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Female patients depend more on postoperative outcomes in assessing satisfaction than male patients after total knee arthroplasty

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Disclosures:

The authors have no conflicts of interest to declare.

Introduction

- **Gender may affect outcomes and satisfaction after total knee arthroplasty (TKA)**

  - *residual pain and stiffness (more prevalent in female)* — *Bonnin MP, KSSTA, 2011*
  - *WOMAC and SF-12 score (No difference between male and female)* — *Clement , Knee Surg Relat Re, 2020*
  - *Oxford knee, KSS, SF-36 (greater improvement in female)* — *Lim JB, J Orthop Surg, 2015*

- **There is a close relationship between postoperative outcomes and satisfaction after TKA.**

  - *Final total score and higher improvement in WOMAC were related to greater satisfaction* — *Choi YS, J Knee Surg, 2024*
  - *Dissatisfaction was associated with lower Oxford Knee and SF12 after TKA* — *Williams DP, Knee, 2013*

- **No consensus on the outcomes and satisfaction in male and female after TKA.**

Purpose & Hypothesis

❖Purpose

- To determine difference in clinical outcomes and satisfaction between male and female after TKA
- To determine whether relationship between outcomes and satisfaction differs between male and female after TKA

❖Hypothesis

- Postoperative outcomes and satisfaction was lower in female than in male
- Association between outcomes and satisfaction after TKA was higher in female than in male.

Materials and Methods
- Study cohort

Patients with unilateral TKA from January 2017 to December 2020 (n = 1542 patients)

Inclusion Criteria

(1) ≥ 65 years
(2) Degenerative osteoarthritis of KL III and IV at 1st visit
(3) NRS ≥ 4 at 1st visit
(4) Conservative treatment for at least 3 months
(5) TKA of same manufacturer

Case (n = 897 limbs)

Exclusion Criteria

(1) Previous surgical treatment for knee osteoarthritis (n = 118)
(2) Unavailable medical records and radiographs (n = 107)
(3) Not suitable for conservative treatment (n = 201) (abnormal laboratory findings, side effect)
(4) Unavailable questionnaire (n = 147)

Eligible case (n = 324 limbs)

Male (n = 130)

Female (n = 194)

- **Male : 130, female : 194**
- **Age (year): 71±6.1 (65-84)**
- **BMI : 26.6±3.1 (19.2-37.5)**

Clinical evaluation

❖ **Clinical outcomes**

- ➢ *WOMAC : 0 -96, higher scores indicating more severe knee conditions*
- ➢ *2011 KSS : knee score 0-100, function score 0-100, lower scores indicating more severe knee conditions*

❖ **Satisfaction**

- ➢ *Satisfaction score, subscale of the 2011 KSS : 0-40, higher scores indicating better satisfaction*

❖ **Preoperatively and 1 and 2 years after TKA loading axis.**

Data analysis

- **To determine difference in clinical outcomes and satisfaction between male and female after TKA**
  - WOMAC, KSS, satisfaction scores (male vs female)
  - All subscale scores of WOMAC and KSS

- **To determine whether relationship between outcomes and satisfaction differs between male and female after TKA**
  - Correlation coefficient between satisfaction score and WOMAC total, KSS knee total, or function total scores (male vs female)
  - Total WOMAC, KSS knee total, and function total scores

Results ; *clinical outcomes of male and female*

Table 2. Comparison of WOMAC score between male and female

WOMAC	Male (n = 130)	Female (n = 194)	*P* value
1 year			
Pain	0.7 ± 1.4	1.3 ± 2.6	0.384*
Stiffness	1.5 ± 1.0	1.4 ± 1.4	0.640*
Function	10.8 ± 6.2	13.9 ± 9.9	0.265*
Total	13.0 ± 7.5	16.6 ± 12.3	0.303*
2 year			
Pain	0.8 ± 1.2	1.4 ± 2.7	0.376*
Stiffness	1.6 ± 0.9	1.1 ± 1.4	0.789*
Function	10.3 ± 8.5	12.9 ± 8.3	0.162*
Total	12.7 ± 9.7	15.4 ± 11.3	0.493*

No difference in clinical outcomes between male and female !!

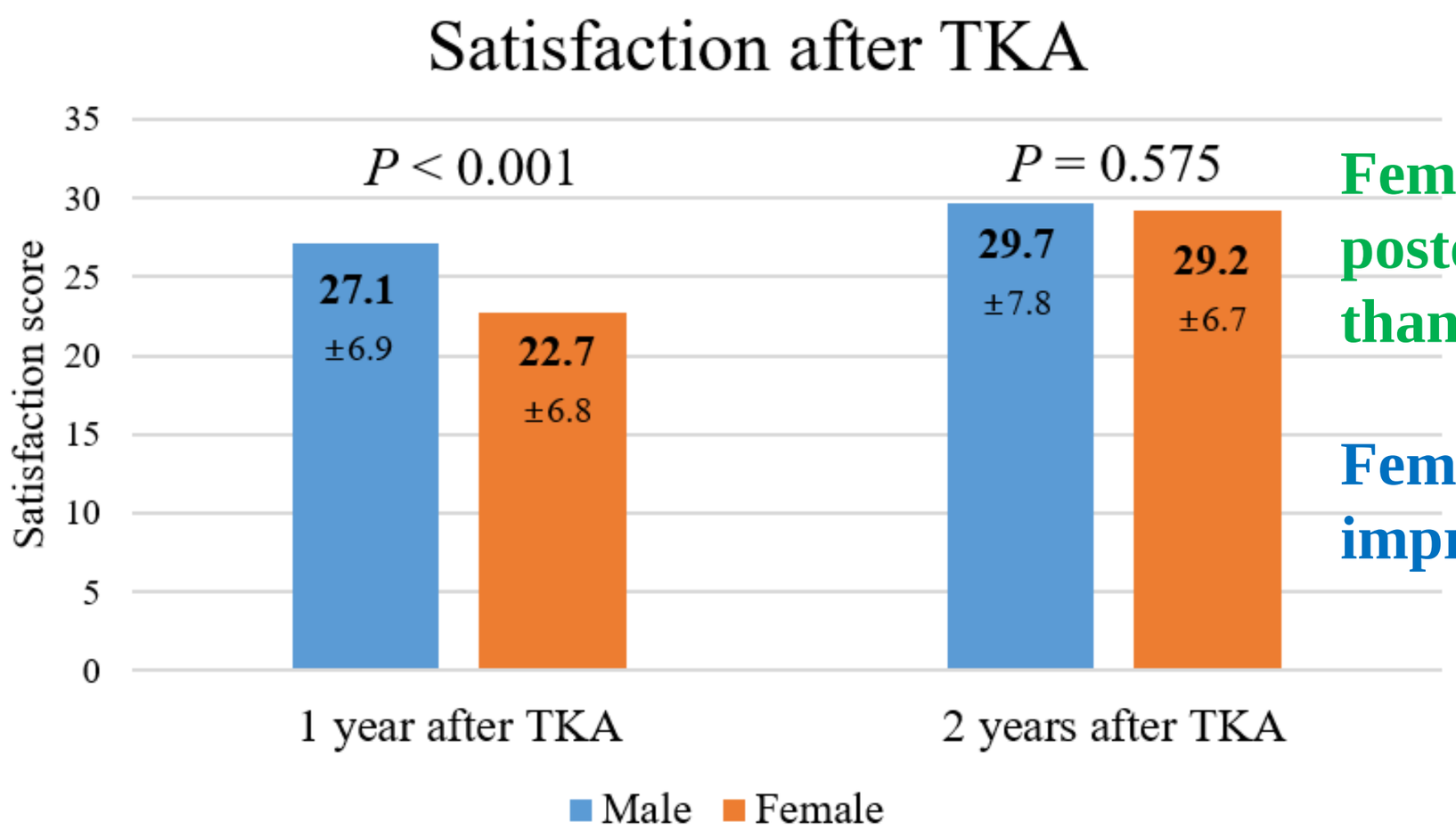
Results

Table 3. Comparison of KSS score between male and female

KSS	Male (n = 130)	Female (n = 194)	*P* value
Knee score			
1 year			
Pain	43.1 ± 8.4	42.1 ± 9.0	0.830*
Range of motion	24.0 ± 2.7	24.2 ± 2.3	0.802*
Stability (AP)	9.7 ± 2.6	8.8 ± 3.5	0.494*
Stability (ML)	11.2 ± 4.5	12.2 ± 3.9	0.532*
Flexion contracture	0.5 ± 2.1	1.0 ± 1.0	0.277*
Extension lag	0.4 ± 1.0	0.6 ± 2.0	0.398*
Alignment	1.2 ± 2.0	1.8 ± 3.4	0.396*
Total	85.9 ± 10.1	83.9 ± 10.4	0.824*
2 year			
Pain	43.4 ± 10.8	41.8 ± 12.2	0.357*
Range of motion	23.3 ± 2.9	23.5 ± 2.6	0.296*
Stability (AP)	8.9 ± 2.4	9.1 ± 3.9	0.567*
Stability (ML)	12.3 ± 4.2	13.0 ± 3.8	0.363*
Flexion contracture	1.0 ± 2.3	1.0 ± 2.1	0.971*
Extension lag	1.5 ± 2.6	1.0 ± 2.4	0.517*
Alignment	1.0 ± 2.2	1.5 ± 3.2	0.512*
Total	84.4 ± 14.5	83.9 ± 13.8	0.857*
Function score			
1 year			
Walking	32.7 ± 11.2	32.9 ± 12.4	0.901*
Stairs	34.0 ± 9.1	32.3 ± 9.3	0.532*
Walking aid	0.7 ± 2.6	2.0 ± 5.0	0.175*
Total	66.0 ± 19.3	63.2 ± 22.6	0.501*
2 year			
Walking	34.3 ± 9.9	34.0 ± 11.5	0.945*
Stairs	33.1 ± 5.6	33.5 ± 6.6	0.639*
Walking aid	0.5 ± 2.2	1.9 ± 5.3	0.247*
Total	66.9 ± 13.0	65.6 ± 17.9	0.503*

No difference in clinical outcomes between male and female !!

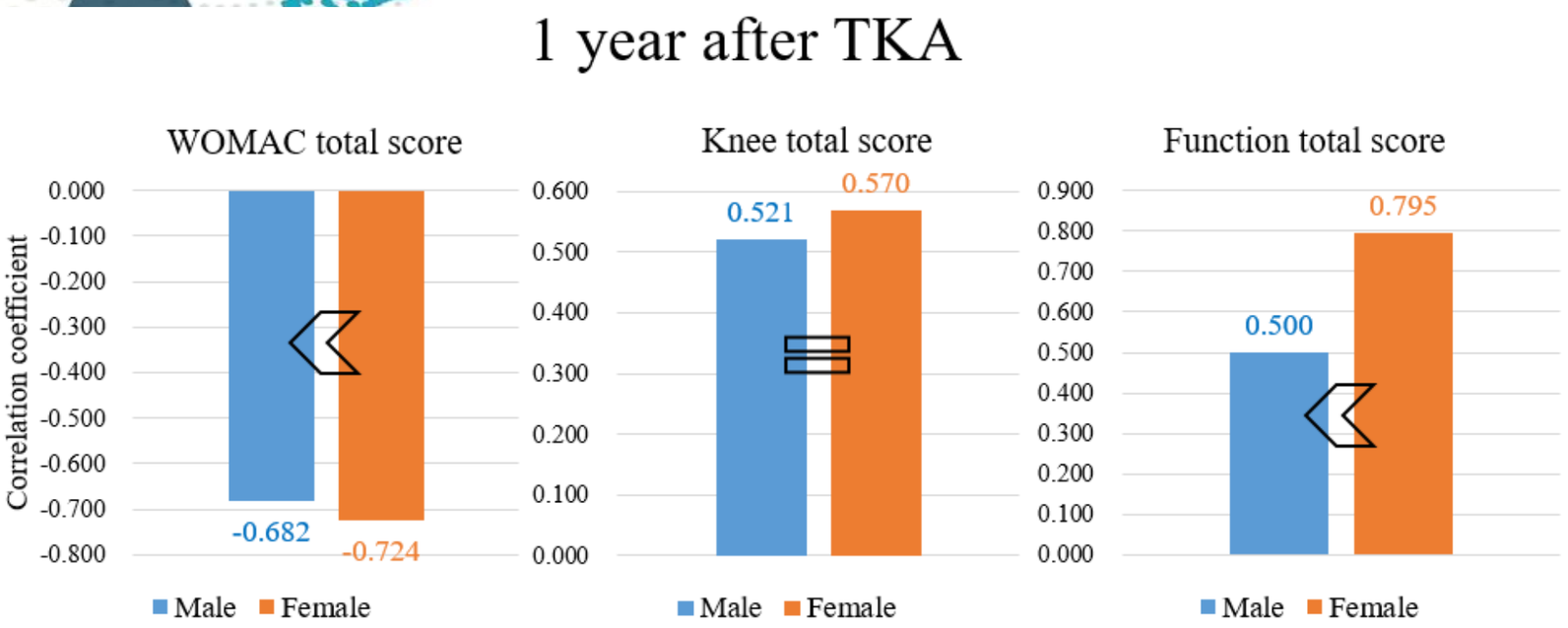
Results ; *satisfaction of male and female*

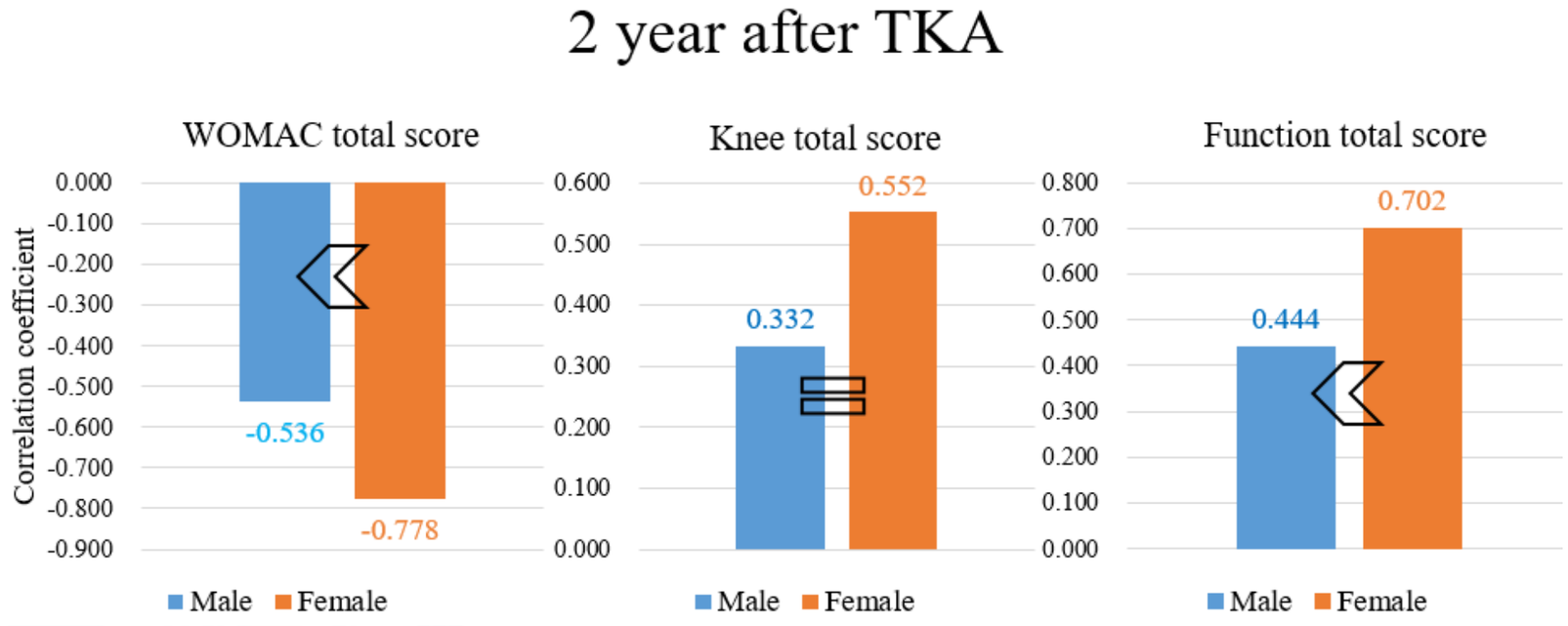


Female had lower early postoperative satisfaction than male.

Female satisfaction improved over time.

Results ; *correlation coefficient between clinical outcomes and satisfaction*





Relationship between outcomes and satisfaction was stronger in female than in male.

Summary

- Early postoperative satisfaction was lower in female patients than in male patients but eventually improved to satisfaction level of male patients.

- Association between outcomes and satisfaction within 2 years after TKA was higher in female patients than in male patients.

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