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Do Outpatient Knee or Hip Arthroplasties Improve Patient Outcomes?

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Does outpatient knee or hip arthroplasties improve patient outcome?

Votes: Agree: 160 (57.6%), **Disagree**: 98 (35.3%), **Abstain** 3 (7.2%).

Response/Recommendation: The question of whether implementing outpatient total joint arthroplasty (OTJA) offers more benefits than challenges within health care systems remains pivotal. Understanding its potential advantages in terms of cost-effectiveness and patient satisfaction necessitates addressing the complexities of patient selection and postoperative care [1–4]. Outpatient total joint arthroplasty (OTJA) can be beneficial in several aspects, including reducing total complications, lowering readmission rates, and decreasing costs. However, careful patient selection is crucial for achieving successful outcomes with outpatient procedures. It could be suggested that patients with fewer comorbidities, lower BMI, and younger age are more suitable for outpatient procedures. Further studies are needed to investigate the long-term outcomes of OTJA and to address challenges faced by elderly patients. Ultimately, the judgment of the surgeon and anesthesiologist, as well as patient education and support, remain the primary factors in making this decision, which may vary based on individual cases.

Level of Evidence: Moderate.

Rationale

After initial screening of titles and abstracts by two researchers, 154 studies were selected for full-text review. Finally, 67 studies met the inclusion criteria and were included in our analysis [5–40],[40–71] In the dataset, there were 20 studies conducted after 2020 and 39 conducted before 2020. The majority of studies were conducted in the USA, Canada, and the UK. In the dataset, 35 of the articles focused on hip arthroplasty, 32 studies focused on knee arthroplasty, and 13 studies addressed both hip and knee arthroplasty.

The study revealed significant reductions in both complications and readmission rates for outpatient procedures. For outpatient total joint arthroplasty (OTJA), the total complications odds ratio (OR) was 0.70 (95% confidence interval (CI): 0.61 to 0.81, $P < 0.01$,

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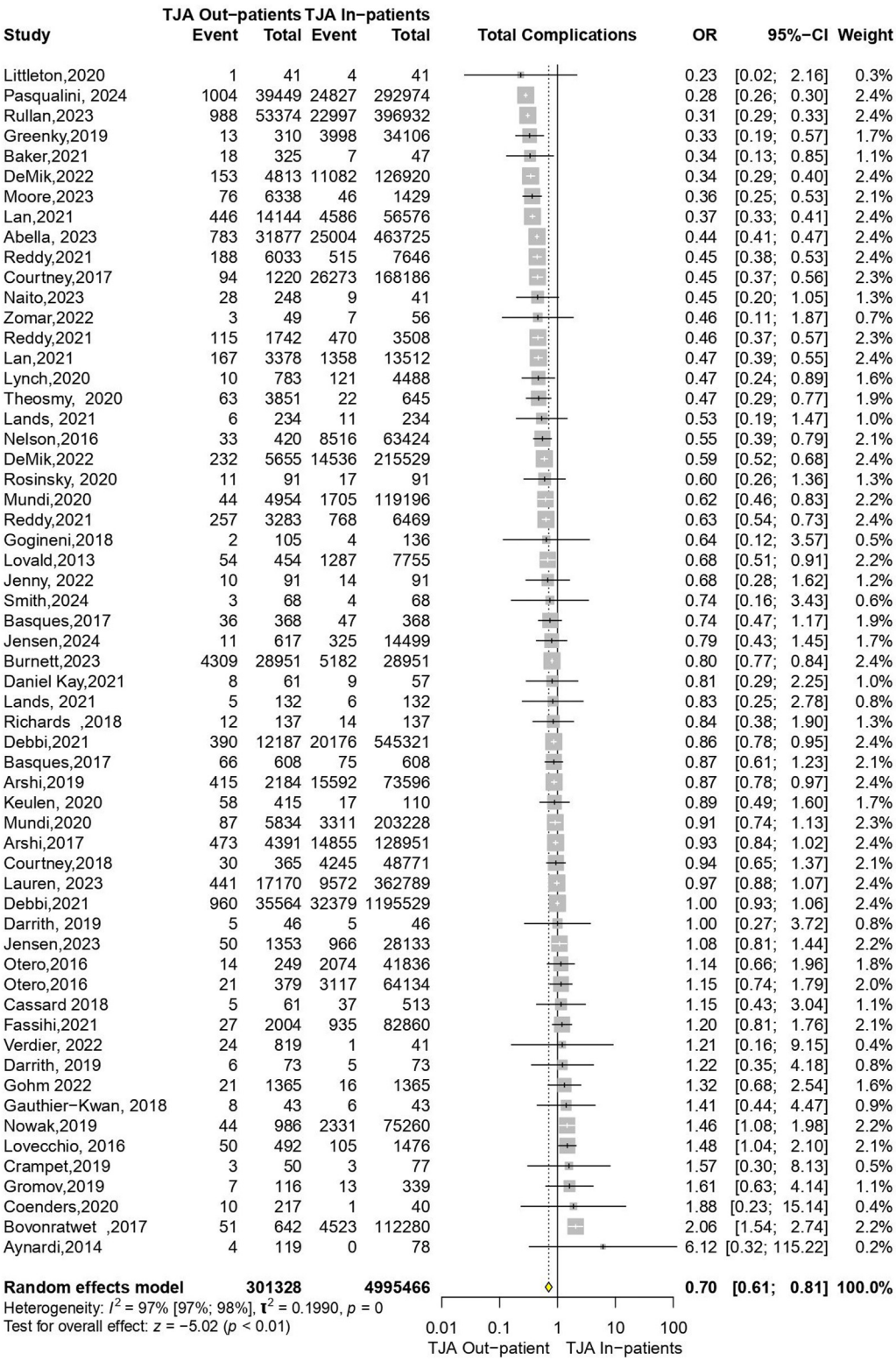

Figure 1. Total complications among outpatient and inpatient TJA. TJA, total joint arthroplasty.

I^2 = 97%) (Figure 1). Specifically, outpatient total hip arthroplasty (THA) showed an even greater reduction in complications with an OR of 0.59 (95% CI: 0.48 to 0.73, P < 0.01, I^2 = 96%). Readmission rates also significantly decreased for OTJA (OR = 0.67, 95% CI: 0.59 to 0.77, P < 0.01, I^2 = 86%) (Figure 2), outpatient total knee arthroplasty (TKA) (OR = 0.75, 95% CI: 0.61 to 0.93, P < 0.01, I^2 = 88%), and outpatient THA (OR = 0.55, 95% CI: 0.43 to 0.71, P < 0.01, I^2 = 78%). Despite the high heterogeneity in these analyses,

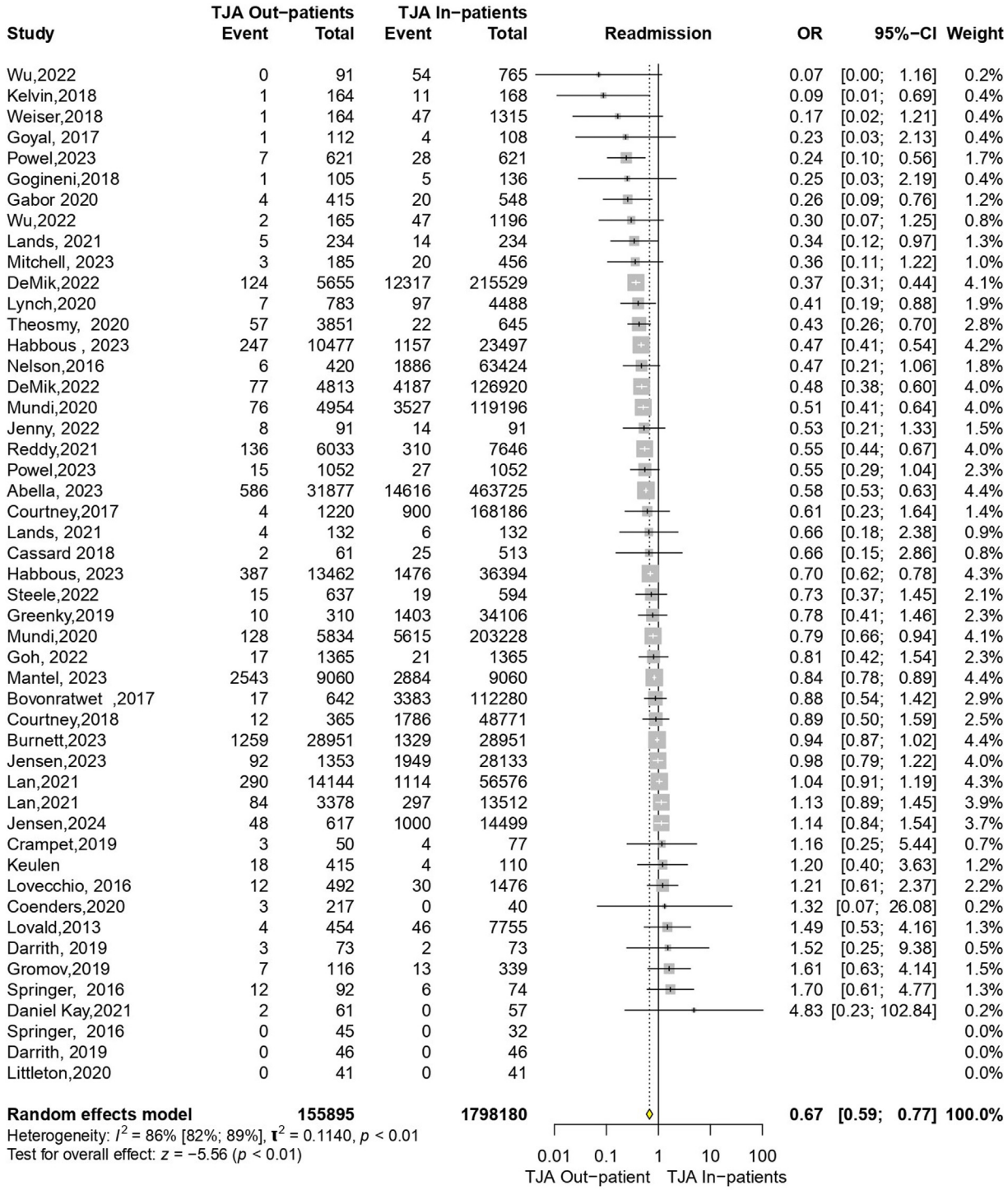

Figure 2. Readmissions among outpatient and inpatient TJA. TJA, total joint arthroplasty.

the consistent pattern of reduced risks highlights the effectiveness of outpatient procedures in lowering both complications and readmissions, thereby improving patient outcomes. However, the analysis did not find a significant difference in the occurrence of PJI: (OR [95% CI] = 0.95 [0.87 to 1.04], $P = 0.28$, $I^2 = 14\%$) (and revision: (OR [95% CI] = 0.95 [0.82 to 1.10], $P = 0.52$, $I^2 = 0\%$) between inpatient and outpatient settings (Figure 3).

Outpatient total joint arthroplasty (OTJA) showed a significantly lower total cost (SMD [95% CI] = −0.65 [−0.93 to −0.37], $P < 0.01$, $I^2 = 97\%$) (Figure 4). For TKA, outpatient procedures also indicated cost savings, though with borderline significance (SMD [95% CI] = −0.42: [−0.85 to 0.00], $P = 0.05$, $I^2 = 92\%$). Additionally, outpatient THA resulted in cost reduction as well (SMD [95% CI] = −0.81: [−1.10 to −0.52], $P < 0.01$, $I^2 = 67\%$).

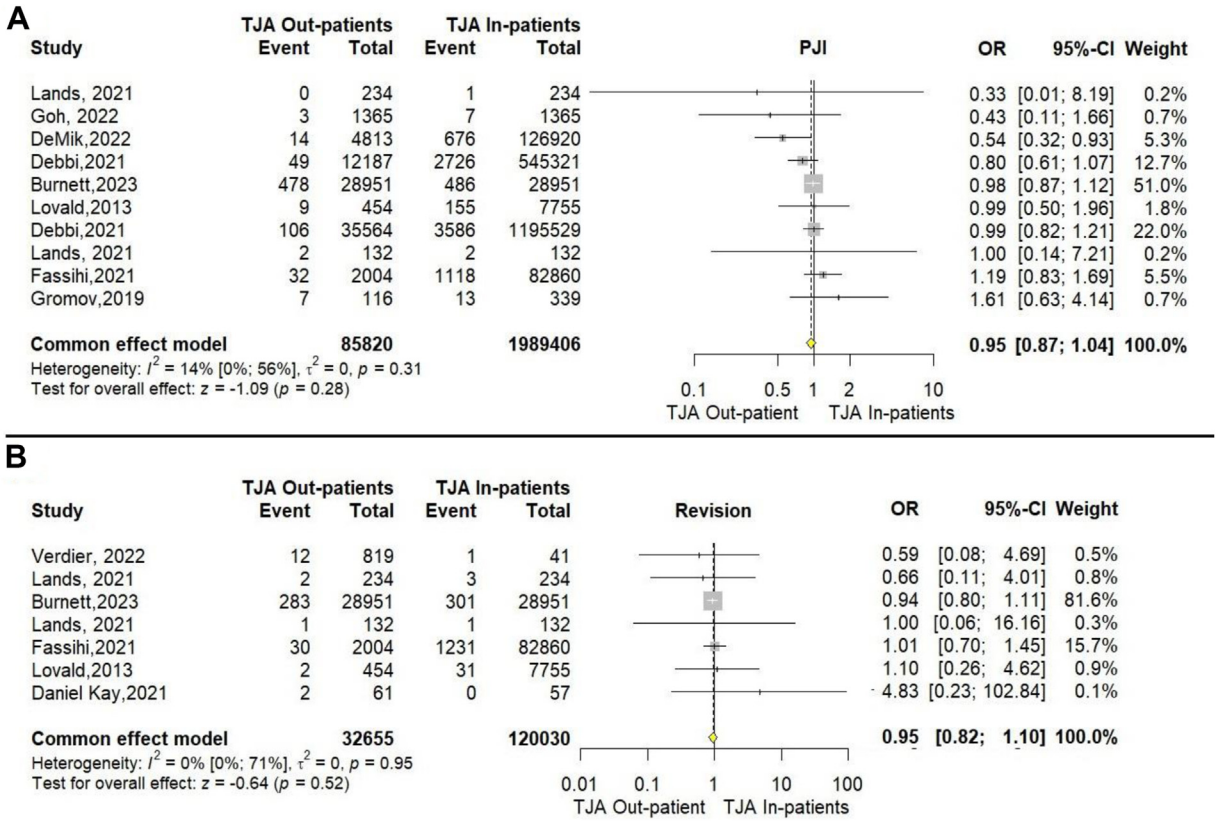

Figure 3. PJI and revision among outpatient and inpatient TJA. TJA, total joint arthroplasty.

These findings highlight significant cost benefits for outpatient surgeries.

Other studies have also looked into the success rates of OTJA, and if it is really beneficial for patients and the health care system Xu et al. [1] conducted a meta-analysis that included smaller studies and found no significant reduction in total complications or readmissions with outpatient procedures compared to inpatient ones. They also examined specific complications such as deep vein thrombosis (DVT), pneumonia, wound complications, and UTIs, but observed no notable differences. In contrast, Gong et al. [2], found a significant difference in the total complications at 30 days between outpatients and inpatients and found significant differences in 30-day complications, including readmissions, strokes, cardiac arrests, and blood transfusions, favoring outpatient procedures. Additionally, Hoffman et al. [3] reviewed over 1,000 OTJAs, with a 94.5% same-day discharge rate, no fatalities, a 1.98% reoperation rate, and 0.89% hospital readmissions, concluding that outpatient joint arthroplasty is a safe option for select patients.

The exact reasons for reduced complications after OTJA are not fully understood. However, reduced time in the hospital environment lowers the risk of infections [72]. Early mobilization is another benefit of outpatient procedures. The ERAS protocols promote early mobilization and rehabilitation, which support faster recovery and reduce the risk of venous thromboembolisms, such as DVT and pulmonary embolism [73]. Another factor may be the reduction in unnecessary venous thromboembolism workups in outpatient settings, as asymptomatic DVTs and pulmonary embolisms can result from

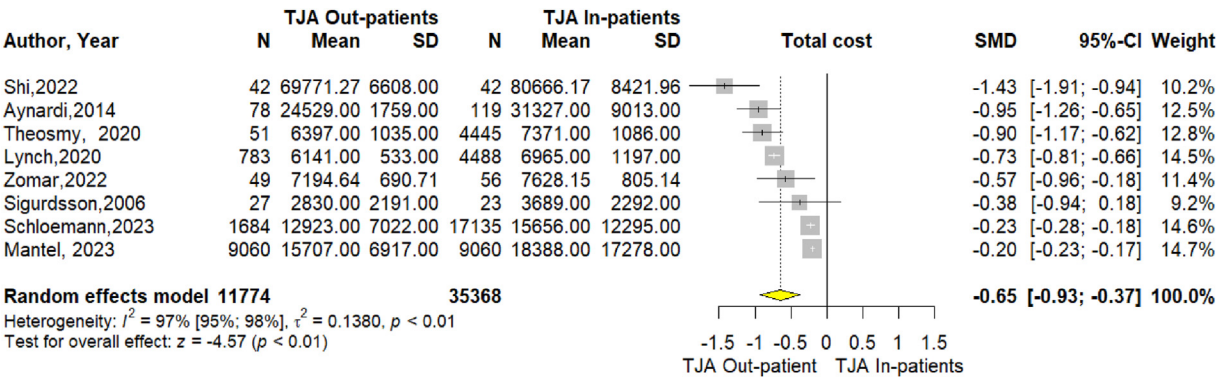

Figure 4. Total cost among outpatient and inpatient TJA. TJA, total joint arthroplasty.

poorly indicated workups. Studies report a prevalence of asymptomatic DVTs in 24.3% of postoperative TKA patients [74], and pulmonary clots in 30% of hospitalized patients [75].

CRediT authorship contribution statement

Amir Human Hoveidaei: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Seyed Pouya Taghavi:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Amirhossein Ghaseminejad-Raeini:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Christopher McClellan:** Visualization, Validation, Supervision, Data curation, Conceptualization. **Paolo Ferrua:** Visualization, Validation, Supervision, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Jan Geurts:** Visualization, Validation, Supervision, Software, Investigation, Formal analysis, Data curation, Conceptualization. **Georgi Wassilew:** Visualization, Validation, Supervision, Resources, Investigation, Formal analysis, Data curation, Conceptualization. **Joseph Bosco:** Visualization, Validation, Supervision, Resources, Investigation, Formal analysis, Data curation, Conceptualization. **Mustafa Citak:** Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

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