RESEARCH ARTICLE

Same-Day Discharge Total Joint Arthroplasty: A Bibliometric Analysis

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Abstract

Objectives: Same-day discharge (SDD) total joint arthroplasty (TJA) continues to increase in prevalence globally, especially following the coronavirus disease (COVID-19) pandemic. The purpose of this analysis is to utilize bibliometric methodology to assess publication trends, key figures, and institutions, as well as geographic variations in SDD TJA research.

Methods: The Web of Science Core Collection was searched from inception to January 23, 2025, for studies on SDD TJA. Publication rates were assessed using the compound annual growth rate (CAGR) and segmented regression analysis. Top publishing authors, institutions, and countries were tabulated as frequencies. International collaboration was assessed by the prevalence of publications with authors from different nationalities.

Results: A total of 121 studies published between 2014 and 2024 were eligible for final analysis, with a CAGR of 44%. Segmented regression demonstrated a significant increase in slope pre-2023 to post-2023 (2.1 vs. 19 publications per year, R2=0.94, P<0.001). Original research comprised 83% of studies, with most being retrospective in nature (66%) and only three being of randomized controlled design (3%). Only four of 15 original studies with a designated primary outcome performed appropriate a priori sample size power analysis. Over half of the studies (53%) were published in the USA, with only seven studies (5.8%) demonstrating international collaboration.

Conclusion: SDD TJA research continues to grow at a rapid rate, with a nine-fold increase in publication rate since 2023. Future directions for SDD TJA research include research from varying healthcare delivery models, international collaborative efforts, and methodologically robust randomized controlled trials.

Level of evidence: V

Keywords: Arthroplasty, Bibliometric, Day surgery, Same-day discharge, Total hip arthroplasty, Total knee arthroplasty

Introduction

Total joint arthroplasty (TJA) continues to be an effective intervention for end-stage arthritis that has failed nonoperative measures.[1] TJA volumes are projected to increase due to several phenomena, including increasing obesity rates, an aging population, and expanded indications.[2,3] The practice of TJA continues to evolve to meet increasing demands, with ongoing research aimed at maximizing the efficiency of resource allocation.[4,5] Moreover, the coronavirus disease (COVID-19) pandemic has served as a recent catalyst for change, resulting in increased emphasis on perioperative optimization, risk stratification, and outpatient total joint arthroplasty with the adoption of virtual technologies to facilitate ambulatory surgery.[4]

Outpatient total joint arthroplasty has experienced a dramatic rise over the last decade, with estimates ranging from a 20-fold to 35-fold increase.[5,6] As noted by McClatchy *et al.*, the term "outpatient" encompasses a variety of surgical settings and discharge timelines.[7] For example, patients undergoing "outpatient" arthroplasty may either be discharged on the same calendar day of surgery or be monitored overnight in an ambulatory surgical center

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(ASC).[7] Of particular interest is same-day discharge (SDD) TJA, wherein patients are discharged on the same calendar day of their surgery. Between 2010 and 2017, rates of SDD total hip arthroplasty (THA) and total knee arthroplasty (TKA) in the United States increased by 16% and 11.1%, respectively.[8] In appropriate patients, SDD TJA provides considerable cost savings without any adverse impact on patient outcomes.[9,10] Unfortunately, an inherent limitation of health services research is the lack of generalizability outside of the assessed healthcare systems and populations. Moreover, the implementation of any practice innovation should be critically evaluated using the highest quality of evidence, and it is unclear whether SDD TJA has been thoroughly evaluated by sufficient prospectively designed randomized trials.[7] Considering the global impact of osteoarthritis,[11] and the resource savings inherent with safe SDD TJA,[10] ensuring this practice innovation is adequately researched and implemented globally is of timely importance.

Bibliometrics is a research methodology that allows for the assessment and characterization of research published within a certain field.[12] Bibliometric studies leverage various statistical techniques to identify trends, hotspots, and gaps in fields of interest. More specifically, bibliometric analyses can shed light on geographic variations in research on a particular topic, leading themes within a field of study, as well as leading scholars and institutions.[12] Various bibliometric studies have been published in arthroplasty assessing robotic-assisted joint replacement,[13] unicompartmental knee arthroplasty,[14,15] as well as revision hip and knee arthroplasty.[15] While two prior studies assessed the most influential publications in outpatient TJA, their findings are limited by a combination of either a narrow search strategy, an outdated search date, and the heterogeneity of studies using the ill-defined term "outpatient".[16,17] For example, Constantinescu *et al.*'s bibliometric analysis was limited only to the 50 highest cited articles in outpatient TJA, which precludes analyzing any trends in publications over time.[16] Further, their study did not formally explore the distinction between same-day discharge and admitted patients in outpatient facilities.[16] While a more recent study, Boutros *et al.,* also presents notable methodological areas for improvement, including no formal distinction of SDD publications, unclear study screening process, and no formal assessment of the level of evidence of studies to date.[17] As such, there exists a gap in the literature on the bibliometric assessment of SDD TJA studies to date, with a concurrent critique of the available quality of evidence.

The purpose of this study is to assess the current state of same-day discharge TJA research using bibliometric tools. More specifically, this study aims to (1) characterize recent trends in SDD TJA, (2) identify leading authors/institutions on the subject matter, and (3) identify any major geographic variations in research productivity. Same-day discharge was explicitly defined as discharge within the same calendar day of surgery. Findings of this study will facilitate effective collaboration across thought leaders and institutions seeking to adopt or conduct their own same-day discharge TJA research and/or protocols, ensuring that this service is delivered in a safe, effective, and equitable manner globally.

Materials and Methods

Data Sources and Search Strategy

As per previous bibliometric studies,[15,18] the Web of Science (WOS) Core Collection database was searched from inception to January 23, 2025, for studies related to outpatient TJA. The WOS database includes relevant citation data, allowing for various bibliometric analyses. The search strategy was comprised of terms including "same day home", "same day discharge", and "day case" combined with arthroplasty-specific terms [Supplemental Digital Content Table 1]. As Web of Science does not support controlled vocabulary indexing (e.g., MeSH), our search was based on free-text terms and Boolean operators. Eligible studies were with the primary aim of assessing outcomes following same-day discharge TJA with no limitations placed on study design, level of evidence, or publication type, including pre-prints and conference proceedings, to maximize inclusion of studies. Assessment of duplicates was performed prior to the title/abstract screening stage. Titles/abstracts followed by full texts of included studies were screened by two authors independently (HAK and MA) according to the eligibility criteria using Rayyan.[19] Conflicts at the title/abstracts were advanced to the full-text stage, at which point any remaining conflicts were resolved via consensus.

Data Collection and Abstraction

Publication data, including title, journal, publication year, and citations to date, were exported directly from WOS on the search date. To ensure accuracy of author-related data, each author's institutional and regional affiliation was manually abstracted by two reviewers independently (HAK and MA). If a co-author was affiliated with multiple institutions, the publication's most commonly represented institutional affiliation across co-authors was selected as the primary affiliation. If an author was affiliated with both a private and an academic institution, the academic affiliation was selected as primary. Publications were assigned to the country of the corresponding author. Additional study characteristics included publication type (i.e., original study, systematic review/meta-analysis, editorial, etc.) as well as whether the study was a peer-reviewed manuscript or conference abstract. Original research published in full form as peer-reviewed manuscripts were further assessed for the designation of an explicit primary outcome with appropriate statistical power analysis.

Journal impact factor was obtained from the Journal Citations Report by Clarivate as of 2023. Studies were considered to be of 'international collaboration' when co-authors from more than one country were involved.

Statistical and Bibliometric Analysis

Descriptive statistics for relevant study characteristics are presented as means with standard deviation or medians and interquartile range for normally and non-normally distributed data, respectively. Categorical variables were presented as frequencies and percentages. The citation density was calculated for all studies, which is the number of citations divided by the number of years published. Temporal trends in publications, stratified by origin of publication, were analysed. The top 10 most cited articles, authors, institutions, and countries were also identified.

The compound annual growth rates (CAGR) in

publications were calculated, with further stratification by country. Segmented regression was performed using the *segmented* package in R (version 2.1.3) to identify an inflection point in publication trends. A linear model was first fitted, and then the segmented model was applied to estimate the optimal breakpoint in the data iteratively. No a priori assumptions were made regarding the location of the breakpoint. Slopes were computed for both the pre-breakpoint and post-breakpoint periods, and model fit was assessed using the R-squared statistic. Additionally, publication rates before and after 2020 (to assess the impact of the COVID-19 pandemic) were compared using a nonparametric Wilcoxon rank sum test with continuity correction, given the small sample sizes and non-normal distribution of annual publication counts. Statistical analyses were conducted using R version 4.4.2, and data organization was performed in Google Sheets.

Results

Publication Trends and Temporal Changes

A total of 121 eligible studies, published between 2014 and 2024, met the inclusion criteria and were included in the final analysis [Figure 1].

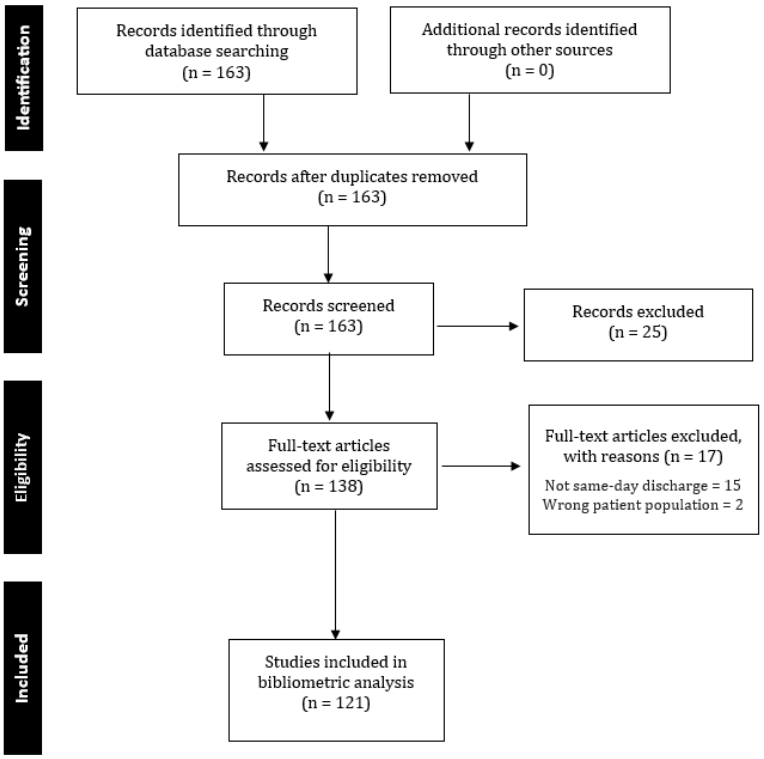

Figure 1. PRISMA flowchart

Over these 10 years, the number of publications increased from 1 in 2014 to 37 in 2024, representing a CAGR of 43.5% [Figure 2]. Segmented regression analysis identified a significant breakpoint in 2023, with the number of studies more than doubling from 2023 to 2024. The regression found a pre-2023 slope of 2.1, compared to a post-2023 slope of 19.0, with an overall R-squared value of 0.94 [Supplemental Digital Content Figure 1].

A likelihood ratio test (*P<0.001*) confirmed that the segmented model significantly improved fit over a linear model, indicating the breakpoint is statistically significant. A significant difference in annual publication count was observed before and after 2020, coinciding with the COVID-19 pandemic. A Wilcoxon rank sum test with continuity correction demonstrated a statistically significant shift in publication trends (W = 0, p = < 0.01), suggesting that the pandemic notably impacted publication output. Regarding publication type, original research accounted for the majority of studies (83%), followed by narrative reviews/expert opinions (6%) and systematic reviews (6%) [Figure 3a]. Among original research studies, retrospective cohort studies were the most prevalent (66.0%), followed by case series (16%), and prospective cohort studies (10.3%) [Figure 3b]. Of the eligible original studies published as full-length peer-reviewed manuscripts (n=75), only four studies (5.3%) presented with *a priori* sample size analysis for the designated primary outcome. The remaining studies either presented with multiple primary outcomes (48.0%), assessed risk/prognostic factors with no required power analysis (27%), presented with a single

outcome with no *a priori* power analysis (14.7%), performed economic analysis (4.0%), or assessed temporal trends (1.3%). The most common primary outcomes were patient-reported outcomes (PROMs) (n=3), complication rates (n=3), readmissions/emergency department visits (n=3), as well as length of stay and discharge disposition (n=3). Notably, only one study assessed postoperative opioid consumption.

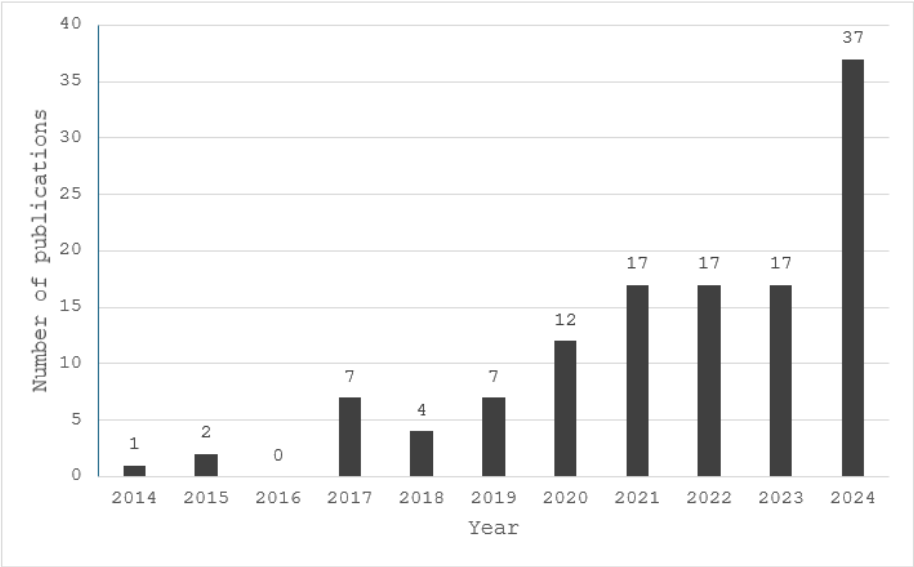

Figure 2. Histogram of publications per year

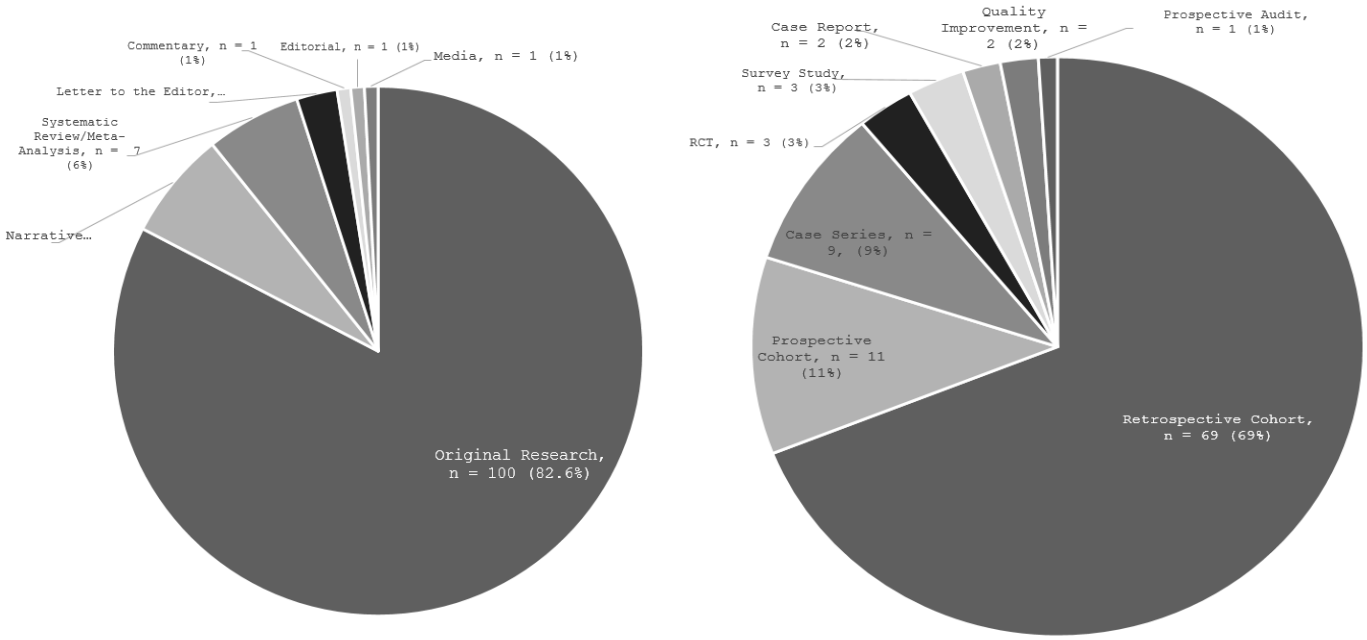

Figure 3a: Pie chart of distribution of total study types/ Figure 3b Pie Chart of Distribution of Original Research Study Types

Analysis of Most Cited Articles

A total of 1,369 citations were recorded across all the articles analyzed. The top 10 most cited articles received between 38 and 102 citations [Table 1]. The most cited article, "Same-Day Discharge Compared with Inpatient Hospitalization Following Hip and Knee Arthroplasty," is a retrospective cohort study by Basques et al. from Rush University, USA, which received 102 citations.[9] Among the top 10 articles,[8,9,20–27] the United States was the predominant country of origin, contributing 7 of the 10 articles. The article with the highest citation density, defined as citations per year, was "Same-Day Discharge Total Hip and Knee Arthroplasty: Trends, Complications, and Readmission Rates" by Debbi et al. of the Hospital for Special Surgery, USA, with 13.33 citations per year.[8] Additionally, the Journal of Arthroplasty was the most common, featuring 6 of the 10 articles.

Table 1. Top 10 most cited articles

First author	Primary Investigator	Primary Investigator Institution	Country	Title	Study type	Year	Journal	Citations	Citation density
Basques, BA	Della Valle, CJ	Rush University	USA	Same-Day Discharge Compared with Inpatient Hospitalization Following Hip and Knee Arthroplasty [9]	Retrospective Cohort	2017	Journal of Bone and Joint Surgery	102	12.8
Sher, A	Moucha, CS	Icahn School of Medicine	USA	Predictors of Same-Day Discharge in Primary Total Joint Arthroplasty Patients and Risk Factors for Post-Discharge Complications [20]	Retrospective Cohort	2017	Journal of Arthroplasty	78	9.8
Klein, GR	Hartzband, MA	Hartzband Center for Hip and Knee Replacement	USA	Same Day Total Hip Arthroplasty Performed at an Ambulatory Surgical Center: 90-Day Complication Rate on 549 Patients [21]	Retrospective Cohort	2017	Journal of Arthroplasty	67	8.4
Gondusky, JS	Gorab, R	Hoag Orthopedic Institute	USA	Day of Surgery Discharge after Unicompartmental Knee Arthroplasty: An Effective Perioperative Pathway [22]	Retrospective Cohort	2014	Journal of Arthroplasty	61	5.6
Bodrogi, A	Beaulé, PE	University of Ottawa	Canada	Management of patients undergoing same-day discharge primary total hip and knee arthroplasty [23]	Systematic Review	2020	Canadian Medical Association Journal	57	11.4
Fraser, JF	Hozack, WJ	Rothman Institute Orthopaedics	USA	Identifying Reasons for Failed Same-Day Discharge Following Primary Total Hip Arthroplasty [24]	Prospective Cohort	2018	Journal of Arthroplasty	47	6.7
Bradley, B	Isaac, DL	Torbay Hospital	UK	Discharge on the day of surgery following unicompartmental knee arthroplasty within the United Kingdom NHS [25]	Prospective Cohort	2017	Bone & Joint Journal	42	5.3
Scully, RD	Melvin, JS	Johns Hopkins University	Japan	Outpatient-Same-calendar-day Discharge Hip and Knee Arthroplasty [26]	Narrative review	2020	Journal of The American Academy of Orthopaedic Surgeons	40	8.0
Debbi, EM	Westrich, GH	Hospital for Special Surgery	USA	Same-Day Discharge Total Hip and Knee Arthroplasty: Trends, Complications, and Readmission Rates [8]	Retrospective Cohort	2022	Journal of Arthroplasty	40	13.3
Kim, KY	Schwarzkopf, R	NYU Health	USA	Rapid Discharge in Total Hip Arthroplasty: Utility of the Outpatient Arthroplasty Risk Assessment Tool in Predicting Same-Day and Next-Day Discharge [27]	Retrospective Cohort	2018	Journal of Arthroplasty	38	5.4

Authorship and Contribution Trends

The top 10 most prolific authors collectively produced 51 publications, accounting for 42.1% of the 121 included studies [Table 2]. Among these 51 publications, 7 (13.7%) were as first author, 17 (33.3%) as principal investigator, and the remaining 24 (47.0%) as co-authors in other positions. The top 10 authors were affiliated with institutions from three countries: Denmark (n=4), the United States (n=4), and the United Kingdom (n=2). The most frequently published author was Kirill Gromov of Copenhagen University Hospital, Denmark, with eight publications, including six as principal investigator. Ran Schwarzkopf of New York University (NYU) Health, USA, had the most total citations (n=84) and the highest average citations per publication (12.0).

Table 2. Top 10 authors by publication count

Author	Institution	Country	Total publications, n	Publications as first author, n	Publications as Primary Investigator, n	Total citations	Average citations per publication
Gromov, K	Copenhagen University Hospital	Denmark	8	0	6	52	6.5
Schwarzkopf, R	NYU Health	USA	7	0	2	84	12.0
Troelsen, A	Copenhagen University Hospital	Denmark	6	0	1	35	5.8
Jensen, CB	Copenhagen University Hospital	Denmark	5	4	0	22	4.4
Davidovitch, RI	NYU Health	USA	5	0	4	18	3.6
Wignadasan, W	University College London Hospital	UK	4	2	0	28	7.0
Lindberg-Larsen, M	Odense University Hospital	Denmark	4	1	0	23	5.8
Ziemba-Davis, M	Indiana University	USA	4	0	0	13	3.3
Haddad, FS	University College London Hospital	UK	4	0	4	27	6.8
Ibrahim, M	University College London Hospital	UK	3	0	0	26	9.0

NYU, New York University; USA, United States of America; UK, United Kingdom

Country and Institution Analysis

A total of 14 unique countries contributed to the publications. The five countries with the highest number of publications were the United States, the United Kingdom, Denmark, Canada, and Ireland [Table 3]. The United States had the greatest research output, contributing 64 publications (53% of all studies) and the highest total citation count at 822. Canada had the highest median citation density per study, with a median of 4.5 citations per year. The growth in publications from the US showed the highest compound annual growth rate at 53% [Figure 4].

A total of 73 unique institutions contributed to the publications. The Hospital for Special Surgery, USA, was the most prolific institution, contributing 10 publications and accumulating a total of 141 citations [Table 4]. NYU Health, USA, had the highest total citation count, with 103 citations across nine publications. Among the top nine institutions, six were based in the United States, with the remaining three located in Denmark, the United Kingdom, and Singapore. The Hospital for Special Surgery, USA, demonstrated the highest citation-to-publication ratio at 12.8. Sixteen institutions, each with two publications, were tied for the 9th position. As a result, only the top eight institutions are presented in [Table 4].

Out of 121 studies reporting, only seven studies (5.8%) were by authors from different countries. The following combinations of countries were identified: Barbados/USA (n=1), Netherlands/USA (n=1), Canada/USA (n=1), France/Switzerland (n=1), France/UK (n=1), Belgium/Denmark (n=1), and Japan/USA (n=1).

Table 3. Top 5 countries by publication count

Country	Publication count	Total citations	Most published authors	Median citation density of published articles
USA	64	822	Schwarzkopf, R	2.0
UK	19	157	Wignadasan, W	1.0
Denmark	12	134	Gromov, K	2.5
Canada	9	162	Nielsen, CS	4.5
Ireland	3	0	McGrath, B	0.0

USA, United States of America; UK, United Kingdom

Table 4. Top 8 institutions by publication count

Institution	Country	Publication count	Total citations	Average Citations per Publication
Hospital for Special Surgery	USA	10	141	12.8
NYU Health	USA	9	103	11.4
Copenhagen University Hospital	Denmark	6	35	5.8
Indiana University	USA	4	13	3.3
Rothman Institute Orthopaedics at Thomas Jefferson University Hospital	USA	4	50	12.5
University College London Hospital	UK	4	28	7.0
Harvard University/Medical School	USA	3	15	5.0
Singapore General Hospital	Singapore	3	4	1.3

NYU, New York University; USA, United States of America; UK, United Kingdom

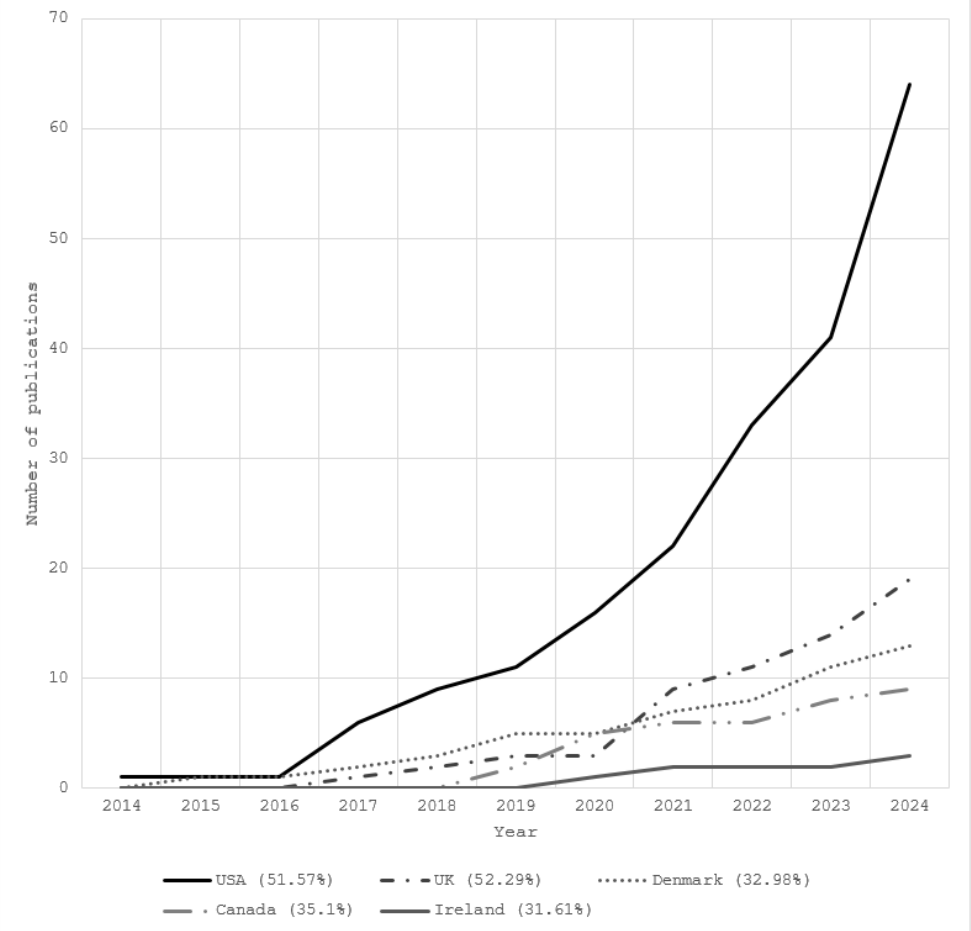

Figure 4. Publication Growth of Top 5 Highest Publication Countries and CAGR for Each Country

Journal Analysis

A total of 47 unique journals published articles on this topic. The Journal of Arthroplasty had the highest publication count, with 30 articles, and also received the highest total citations, with 475 [Supplemental Digital Content Table 2]. The journal with the highest average citations per publication was the Bone & Joint Journal, with 22.3 citations per article. Additionally, the Bone & Joint Journal had the

highest impact factor among the included journals, at 4.9 as of 2023.

Discussion

Given the increasing demands on healthcare systems to accommodate the rising need for TJA to treat end-stage arthritis, same-day discharge has emerged as a promising, resource-efficient practice innovation. Importantly, research on SDD TJA is growing at a rapid rate of 43.5% annually, with a significant increase in annual publications following the COVID-19 pandemic. Nonetheless, this bibliometric analysis demonstrates that the majority of research output on SDD TJA is concentrated across a small number of institutions and lacks geographic diversity. While a disproportionate amount of research is from the USA, the top 5 journals were of four different nationalities across North America and Europe, indicating a promising though not truly global dissemination of knowledge. Given the nascent nature of research on SDD TJA, this review provides a timely snapshot of research to date, leading authors and institutions in the field, as well as areas for further improvement.

As a predominantly elective speciality, orthopaedic surgery was particularly impacted by the COVID-19 pandemic. In the United States, it was estimated that up to 30,000 primary and 3,000 revision hip and knee arthroplasty procedures were cancelled each week.[28] Expectedly, same-day discharge rates of patients undergoing TKA in the United States increased significantly from the first to the last quarter of 2020 (8.7% to 17.1%).[29] This review demonstrates that annual publication volumes similarly increased following COVID-19, indicating that research efforts continue to ensure the safety and optimization of this practice. Moreover, an inflection point in publication rate was found following 2023, which is likely secondary to the increasing availability of data with adequate follow-up duration. Nonetheless, almost 70% of original research on SDD TJA was retrospective in nature, which is inherently biased, with only 3% of studies being of randomized design. Further, regional and national registries commonly used to assess higher-level outcomes following SDD TJA present with unique limitations that should be highlighted.[30] While cost-effective, conclusions drawn by joint registries are limited by the quality of data collected, an area of ongoing research in the orthopaedic literature.[31,32] Several biases are also not controlled for in registry studies, including selection bias and attrition bias. For example, using the English NHS PROMs programme, Imam et al. demonstrated that patients lost to follow-up were more likely to have lower baseline functional outcomes relative to patients who completed the study follow-up.[33] Moreover, matching patient confounders is also limited by the characteristics inputted in the dataset.[34] Finally, registry studies may lack sufficiently granular data to assess a particular outcome, requiring the use of proxy outcomes instead. For example, it is common to define implant failure as cases requiring revision surgery, though this may systematically exclude subsets of patients, such as those not fit for surgery. Further, it has been demonstrated that the term 'revision' is also not universally defined across major registries.[35] Therefore, while registry-based studies do present a cost-effective alternative to conventional observational studies, especially when assessing outcomes with low event rates, findings must be interpreted in the context of each registry's methodologic limitations.

Review of the most-cited studies in this space demonstrated several shared characteristics that likely contributed to their high impact. First, several highly cited articles presented seminal safety and feasibility evidence, demonstrating low complication rates following SDD TJA in appropriately selected patients.[9,21,22] Another subset of highly cited papers addressed patient selection and risk stratification to maximize the safety of SDD TJA further.[20,23] These publications are often referenced in the development of protocols and inclusion criteria. Finally, some studies focusing on perioperative protocols outlined clinically relevant recommendations for the safe implementation of SDD TJA (e.g., anesthetic guidelines and discharge logistics).[21,22]

This study identified a notable geographic disparity, with over 50% of publications being from the United States. This phenomenon may be explained by several factors. The United States spends almost 18% of its gross domestic product (GDP) on health care, twice as much as other high-income countries, with largely comparable utilization rates.[36] To incentivize quality of care over quantity, and to ensure that health care expenditure is allocated effectively, value-based health care has been gaining increased traction in the U.S. over the last two decades.[37,38] This has resulted in the introduction of bundled payments for TJA by the Centers for Medicare and Medicaid Services (CMS), wherein practice efficiencies such as decreased length of stay or same-day discharge are advantageous insofar as outcomes are not compromised.[39] Further, it has been demonstrated that a country's GDP, healthcare expenditure, and obesity rates are significantly correlated for both THA and TKA, all of which the USA ranks amongst the highest across OECD countries.[40,41] Therefore, optimizing healthcare delivery through efforts such as same-day discharge would have a particularly significant impact in the U.S. due to its ever-increasing volume of arthroplasty procedures. While the generalizability of findings from U.S. institutions will be very limited outside of this healthcare system, other leading countries in the field have demonstrated promising CAGRs, including the United Kingdom (52.3%), Denmark (33.0%), and Canada (35.1%).

Methodologically, this study demonstrated a significant lack of prospectively designed studies with appropriate a priori sample size calculations. Instead, almost half of the original studies with available peer-reviewed manuscripts for review reported on multiple outcomes without designating a primary outcome. Inappropriately powered studies have several methodologic implications, which may threaten the strength of their findings, including statistically fragile results and the risk of spurious findings.[42,43] Further, of the three included RCTs,[44–46] only Bradbury et al.'s study published in the Journal of Arthroplasty on the efficacy of a remote physical therapy program following SDD TKA presented with

a formal power analysis.[44] Potential reasons for the lack of adequately powered studies include unknown event rates to inform the power analysis, inadequate resources to conduct adequately powered studies, as well as retrospective study designs with a fixed sample size. While exploratory studies are valuable in the early stages of a research field when effect sizes are unclear, this bibliometric review demonstrates that sufficient evidence now exists to inform the design of methodologically robust prospective studies. The limited number of prospective studies also highlights a gap in high-level evidence, which may hinder the development of robust clinical guidelines or consensus recommendations. While logistical and ethical challenges exist in randomizing patients to different discharge protocols, prospectively designed studies are warranted to validate much of the retrospective evidence used to inform practice to date, particularly those evaluating safety, patient-reported outcomes, and long-term complications.

Findings from this analysis have several additional implications for future research efforts. Most notable is a need for research on the feasibility and outcomes of SDD TJA in different healthcare systems and societies to maximize the generalizability of findings. Five types of OECD healthcare systems have been described in the literature, further underscoring the importance of region-specific research efforts.[47] With only 5.8% of studies involving authors from different countries, there is also tremendous potential for international collaboration in SDD TJA research. Further, collaborative efforts in TJA SDD are currently concentrated across high-income countries as per the World Bank classification system.[48] Therefore, future research should also foster collaboration between high-income and low-/middle-income countries, a recent priority in orthopaedic surgery research.[49] As well, prospectively designed studies with more granular outcomes not available in registry data can shed light on timely implications of SDD TJA, such as opioid use,[50] caregiver burden,[51] as well as patient-reported outcomes.[52] Foreseeable challenges in designing robust prospective RCTs on the subject matter include ensuring adequate statistical power, whether through the selection of outcomes with sufficiently high event rates or the use of multi-center collaboration to maximize sample size, as well as maintaining patient safety. Further, considering the logistically demanding nature of an RCT on SDD TJA, there must be sufficient clinical equipoise to justify the cost associated with running such a trial in a standardized manner. Finally, institutional financial incentives may limit participation, particularly in centers that have already implemented successful SDD pathways.

This study is not without its limitations, many of which are inherent to bibliometric analyses. While this study was not a formal systematic review, screening of studies was conducted in duplicate and two stages as per recommendations of the PRISMA guidelines to ensure the relevance of included studies.[53] Similarly, while no formal quality assessment was conducted, the study design was recorded, providing a level of granularity often lacking in bibliometric studies. Due to considerable heterogeneity in the definition of "outpatient" TJA, this review utilized a focused search strategy using "same-day discharge" and related terms[26] As such, there may be a subset of outpatient TJA studies that assessed SDD not included in this analysis. Ultimately, standardized terminology referring to same-day discharge is warranted. Additionally, this study only searched the WOS database due to its standardized citation data, which may have excluded articles indexed in other databases. Future studies could consider multi-database searches.

Conclusion

SDD TJA research continues to grow at a rapid rate, with a nine-fold increase in publication rate since 2023. Over 50% of publications are from institutions based in the United States, with only 5.8% of studies involving collaborations across countries. While 83% of studies were original research, only 14% of these were of prospective or randomized design. Future directions for SDD TJA research include research from varying healthcare delivery models, international collaborative efforts, as well as adequately powered randomized controlled trials.

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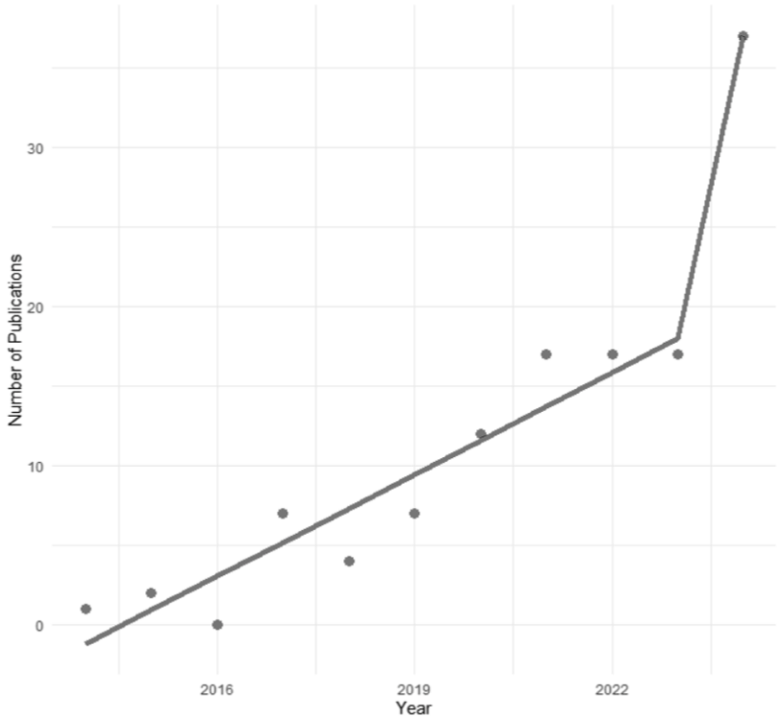
Supplemental Digital Content Table 1. Search strategy
Web of Science Core Collection Search Terms
TI=(("Same-day" OR "Same day" OR "Day-case" OR "Day case" OR "Day of surgery" OR "Day surgery" OR "Same-calendar" OR "Same calendar") AND ((("Total joint" OR "knee" OR "hip") AND ("Arthroplasty" OR "Replacement")) OR ("UKA" OR "TKA" OR "THA")))

Supplemental Digital Content Table 2. Top 5 journals by total publication count

Journal	Country	Impact factor (2023)	Publications count	Total citations	Average citations per publication
Journal of Arthroplasty	USA	3.4	30	475	15.8
Acta Orthopaedica	Sweden	2.5	8	60	7.5
Bone & Joint Journal	UK	4.9	6	134	22.3
Knee	Netherlands	1.6	6	44	7.3
Arthroplasty Today	USA	1.5	5	35	7.0

USA, United States of America; UK, United Kingdom



Supplemental Digital Content Figure 1. Segmented regression of publications growth