Gender Differences in Prevalence, Outcomes, and Complications of Hip Arthroscopy for Femoroacetabular Impingement:

A Systematic Review and Meta-Analysis

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Introduction

- Trends regarding gender differences have been reported for:
  - Prevalence
  - Patient-reported outcomes (PROs)
  - Complications of hip arthroscopy (HA) for femoroacetabular impingement syndrome (FAIS)

- Results are mixed and lack consensus.[1, 2, 3, 4, 5]

- Study purpose:

  1) Compare gender differences in the prevalence of cam and pincer morphology in FAIS

  2) Evaluate for gender differences in PROs, pain scores, and post-operative complication rates after HA for FAIS treatment

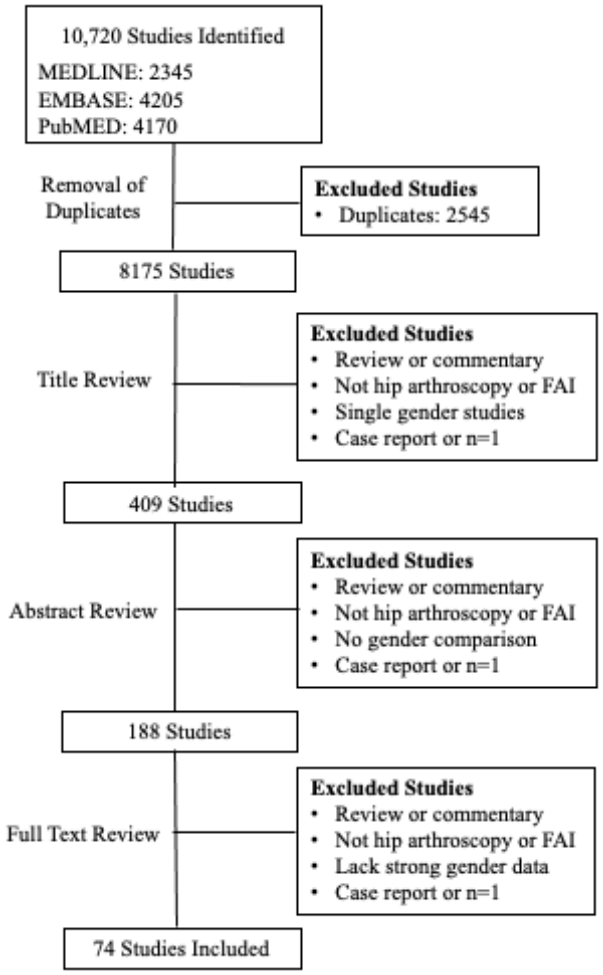

Fig. 1. Flow diagram of systematic screening of the literature for gender differences after HA for FAIS.

Methods

- Three databases (EMBASE, PubMed, Ovid [MEDLINE]) were searched from database establishment to Nov. 2021;
- Included: studies with gender-specific data related to prevalence, outcomes, and complications of hip arthroscopy or FAIS;
- Excluded: reviews and commentaries;
- Data was combined, between-gender differences analyzed;
- Meta-analysis using random effects model was performed when possible;
- Pooled risk ratios and standardized mean differences were calculated for male and female data.

Results

- 74 studies (n=213,059 patients, 62.4% female, 37.6% male)
  - Mean age: 30.7

- Impingement Morphology:
  - **Mixed-type** impingement: **males** > females (RR[1] 0.69 [0.58, 0.81], p<0.001)
  - **Pincer-type** impingement: **females** > males (RR 2.35 [1.14, 4.86], p=0.02)

- Operative Management:
  - **Femoroplasty (F)**: **males** > females (RR 0.90 [0.83, 0.97], p=0.006)
  - **Acetabuloplasty (A)**: **males** > females (RR 0.87 [0.79, 0.97], p=0.01)
  - **Combined F/A**: **males** > females (RR 0.63 [0.44, 0.90], p=0.01)

- Outcome Improvements & Complications:
  - **HOS-SS[2]**: **females** > males (SMD[2] 2.34, 95% CI [0.69, 3.98], p=0.005)
  - **mHHS[4]**: **females** > males (SMD 0.78, 95% CI [0.23, 1.34], p=0.006)
  - **VAS pain[5]**: **females** > males (SMD 2.68, 95% CI [1.23, 4.14], p<0.001)
  - **Both genders exceeded MCID[6] at 1-, 2-, 5-years post-operatively**

- **Post-op. complication rates**: **females** > males (RR 2.34 [1.33, 4.10], p=0.003)

- **THA conversion rates**: **no gender differences** (RR 0.87 [0.71, 1.08], p=0.21)

[1]RR, relative risk < 1 indicates higher frequency among males, RR > 1 indicates higher among females
[2]HOS-SS, Hip Outcome Score, Sport-Specific Subscale; [3]SMD, standard mean difference; [4]mHHS, Modified Harris Hip Score; [5]VAS pain, Visual Analogue Scale for pain; [6]MCID, minimal clinically important difference

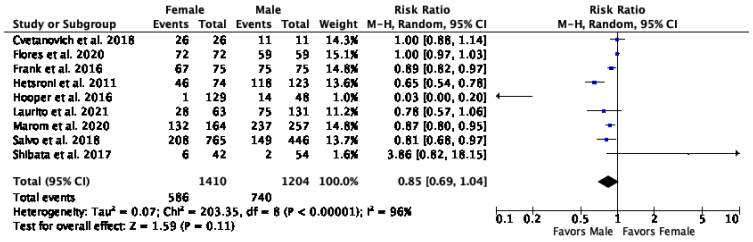

Figure 2: Prevalence of cam hips among FAIS patients.

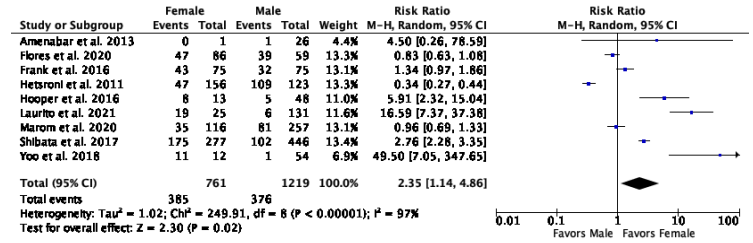

Figure 3: Prevalence of pincer hips among FAIS patients.

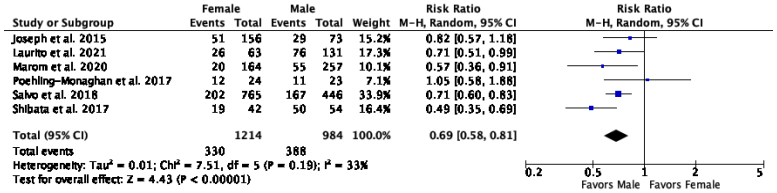

Figure 4: Prevalence of mixed cam/pincer hips among FAIS patients.

Conclusions

- **Males**
  - Higher prevalence of **mixed-type** FAIS
- **Females**
  - Higher prevalence of **pincer-type** FAIS
  - **Greater improvements in PROs** after undergoing HA for FAIS
  - Higher **post-operative complication rates** for **females** after HA
- **Both** genders **exceeded MCIDs**
- *Significant improvements in PROs suggest that* ***males and females can benefit from HA for FAIS***

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