)	0.992	<0.001
Cardiovascular				
Essential (primary) hypertension	797 (63.9%)	48,811 (52.0%)	<0.001	0.242
Rheumatologic				
Other rheumatoid arthritis	114 (9.1%)	4,855 (5.2%)	<0.001	0.154
Metabolic				
Body mass index [BMI] 30-39, adult	247 (19.8%)	10,451 (11.1%)	<0.001	0.241
Body mass index [BMI] 40 or greater, adult	102 (8.2%)	4,443 (4.7%)	<0.001	0.140
Musculoskeletal				
Primary osteoarthritis, shoulder	928 (74.4%)	52,776 (56.3%)	<0.001	0.388
Substance Use				
Alcohol related disorders	193 (15.5%)	3,883 (4.1%)	<0.001	0.388
Nicotine dependence	288 (23.1%)	9,600 (10.2%)	<0.001	0.350
Medication Use				
Long term (current) use of steroids	113 (9.1%)	3,797 (4.0%)	<0.001	0.204
Hematologic				
Iron deficiency anemia	174 (14.0%)	6,229 (6.6%)	<0.001	0.242
Psychiatric				
Major depressive disorder, recurrent	316 (25.3%)	4,142 (4.4%)	<0.001	0.615
Generalized anxiety disorder	264 (21.2%)	4,061 (4.3%)	<0.001	0.522
Renal				
End stage renal disease	10 (0.8%)	612 (0.7%)	0.516	0.018
Dependence on renal dialysis	10 (0.8%)	289 (0.3%)	0.002	0.067
Endocrine				
Diabetes mellitus	279 (22.4%)	17,972 (19.2%)	0.004	0.079
Type 2 diabetes mellitus	275 (22.1%)	17,722 (18.9%)	0.005	0.078
Respiratory				
Other chronic obstructive pulmonary disease	185 (14.8%)	8,519 (9.1%)	<0.001	0.178

ADHD = attention-deficit/hyperactivity disorder; SD = standard deviation

Table 2. ADHD Cohort (N = 1,246) and Non-ADHD Cohort (N = 1,246) Characteristics After Propensity Score Matching.

Characteristic	ADHD (N = 1,246)	Without ADHD (N = 1,246)	P-value	Standardized Difference
Age at index (Mean ± SD)	61.3 ± 10.7	61.6 ± 11.7	0.470	0.029
Race				
White	1,115 (89.5%)	1,138 (91.3%)	0.118	0.063
Black or African American	36 (2.9%)	30 (2.4%)	0.454	0.030
Asian	10 (0.8%)	0 (0.0%)	0.002	0.127
Sex				
Female	675 (54.2%)	680 (54.6%)	0.841	0.008
Male	543 (43.6%)	539 (43.3%)	0.872	0.006
Cardiovascular				
Essential (primary) hypertension	796 (63.9%)	821 (65.9%)	0.294	0.042
Rheumatologic				
Other rheumatoid arthritis	113 (9.1%)	124 (10.0%)	0.453	0.030
Metabolic				
Body mass index [BMI] 30-39, adult	247 (19.8%)	246 (19.7%)	0.960	0.002
Body mass index [BMI] 40 or greater, adult	102 (8.2%)	94 (7.5%)	0.552	0.024
Musculoskeletal				
Primary osteoarthritis, shoulder	927 (74.4%)	919 (73.8%)	0.715	0.015
Substance Use				
Alcohol related disorders	192 (15.4%)	197 (15.8%)	0.783	0.011
Nicotine dependence	287 (23.0%)	281 (22.6%)	0.774	0.011
Medication Use				
Long term (current) use of steroids	113 (9.1%)	92 (7.4%)	0.126	0.061
Hematologic				
Iron deficiency anemia	174 (14.0%)	168 (13.5%)	0.727	0.014
Psychiatric				
Major depressive disorder, recurrent	315 (25.3%)	309 (24.8%)	0.781	0.011
Generalized anxiety disorder	263 (21.1%)	268 (21.5%)	0.807	0.010
Renal				
End stage renal disease	10 (0.8%)	10 (0.8%)	1.000	<0.001
Dependence on renal dialysis	10 (0.8%)	10 (0.8%)	1.000	<0.001
Endocrine				
Diabetes mellitus	279 (22.4%)	271 (21.7%)	0.699	0.015
Type 2 diabetes mellitus	275 (22.1%)	269 (21.6%)	0.771	0.012
Respiratory				
Other chronic obstructive pulmonary disease	185 (14.8%)	175 (14.0%)	0.569	0.023

ADHD = attention-deficit/hyperactivity disorder; SD = standard deviation

Table 3. 90-day postoperative medical and orthopedic complications of TSA, stratified by ADHD and non-ADHD cohorts.

Complications	ADHD (%)	Non-ADHD (%)	P-value	Risk ratio (95% confidence interval)
Prosthetic Joint Infection	49 (3.93%)	28 (2.247%)	0.015	1.75 [1.107,2.766]
Mechanical Loosening	≤ 10* (0.80%)	≤ 10* (0.80%)	1.000	1.00 [0.418,2.394]
Periprosthetic Fracture	51 (4.09%)	52 (4.17%)	0.920	0.98 [0.672,1.432]
TSA revision	33 (2.65%)	30 (2.41%)	0.702	1.10 [0.675,1.792]
Prosthesis dislocation	26 (2.09%)	14 (1.12%)	0.056	1.86 [0.974,3.540]
Deep infection	58 (4.66%)	37 (2.97%)	0.028	1.57 [1.046,2.35]
Any mechanical complication	47 (3.77%)	24 (1.93%)	0.006	1.96 [1.205,3.182]
Sepsis	≤ 10* (0.80%)	≤ 10* (0.80%)	1.000	1.00 [0.418,2.394]
SSTI	20 (1.61%)	24 (1.93%)	0.543	0.83 [0.463,1.501]
MI	≤ 10* (0.80%)	≤ 10* (0.80%)	1.000	1.00 [0.418,2.394]
PE	14 (1.12%)	16 (1.28%)	0.713	0.88 [0.429,1.785]
DVT	15 (1.20%)	18 (1.45%)	0.599	0.83 [0.422,1.646]
ED use	181 (14.53%)	160 (12.84%)	0.221	1.13 [0.928,1.378]
All cause revision	37 (2.97%)	39 (3.13%)	0.816	0.95 [0.609,1.477]
Wound dehiscence	≤ 10* (0.80%)	≤ 10* (0.80%)	1.000	1.00 [0.418,2.394]
AKI	27 (2.17%)	22 (1.77%)	0.471	1.23 [0.703,2.143]
Pneumonia	25 (2.01%)	18 (1.45%)	0.282	1.39 [0.762,2.533]
Shoulder instability	45 (3.61%)	32 (2.57%)	0.132	1.41 [0.9,2.197]
Readmission	66 (5.30%)	81 (6.50%)	0.202	0.82 [0.594,1.117]
UTI	29 (2.33%)	27 (2.17%)	0.787	1.07 [0.64,1.803]

ADHD: attention-deficit/hyperactivity disorder; TSA: total shoulder arthroplasty; SSTI: superficial soft tissue infections; MI: myocardial infarction; PE: pulmonary embolism; DVT: deep vein thrombosis; ED: emergency department; AKI: acute kidney injury; UTI: urinary tract infection

Table 4. Two-year postoperative orthopedic complications of TSA, stratified by ADHD and non-ADHD cohorts.

Complications	ADHD (%)	Non-ADHD (%)	P-value	Risk ratio (95% confidence interval)
Prosthetic joint infection	115 (9.29%)	71 (5.70%)	<0.001	1.62 [1.218, 2.154]
Mechanical loosening	22 (1.77%)	14 (1.12%)	0.179	1.57 [0.808,3.057]
Periprosthetic fracture	76 (6.10%)	71 (5.70%)	0.671	1.07 [0.782,1.465]
TSA revision	131 (10.51%)	132 (10.59%)	0.948	0.99 [0.79,1.247]
Prosthesis dislocation	52 (4.17%)	29 (2.33%)	0.009	1.79 [1.146,2.805]
Any mechanical complication	107 (8.59%)	61 (4.90%)	<0.001	1.75 [1.294,2.378]
All cause revision	161 (12.92%)	156 (12.52%)	0.764	1.03 [0.84,1.268]

ADHD: attention-deficit/hyperactivity disorder; TSA: total shoulder arthroplasty

Table 5. Four-year postoperative orthopedic complications of TSA, stratified by ADHD and non-ADHD cohorts.

Complications	ADHD (%)	Non-ADHD (%)	P-value	Risk ratio (95% confidence interval)
Prosthetic joint infection	138 (11.08%)	90 (7.22%)	<0.001	1.53 [1.19,1.976]
Mechanical loosening	35 (2.81%)	17 (1.36%)	0.012	2.06 [1.16,3.655]
Periprosthetic fracture	87 (6.98%)	81 (6.50%)	0.632	1.07 [0.802,1.439]
TSA revision	168 (13.48%)	164 (13.16%)	0.814	1.02 [0.838,1.252]
Prosthesis dislocation	55 (4.41%)	35 (2.81%)	0.031	1.57 [1.036,2.383]
Any mechanical complication	131 (10.51%)	76 (6.10%)	<0.001	1.72 [1.314,2.261]
All cause revision	198 (15.89%)	191 (15.329%)	0.699	1.04 [0.864,1.244]

ADHD: attention-deficit/hyperactivity disorder; TSA: total shoulder arthroplasty

Discussion

To our knowledge, this is the first study analyzing the impact of ADHD on postoperative outcomes following TSA in adult populations. Most importantly, our findings indicate that patients with ADHD have a significantly higher risk of various orthopedic complications including PJI, prosthetic dislocation, mechanical loosening, and overall mechanical complications up to four years after TSA, which supports our hypothesis.

In this study, the cohort with ADHD had a 106% higher risk of mechanical loosening, a 57% higher risk of prosthetic dislocations, and a 72% higher risk of mechanical complications at 4-years. The results of our study are supported by existing literature, though limited, exploring the association of ADHD and post-surgical outcomes. Yoon et al. explored postoperative outcomes of any surgical procedure in adolescents with ADHD and observed a higher risk of infection and orthopedic complications [14]. Stenberg et al. found a higher risk for early postoperative complications, self-harm, and substance abuse in adult patients with ADHD following bariatric procedures [16]. The increased risk we observed for mechanical complications, including loosening and prosthesis dislocation, can also be linked to behavioral patterns seen in ADHD. Patients with ADHD are at higher risk of unintentional injuries and fractures, and they may engage in activities that place undue stress on the shoulder [24][25][26][27]. They may also be unable to adhere to movement restrictions placed after surgery, which is critical to healing in the early stages [26][28].

Previous literature has demonstrated an association between mental health disorders such as anxiety, depression, bipolar disorder, and schizophrenia with postoperative complications following TSA, including PJI [4][29]. However, the impact of ADHD on these outcomes has not been analyzed. We demonstrated that patients with ADHD had a higher risk of deep infections, including PJI, at 90 days postoperatively, with the risk of PJI persisting to 4 years postoperatively. The increased rate of infections in children with ADHD has been established, but the persistence of these risks in adulthood is underexplored [30][31]. While a lack of adherence to hygienic practices may potentially explain our findings, the relationship between ADHD and immune dysregulation should also be considered. Recently, several studies have explored the multidirectional relationship between ADHD and the immune system [32][33]. Research demonstrates that patients with ADHD have higher levels of peripheral pro-inflammatory factors such as IL-6 and INF-γ and reduced levels of anti-inflammatory factors such as IL-10 and TNF-α [33]. Other studies suggest that an imbalance of immune cells such as monocytes, granulocytes, and B cells can lead to an altered immune response in these patients. These immunological factors should be explored in future studies as a mechanism for postoperative infection.

Our study has several limitations inherent to its retrospective design and reliance on the TriNetX database. First, reliance on ICD and CPT codes may introduce misclassification or coding errors that are provider-dependent. We reduced confounding bias through propensity score matching using multiple demographic and comorbidity covariates; however, the possibility of residual confounding remains. The severity of ADHD symptoms, socioeconomic status, level of physical activity, pharmacological treatment, postoperative adherence, specific behavioral interventions, prophylactic measures, surgical techniques, implant types, postoperative rehabilitation plans, and surgeon experience can also impact postoperative outcomes. Due to the retrospective design, findings cannot be interpreted as causal inferences. Despite these limitations, this study provides valuable

insights into the impact of a common mental health condition on postoperative outcomes following TSA in adults.

Conclusion

To our knowledge, this is the first study to analyze the impact of ADHD on postoperative outcomes following TSA in adults. The elevated risks of mechanical complications and infection highlight the need for tailored preoperative and postoperative management of these patients. Enhanced preoperative optimization and counseling as well as vigilant long-term monitoring should be considered to mitigate these risks.

Open access statement

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None

Conflict of Interest

Dr. Srikumaran serves as a board or committee member for AAOS, American Shoulder and Elbow Surgeons, and IASES; reports stock or stock options from ROM3, Sonogen, and Tigon Medical; is a paid consultant for, and receives intellectual property royalties from, Fx Shoulder and Tigon Medical; receives other financial or material support from Arthrex, DePuy—a Johnson & Johnson Company, and Thieme; and has been a paid presenter or speaker for, and received research support from, Fx Shoulder. For all other authors: their immediate family, and any research foundation with which they are affiliated did not receive any financial payments or other benefits from any commercial entity related to the subject of this article.

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