



# The Effects of Setting of Administration on Patient Reported Outcomes in Patients with Hip-Related Concerns



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# Disclosure: Stephen Aoki, MD

- I have financial relationships with the following companies:
  - Consulting.....Stryker/Pivot Medical



# Background

- Patient reported outcomes (PROs) are important clinical tools to assess general health and physical function.
- Depending on the hospital, PROs may be administered during a patient's clinic appointment or emailed to the patient to complete at home.
- Previous studies have indicated that the setting of administration can influence mental health and quality-of-life scores.<sup>1,2</sup>
- There is currently no data investigating the effects of setting on physical function scores in the field of orthopaedics. Therefore, the assumption of using home and clinic completions interchangeably is not yet supported.



# Objective and Hypothesis

## Objective:

- To determine if the setting of administration results in statistically and clinically significant differences in patient scores from questionnaires assessing hip and general physical function.

## Hypothesis:

- Outcome scores will be decreased when reported at the clinic compared to home.



# Methods

- 52 adult patients with hip-related concerns scheduled for clinic appointments with two sports fellowship-trained orthopaedic surgeons specializing in hip arthroscopy
- During their clinic appointment, all patients completed the following questionnaires as part of their standard of care assessment :
  - Hip Outcome Score (HOS)<sup>3</sup>
  - Modified Harris Hip Score (MHHS)<sup>4</sup>
  - Physical Function Computed Automated Test (PFCAT)<sup>5</sup>



# Methods

- Participants were also asked to complete the three questionnaires at home.
- Participants were randomized to complete the home questionnaires either before or after their clinic appointment.

	<b>Group A: Home 1st</b>	<b>Group B: Home 2nd</b>	<b>Group Comparison p- value</b>
# participants (n)	26	26	
# Females (n)	18	20	0.391
Post op (n)	10	11	0.777
Age (mean $\pm$ std, years)	41.1 $\pm$ 11.3	37.5 $\pm$ 13.0	0.290



# Data Analysis

- Mixed effects multivariable linear regression analysis including order of completion as a covariate (i.e., home or clinic first), was used for each questionnaire to determine differences in scores reported at home or in the clinic
- Intraclass correlation coefficient (ICCs): were calculated to evaluate each questionnaire's reliability
- Bland-Altman analysis: to evaluate the agreement between clinic and home completions<sup>6</sup>

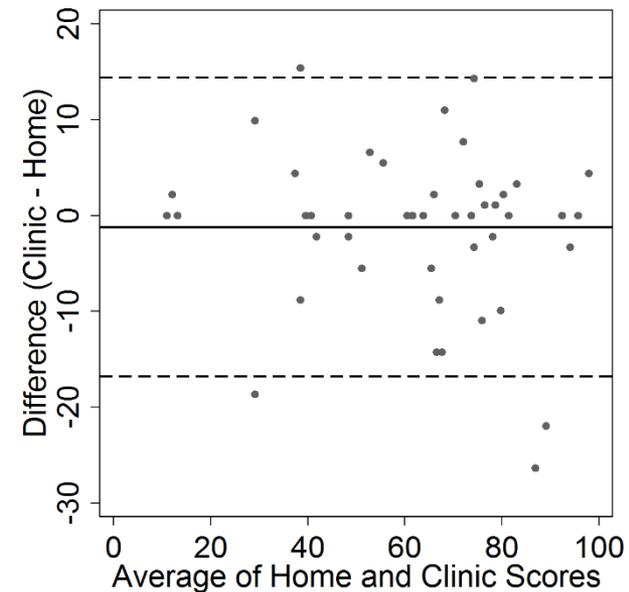
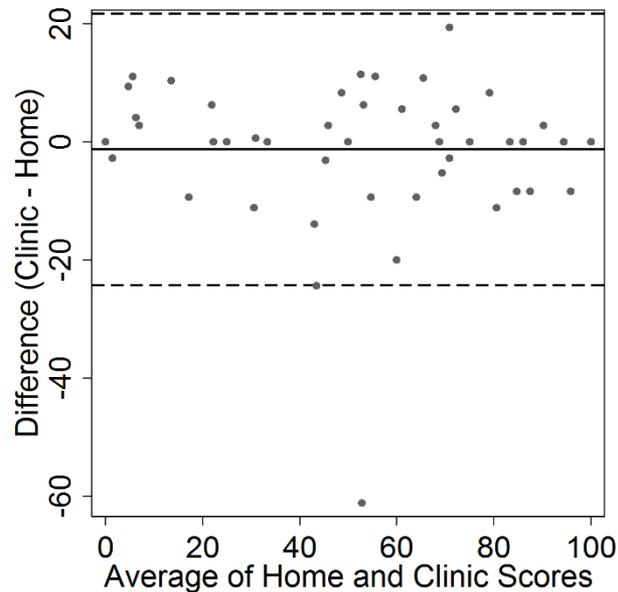
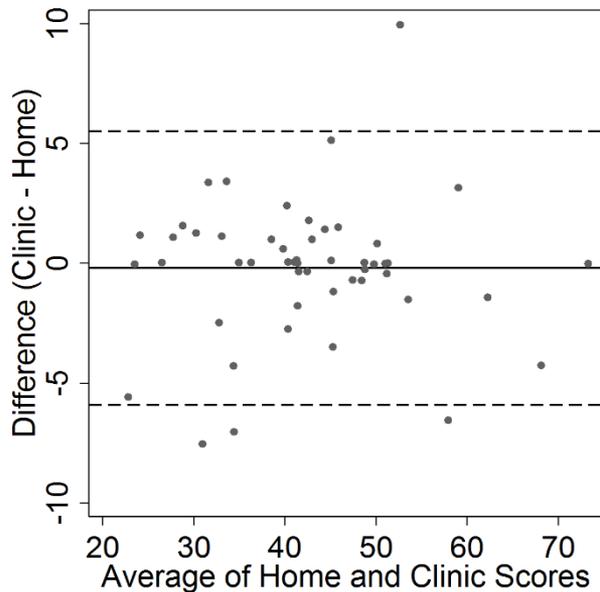


# Results

- There was no significant difference between home and clinic completions for the PROs
  - PFCAT ( $p = 0.625$ )
  - HOS ( $p = 0.432$ )
  - MHHS ( $p = 0.270$ )
- The covariate representing order of completion was not significant in the mixed-effects model for all three questionnaires (all  $p > 0.346$ ).
- The reliability of all three questionnaires was excellent
  - ICCs were 0.96 for the PFCAT, 0.94 for the MHHS and 0.93 for the HOS.



# Bland Altman Plots



Bland-Altman plot comparing home and clinic scores for PFCAT.

Bland-Altman plot comparing home and clinic scores for the MHHS.

Bland-Altman plot comparing home and clinic scores of the HOS.



# Bland Altman Results

## Bias

- The Bland-Altman analysis indicated a very small bias of higher home scores than clinic scores for all three questionnaires, with a mean difference of: -0.2 for the PFCAT, -1.2 for MHHS, and -1.3 for the HOS.

## Limits of Agreement

- Represents the range in which 95% of the differences are observed.
- The HOS had the widest limits of agreement (-24.2 to 21.7) , followed by the MHHS (-16.8 to 14.4) and PFCAT (-5.9 to 5.5).



# Take Home Message

- The MHHS, PFCAT and HOS have high repeatability and are, on average, not affected by settings of administration.
  - Hospitals may offer patients the option to complete questionnaires during their clinic appointment or electronically at home.
- When reviewing data on the level of the cohort, no distinction is required for PROs completed at home or clinic within 5 days of a clinical appointment.
- It is important to note that some individual patient scores for the HOS and MHHS may vary substantially between completions (reflected in the wide limits of agreement).



# References

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