

Pain Expectations and Coping Mechanisms after Total Joint Arthroplasty: Comparisons Between a Mission Trip and a United States Sample

Yash P. Chaudhry, DO; Kevin Mekkawy, DO; Tyler Pratte, DO; Robert Brooks, DO; Eric Grenier, MD; Claudia Campbell, PhD; Robert S. Sterling, MD; Harpal S. Khanuja, MD.

INTRODUCTION

- Total joint arthroplasty (TJA) is one of the most common procedures performed in the US
- Obtaining access to arthroplasty can be difficult in low-resource settings, however - several organizations conduct service trips to underserved regions to provide arthroplasty care to populations in need
- This study aimed to compare pain, function, and pain expectations and coping mechanisms of patients from one such service trip to a matched cohort in the United States.

METHOD

- Ten total hip arthroplasty (THA) and 27 total knee arthroplasty (TKA) procedures were performed on an Operation Walk trip to Guyana in October 2019
- Demographics, validated short-forms of the hip disability and osteoarthritis outcome score (HOOS Jr.) and knee injury and osteoarthritis outcome score (KOOS Jr.), the Survey of Pain Attitudes, the Coping Strategies Questionnaire, and the pain visual analogue scale (VAS) were collected preoperatively and 3 months postoperatively.
- Compared to TJA patients at a tertiary care hospital in the US between October 2019-March 2022 and matched with regards to age, sex, and procedure type

Survey of Pain Attitudes

	US	OpW	p-value
There is little I can do to ease my pain	1.9 (1.4)	2.5 (1.4)	0.069
My pain does not stop me from leading a physically active life	1.8 (1.3)	1.5 (1.5)	0.316
The pain I feel is a sign that damage is being done	3.6 (0.7)	3.7 (0.6)	0.619
There is a connection between my emotions and my pain level	1.9 (1.4)	2.7 (1.6)	0.027
I will probably always have to take pain medications	1.3 (1.3)	2.1 (1.6)	0.067
When I am hurting, I deserve to be treated with care and concern	2.7 (1.4)	3.9 (0.3)	<0.001
I trust that doctors can cure my pain	3.4 (0.8)	3.8 (0.5)	0.017

Table 1: Preoperative Survey of Pain Attitudes comparison between US and OpW cohorts. Graded on a scale of 0-4, with 0 being very untrue and 4 being very true. Presented as mean (standard deviation).

RESULTS & DISCUSSION

- The Operation Walk cohort (OpW) had lower preoperative self-reported function than the US cohort (US) (38.2 vs. 51.5, $p = 0.002$) and larger change in score (40.9 vs. 27.7, $p = 0.008$), but no significant difference at 3 months ($p = 0.472$)
- The OpW cohort had higher initial pain (7.4 vs 6.0, $p = 0.015$), but no difference at 3 months ($p = 0.180$) or overall change in pain ($p = 0.297$).
- The OpW cohort was more likely to believe in a connection between their emotions and pain level ($p = 0.027$), that they deserve to be treated with care and concern when in pain ($p < 0.001$), had greater trust in their doctors to cure their pain ($p = 0.017$), more likely to cope with pain by imagining it as another sensation ($p = 0.021$), and using prayer ($p < 0.001$).

Coping Strategies Questionnaire

When I feel pain...	US	OpW	p-value
I think of doing things I enjoy doing	2.1 (1.9)	2.2 (2.0)	0.823
I just think of it as some other sensation, such as numbness	1.5 (1.9)	2.6 (1.8)	0.021
It is terrible and I feel it is never going to get any better	1.5 (1.8)	2.4 (2.2)	0.053
I don't pay any attention to it	2.4 (1.9)	2.4 (1.9)	0.946
I pray for the pain to stop	3.3 (2.6)	5.8 (0.6)	<0.001
I tell myself I can't let the pain stand in the way of what I have to do	4.8 (1.4)	4.6 (1.7)	0.554
I do something active, like household chores or a project	2.9 (2.0)	3.4 (2.3)	0.285

Table 2: Preoperative Coping Strategies Questionnaire comparison between US and OpW cohorts. Graded on a scale of 0-6, with 0 indicating never used as a strategy for managing pain and 6 indicating always used as a strategy for managing pain. Presented as mean (standard deviation).

CONCLUSION

- Patients in low-resource settings may be more likely to have preoperative functional limitations and pain, but TJA is an effective treatment for severe osteoarthritis in both populations
- Understanding the key differences between these populations and how they approach functional limitations and pain may improve care for each respective group.

HOOS Jr./KOOS Jr.

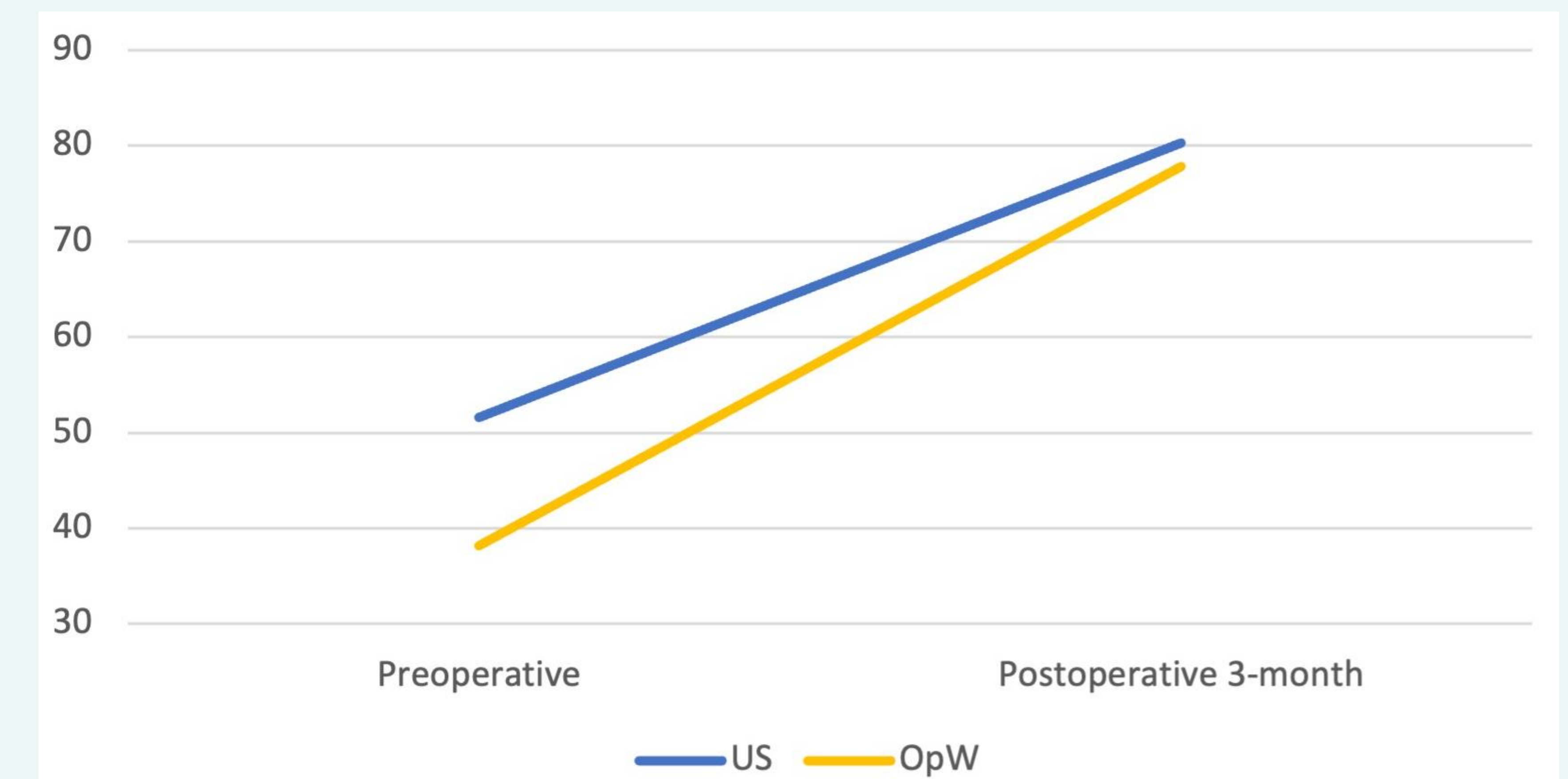


Figure 1: Comparison of preoperative and postoperative 3-month scores in the hip disability and osteoarthritis outcome score (HOOS Jr.) and knee injury and osteoarthritis outcome score (KOOS Jr.) between matched US and Operation Walk patients undergoing total joint arthroplasty.

Pain Scale

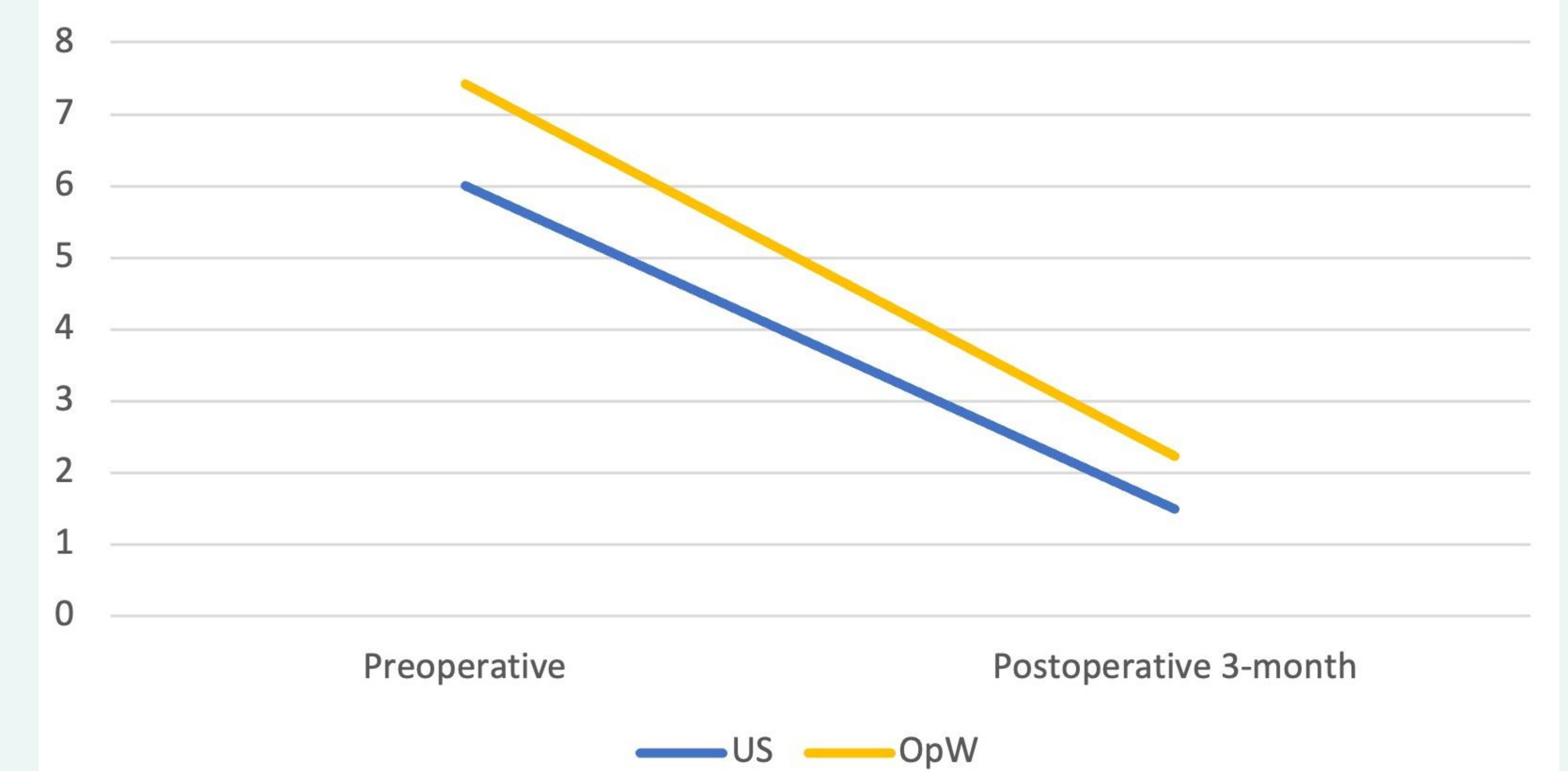


Figure 2: Comparison of preoperative and postoperative visual analogue pain scores between matched US and Operation Walk cohorts undergoing total joint arthroplasty.