

## Introduction

- Utilization for robotic-assisted unicompartmental knee arthroplasty (RAUKA) for medial compartmental osteoarthritis (OA) has increased through the years.
- Studies have shown favorable outcomes of RAUKA use due to its accurate implant placement, alignment, and allowing for earlier ambulation compared to manual instrumentation.
- Currently, studies evaluating implant survivorship, patient satisfaction rates, and revision rates following this procedure with a long-term follow-up are limited.
- Therefore, the purpose of this study was to analyze an institution's database of patients undergoing RAUKA for medial compartmental OA. Specifically, this study evaluated:
  - 1) Implant Survivorship
  - 2) Patient-Satisfaction Rates
  - 3) Overall Revision Rates

## Materials and Methods

- A retrospective query of our institution's own total joint arthroplasty database was queried for all patients who underwent RAUKA for medial compartmental OA with the Stryker MAKO (Stryker; Mahwah, New Jersey, United States) robotic-assisted system.
- The inclusion criteria consisted of all patients who had a medial compartmental RAUKA who failed conservative management. All procedures were performed by a single surgeon.
- The final query yielded 185 patients (left = 76; right = 109) with a mean age of 64.9 years (range: 39 to 92) and a mean body mass index (BMI) of 31.6kg/m<sup>2</sup> (range: 22.4 to 39.6kg/m<sup>2</sup>) with a mean follow-up period of 9.98 years.
- Primary endpoints of the study were to determine:
  - Implant Survivorship
  - Patient-Reported Satisfaction Rates
  - Overall Revision Rates

## Statistical Analyses

- Survivorship was analyzed by construction Kaplan-Meier survivorship curves to analyze implant survival at the end of the study period.
- Patient were asked about the satisfaction of their procedure and were stratified as being either: "very satisfied", "satisfied", "neutral", "dissatisfied" or "very dissatisfied".
- Revision rates were calculated by asking patients if they had any reoperations within the ipsilateral knee and if so, how soon after from the original index procedure.

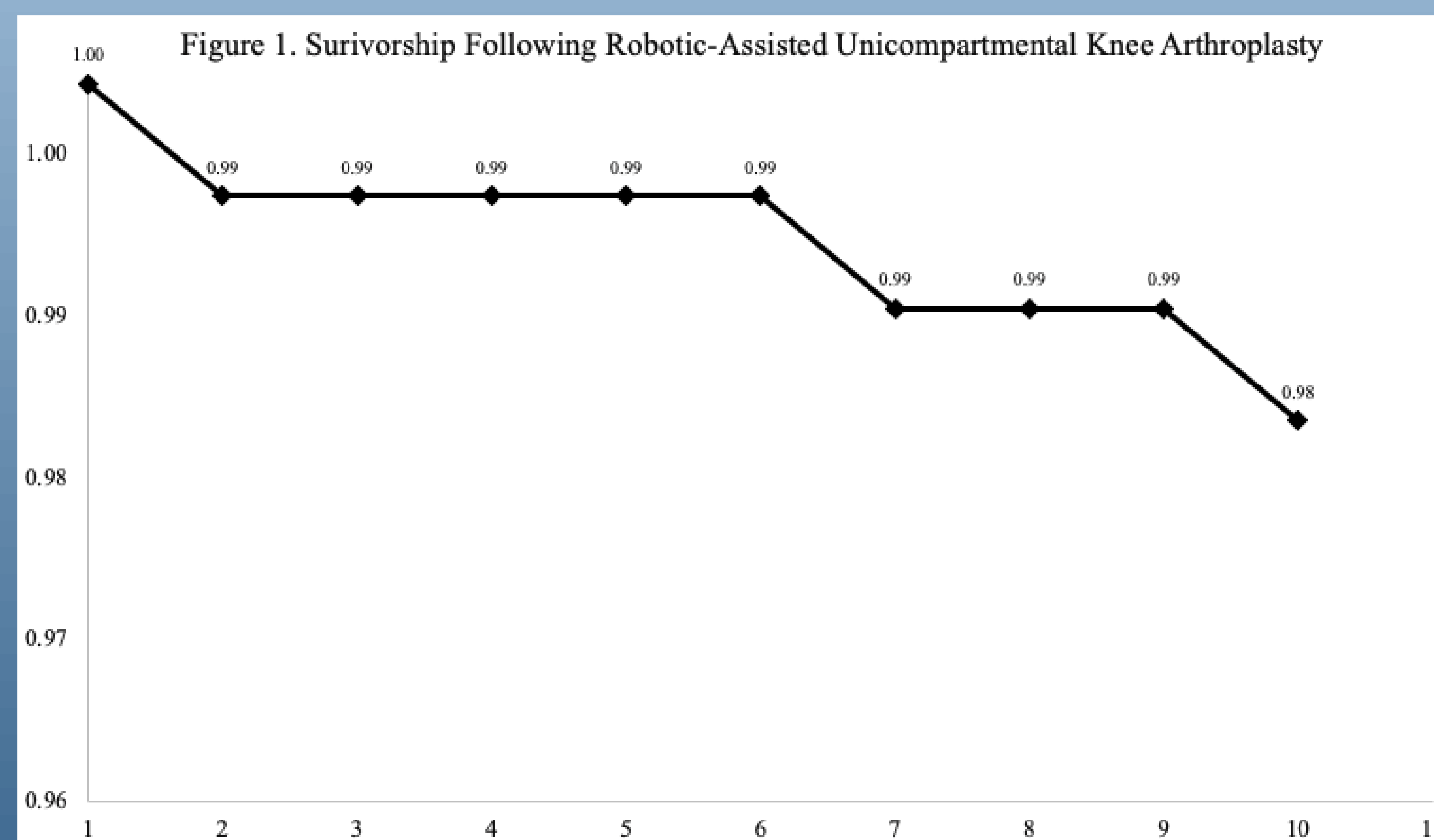


Figure 1. Survivorship Following Robotic-Assisted Medial Unicompartmental Knee Arthroplasty

Figure 2. Satisfaction Distribution Following Robotic-Assisted Medial Unicompartmental Knee Arthroplasty

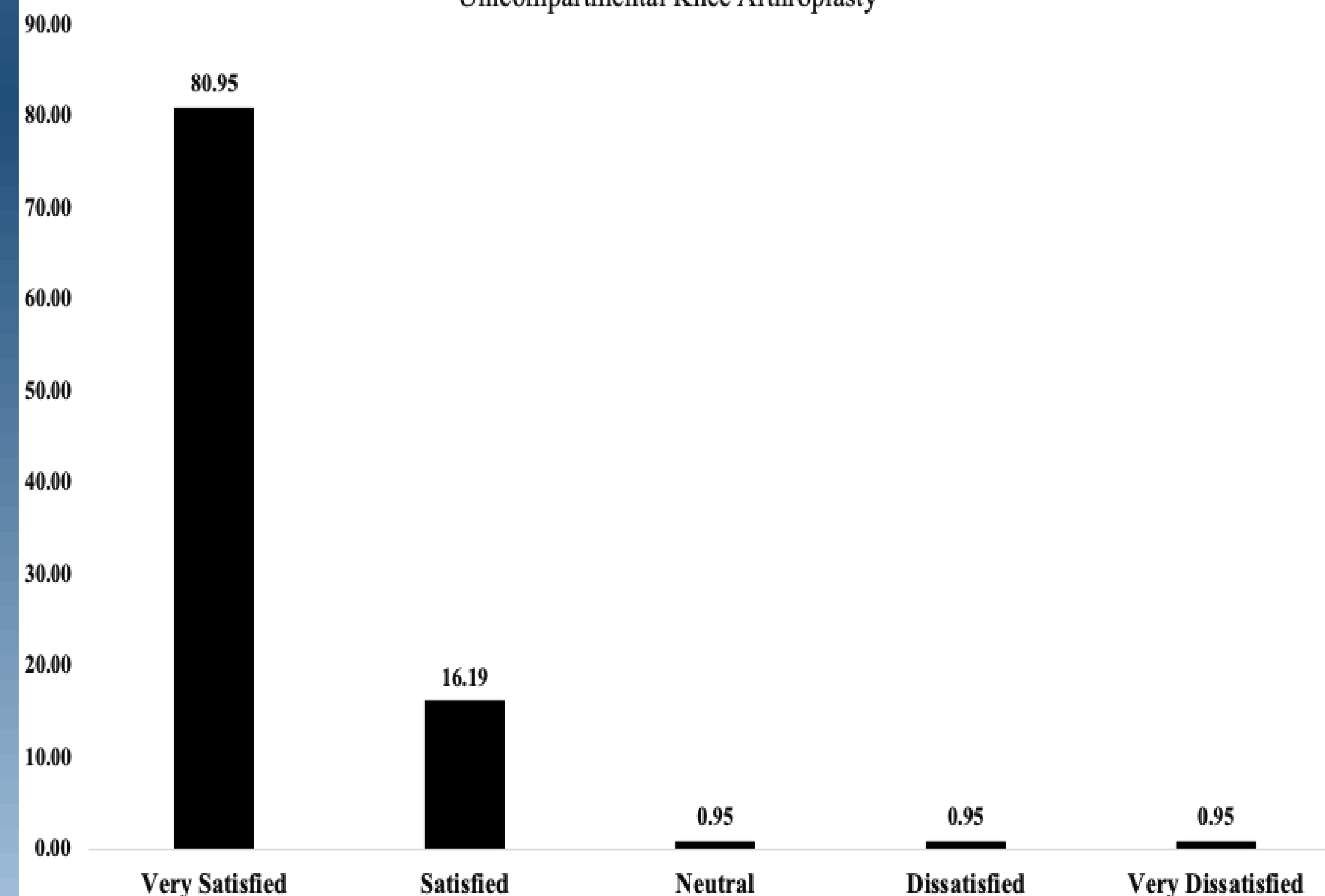


Figure 2. Distribution of Patient-Satisfaction Rates Following Robotic-Assisted Medial Unicompartmental Knee Arthroplasty

## Results

### Implant Survivorship

- The data demonstrated RAUKA had an overall 10-year survivorship of 98%. From years 2 to 9 following the index procedure, overall survivorship rates were consistent at 99% (Figure 1).

### Patient Satisfaction Rates

- Stratifying patients by satisfaction rates demonstrated majority of the patients were "very satisfied" (80.95%) or satisfied (16.19%) with their procedure. Subgroup analysis of the "very satisfied" cohort demonstrated patients between 55 to 70 years of age (36.78%) comprised majority of the cohort followed by patients between the ages of 71 to 92 (31.75%), and 39 to 54 years of age (31.47%). Patients who were "neutral", "dissatisfied" or "very dissatisfied" with their procedure represented 2.7% of the overall study cohort (Figure 2).

### Revision Rates

- Two patients were ultimately revised during the study period. One patient was converted to a total knee arthroplasty due to degeneration in the contralateral compartment 5-years following the index procedure. Another patient required a polyethylene exchange due to an acute infection within 5-weeks following the initial surgery.

## Conclusion

- The purpose of this study was to determine implant survivorship, patient-satisfaction rates, and overall revision rates in a large sample of patients undergoing medial compartment RAUKA with long-term follow-up.
- The results of the study demonstrate robotic-assisted unicompartmental knee arthroplasty has over 98% survival, with patients being very satisfied with the outcomes of their procedure.
- The study is useful as it can allow orthopaedic surgeons and other healthcare professionals to adequately educate patients on the use of this technology.