



Joint awareness after unicompartmental knee arthroplasty and total knee arthroplasty: a systematic review and meta-analysis of cohort studies

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Received: 3 August 2020 / Accepted: 6 October 2020 / Published online: 19 October 2020

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Abstract

Purpose The purpose of this systematic review and meta-analysis is to evaluate the joint awareness after unicompartmental knee arthroplasty (UKA) and total knee arthroplasty (TKA). It was hypothesized that patients with UKA could better forget about their artificial joint in comparison to TKA.

Methods A search of major literature databases and bibliographic details revealed 105 studies evaluating forgotten joint score in UKA and TKA. Seven studies found eligible for this review were assessed for risk of bias and quality of evidence using the Newcastle–Ottawa Scale. The forgotten joint score (FJS-12) was assessed at 6 months, 1 year, and 2 years.

Results The mean FJS-12 at 2 years was 82.35 in the UKA group and 74.05 in the TKA group. Forest plot analysis of five studies ($n=930$ patients) revealed a mean difference of 7.65 (95% CI: 3.72, 11.57, $p=0.0001$; $I^2=89\%$ with $p<0.0001$) in FJS-12 at 2 years. Further sensitivity analysis lowered I^2 heterogeneity to 31% after exclusion of the study by Blevin et al. (MD 5.88, 95% CI: 3.10, 8.66, $p<0.0001$). A similar trend of differences in FJS-12 between the groups was observed at 6 months (MD 32.49, 95% CI: 17.55, 47.43, $p<0.0001$) and at 1 year (MD 25.62, 95% CI: 4.26, 46.98, $p=0.02$).

Conclusions UKA patients can better forget about their artificial joint compared to TKA patients.

Level of evidence III.

Keywords Forgotten joint score · Joint awareness · Joint perception · Patient satisfaction · Knee · Unicompartmental knee replacement · Total knee replacement

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s00167-020-06327-4>) contains supplementary material, which is available to authorized users.

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Introduction

Despite advancements in implant design, surgical technique, and patient care, nearly 30% of patients believe that their expectations were not fulfilled after total knee arthroplasty (TKA) [9, 36, 41, 46]. Unicompartmental knee arthroplasty (UKA), in comparison, has better patient satisfaction. It has demonstrated superior functional outcome, faster recovery, and reduced risk of peri-operative complications [3, 10, 12, 14, 31, 54]. Despite this, 25–47% of medial compartment arthritis patients who are eligible for UKA get treated with TKA [22, 53]. The higher revision risk is the crucial factor in driving surgeons towards TKA more often [13]. Recent studies have shown that the increased failure rate of UKA is associated with low-volume centers and surgeons performing a lower number of such procedures [18, 30, 37]. UKA has also been found to be more cost-effective than TKA despite having a high revision risk [26, 29, 39].

An important aspect of patient satisfaction is joint awareness [5, 14, 28, 51]. All patients expect that they will forget about the artificial joint after surgery. Accordingly, the “forgotten joint score” (FJS-12) was widely accepted as an important patient-reported outcome measure to assess the awareness of the patient towards their knee joint after the arthroplasty procedure [1, 5, 21, 35, 44, 48]. FJS-12 has low ceiling effects, and it can detect even minute differences among highly functioning individuals after knee arthroplasty [5, 15]. UKA patients have a lesser degree of knee joint pathology in the preoperative period, and these candidates are likely to be more active following their surgery [15]. Accordingly, FJS-12 can be considered as an appropriate patient-reported outcome measure in these highly active patients. Few studies reported a better FJS-12 of the artificial joint in UKA patients compared to TKA [7, 14, 17, 28, 40, 56]. However, Thienpont et al. observed no significant difference in the FJS-12 between both types of knee arthroplasties after 2 years [47]. It seems that the level of joint awareness following UKA and TKA is not well defined. Therefore, this systematic review and meta-analysis was conducted to evaluate the level of awareness of the artificial joint among

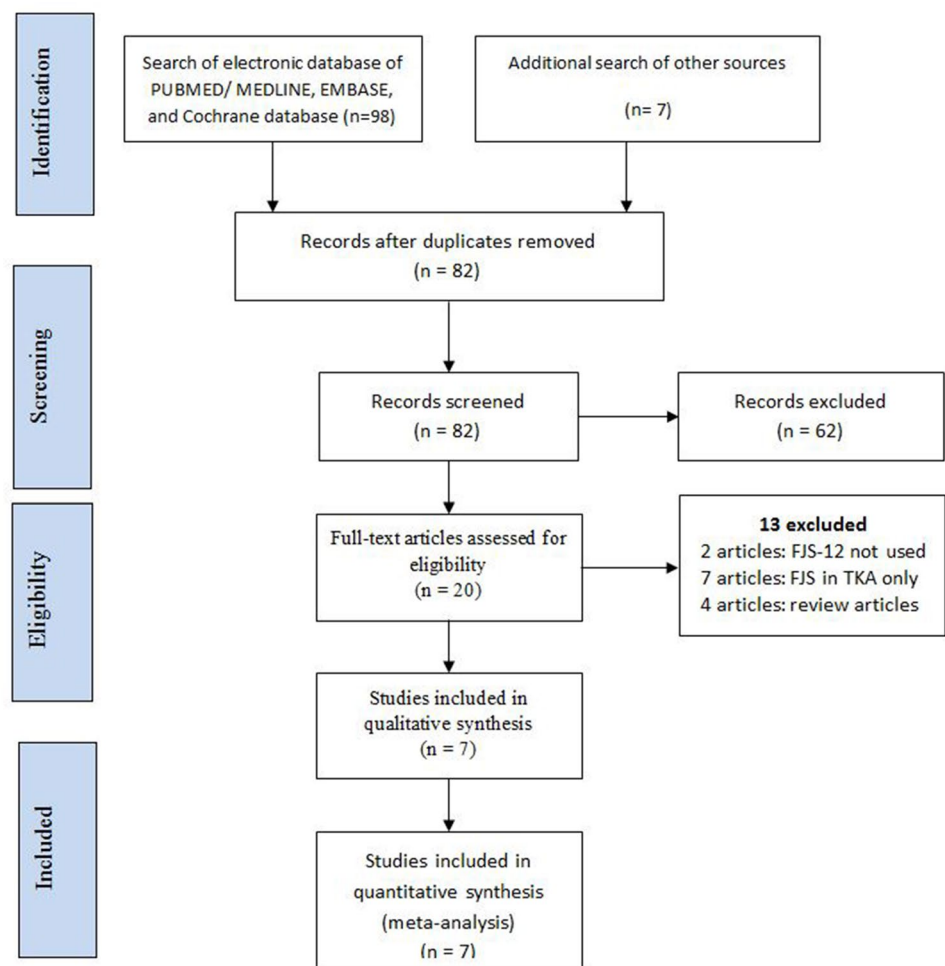
patients following UKA and TKA. It was hypothesized that patients who underwent UKA had higher FJS-12 than those who underwent TKA.

Materials and methods

This systematic review/meta-analysis was performed following the guidelines of preferred reporting items for systematic reviews and meta-analyses (PRISMA) [25] (Fig. 1). It was registered in PROSPERO before data extraction and analysis (Regd no.: CRD42020198747).

A literature search was performed on 19th September 2020 by two authors (SKT, PV) to identify studies on FJS-12 evaluation in UKA and TKA. The electronic databases of PubMed/Medline, Embase, and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched using the keywords “Forgotten joint score”, “forget”, “total knee arthroplasty”, “total knee replacement”, “TKA”, “TKR”, “unicondylar knee arthroplasty”, “unicompartmental knee arthroplasty”, “UKA”, and “UKR”. The search was restricted to the English language and human beings

Fig. 1 PRISMA flow diagram showing methods of study recruitment (search date 19 Sept 2020)



[Supplementary Data, Annexure 1]. The titles and abstracts of the retrieved articles were assessed for possible inclusion in the review. Whenever there was any doubt or uncertainty, the full article was retrieved and assessed thoroughly. The bibliographic lists of the relevant articles and reviews were also searched for further potential eligibility. Any discrepancies in study selection were resolved by a discussion between the authors. A third author (TG) was consulted in the event of disagreement (Fig. 1).

The inclusion criteria for this systematic review were: (1) the study design must be a randomized controlled trial (RCT) or an observational study; (2) the study must evaluate the patient-reported outcome using FJS-12 with at least one follow-up after 6 months; (3) the study must have reported the FJS-12 in both UKA and TKA patients aged > 18 years; and (4) the study must have evaluated only medial UKA.

Studies were excluded if they had the following criteria: (1) studies that recruited morbidly obese patients with BMI > 40 kg/m²; and (2) studies that considered revision arthroplasty, infective knee, inflammatory arthritis, hemophilia, neurological disorder, or simultaneous TKA or UKA.

The FJS-12 is a 12-item questionnaire developed to evaluate the awareness of the artificial joint among arthroplasty patients during their daily activities. The FJS-12 score ranges from 0 to 100, with 0 being the worst score and 100 being the best. A higher score means the patient is better able to forget about the artificial joint in daily life. So, the higher the score, the better the outcome is [5].

Data extraction was done using a data extraction form, and two authors (SKT and PV) independently extracted data from eligible studies (author, year of publication, study design, intervention, follow-up, FJS-12 outcome at different time intervals). Any disagreement was resolved through discussion with a third author (TG).

The primary endpoint of this study was FJS-12 at two years after TKA or UKA. For the quantitative synthesis of data, studies that reported FJS-12 outcome beyond 2 years were considered as 2-year point outcome data. The FJS-12 at 6 months and 1 year was also assessed in both the groups.

The methodological quality and risk of bias of the studies were assessed independently by two authors (SKT and PV) using the Newcastle–Ottawa scale (NOS) [52] (Table 1). The NOS uses a star system with a maximum of nine stars to evaluate a study in three domains (8 items): the selection of the study groups, the comparability of the groups, and the ascertainment of the outcome of interest. Each item was allocated one star for low risk and zero stars for high risk. Studies that received a score of nine stars were considered to have low risk of bias, seven or eight stars to have a moderate risk of bias, and six or fewer stars to have a high risk of bias [52]. Any disagreements were resolved by discussion between the two authors. If no agreement could be reached, the opinion of a third author (TG) was sought.

Table 1 Table showing methodological quality and risk of bias assessment using Newcastle–Ottawa scale

Study	Selection			Comparability			Outcome			Total quality score
	Representativeness of exposed cohort	Selection of nonexposed cohort	Ascertainment of exposure	Demonstration that outcome of interest was not present at start of study	Adjust for the most important risk factors	Adjust for other risk factors	Assessment of outcome of follow-up	Follow-up length	Loss to follow-up rate	
Thienpont [47]	+	+	+	+	1	1	+	+	+	7 (moderate risk)
Zuiderbaan [56]	+	+	+	+	+	1	+	+	+	8 (moderate risk)
Kim [28]	+	+	+	+	+	1	+	+	+	8 (moderate risk)
Fabre-Aubrespy [17]	+	+	+	+	+	1	+	+	+	8 (moderate risk)
Peersman [40]	+	+	+	+	+	1	+	+	+	8 (moderate risk)
Blevin [7]	+	+	+	+	1	1	+	+	+	7 (moderate risk)
Clement [14]	+	+	+	+	+	+	+	+	+	9 (low risk)

Data were analyzed using Review Manager (RevMan) V.5.1 [42]. Data were pooled and expressed as mean difference (MD) with 95% confidence interval (CI) for the continuous data. As the outcomes in all studies were uniformly evaluated using the FJS-12 outcome tool, the mean difference was assessed. A p value of <0.05 was considered statistically significant. The heterogeneity among the studies was assessed by Cochrane's Q (χ^2 $p < 0.10$) and quantified by I^2 . An I^2 of $>50\%$ and a p value of <0.10 was considered as a threshold of significant heterogeneity [23, 55]. To address the high degree of heterogeneity, a random-effects model was applied in this meta-analysis [45]. Sensitivity analyses were also performed to evaluate the stability and heterogeneity of the results [23, 45, 55].

Results

A total of 105 studies were retrieved after electronic and manual searches, of which seven studies were found to be eligible for review [7, 14, 17, 28, 40, 47, 56] (Fig. 1). The study designs of four studies were prospective cohort, and three studies were retrospective comparative study. The inclusion and exclusion criteria were well defined in all the studies. The risk of bias, as evaluated using NOS, revealed low bias in one study and moderate bias in six studies.

A total of 1172 participants were included in these seven studies. There were 554 UKA patients and 618 TKA patients. Age, gender, BMI, and preoperative function score of both UKA and TKA patients in the included studies were properly matched in four studies [14, 17, 28, 40]. The gender distribution data of 100 out of 101 patients in each group were available in the study of Fabre-Aubrepsey et al. [17]. In the remaining three studies, there were significant differences in age, sex, and/or BMI [7, 47, 56]; nevertheless, the differences were small and clinically insignificant (Table 2). The indications for UKA in all studies were appropriate.

All UKA and TKA prostheses in the included studies were cemented implant except the uncemented UKA prostheses used by Peersman et al. ($n=57$) [40]. Three studies ($n=245$ patients) used MAKO robotic system for UKA [7, 14, 56]. The remaining four studies with 309 patients of UKA were operated with a conventional open technique [17, 28, 40, 47]. All studies reported manual TKA surgeries except a few patients of Blevin et al. [7], who were operated on with computer navigation. The details of patella resurfacing were mentioned in only three studies [28, 47, 56]. In 177 TKA surgeries, the patella was resurfaced. The implants used for both UKA and TKA were from numerous manufacturers (Table 2).

Five studies ($n=930$) evaluated the FJS-12 at the end of 2 years [7, 14, 28, 40, 56] (Table 3). The average FJS-12 at 2 years in the UKA group was 82.32, and 74.05 in the

TKA group. Forest plot analysis of the difference in FJS-12 between the UKA and TKA groups was statistically significant (MD 7.65, 95% CI: 3.72, 11.57, $p=0.001$; $I^2=89\%$) (Fig. 2). As there was significant heterogeneity among studies, sensitivity analyses were performed. The study by Blevin et al. [7] was significantly affecting the mean difference (MD). The heterogeneity lowered significantly (I^2 of 31%, $p=0.22$) when this study was excluded (Table 4).

Only two studies reported the FJS-12 at 6 months ($n=239$) [14, 40] (Table 3). The mean difference in FJS-12 between UKA ($n=87$) and TKA ($n=152$) at 6 months was statistically significant (MD 32.49, 95% CI: 17.55, 47.43, $p<0.0001$) (Fig. 3). Even at the end of 1 year (reported in two studies, $n=229$), TKA patients were more aware of their joint compared to UKA (MD 25.62, 95% CI: 4.26, 46.98, $p=0.02$; $I^2=92\%$) (Fig. 4). However, there was significant heterogeneity among these studies.

Discussion

The main finding of this systematic review and meta-analysis was that UKA patients were less aware of their artificial joint compared to TKA patients in their day-to-day lives. Their forgetting about the artificial knee joint was noted consistently at different follow-up periods ranging from 6 months to 2 years.

Several preoperative variables, such as age, sex, BMI, and the functional score of the patients, can influence the joint awareness [6, 33, 34, 47, 50, 56]. Behrend et al. reported better FJS-12 among older patients who had less demand for daily activities [6, 50]. These patients usually have a complex general health problem that overshadows the minor joint-related ailment. The same study noted excellent outcomes in male patients around 63 years old with lower BMI. Similarly, Peterson et al. and Kennedy et al. also reported better patient-reported outcomes among men [27, 41]. As the women of this age group usually live alone without a partner, they delay the TKA surgery till they have greater joint pain and dysfunction; this was attributed as the primary cause for the more unsatisfactory outcomes in females [19, 38]. Regarding the impact of BMI on joint awareness, Behrend et al. observed a significantly inferior FJS-12 in the younger obese female patients following TKA [6]. Many systematic reviews also found an inferior outcome, higher complication rate, increased cost, and lower survivorship in obese patients after TKA; however, the findings were relevant to BMI of >40 kg/m² [16, 43]. None of the studies recruited in this meta-analysis had evaluated this category of patients; hence, selection bias was avoided. The preoperative functional scores in UKA candidates are higher because of lesser preoperative knee pathology and, accordingly, one would

Table 2 Demographic properties, surgical technique and prosthesis type as described in the included studies

Study	Study design	Participants	Sample size	Age (years)	Gender, M:F	BMI (kg/m ²)	Surgery technique	Prosthesis type	Follow-up	Quality score	Impact of variables
Thienpont [47]	Prospective cohort	UKA	51	61.8±9.5	22:29	–	Manual	Fixed-bearing implant (ZUK, Zimmer)	2 years	NOS 7	KSS and BMI matched; age, gender not matched; clinically insignificant
Zuiderbaan [56]	Prospective cohort	TKA	50	68.7±7.4	24:26	–	MIS, PS design, PR	Vanguard	2 years	NOS 8	Age, gender: NS; BMI: statistically significant, but difference of 1.7 is clinically insignificant
Kim [28]	Retrospective comparative study with prospectively collected data	UKA	100	60.8±6.1	10:90	26.0±3.1	Manual	Oxford mobile-bearing UKA, Zimmer Unicompartamental High-Flex Knee, HLS Uni Evolution (Tonier, Grenoble, France)	2 years	NOS 8	Propensity score matched for age, sex, BMI and WOMAC
Fabre-Aubrespy [17]	Retrospective cohort	TKA	101	79.4±3.5	41:59 ^a	27.2±4.5	Manual	LOSFA, Corentec, Seoul, Korea; Vanguard; P.F.C. SIGMA; ATTUNE	16 years	NOS 8	Propensity score matched for age, sex, BMI and functional scores
Peersman [40]	Prospective cohort	UKA	57	64.0±9.9	27:30	<40 kg/m ²	Manual	Uncemented Oxford Phase 3 (Zimmer, Biomet)	1 year	NOS 8	No difference in age, sex, function score and EQ-5D
Blevin [7]	Retrospective cohort	TKA	150	65.2±9.0	66:84	29.0±2.6	PS	Vanguard	2 years	NOS 7	Gender, BMI no difference; Age significant difference, but clinically insignificant
		UKA	62	66.5±9.4	20:42	<40 kg/m ²	Manual, PS, PR	Tibial onlay implants (MAKO [®] , USA)			
		UKA	150	62.6±9.0	66:84	28.9±2.4	MAKO [®] Robotic	Genesis II (n=84), Journey II (n=38), Exactech [®] Optetrak Logic (n=23), Vanguard (n=5)			

Table 2 (continued)

Study	Study design	Participants	Sample size	Age (years)	Gender, M:F	BMI (kg/m ²)	Surgery technique	Prosthesis type	Follow-up	Quality score	Impact of variables
Clement [14]	Prospective cohort	UKA	30	65.9 ± 12.0	24:6	30.5 ± 8.4	Robotic	RESTORIS®MAKO Cemented, fixed bearing	6 months	NOS 9	Propensity score matched for age, sex, BMI, functional score
		TKA	90	67.8 ± 8.3	68:22	29.7 ± 4.9	Manual	Triathlon			

UKA unicompartmental knee arthroplasty, TKA total knee arthroplasty, M male, F female, PS posterior-stabilised, PR patella resurfacing, NOS Newcastle–Ottawa scale, NS nonsignificant, KSS knee society score, WOMAC Western Ontario and McMaster Universities Osteoarthritis index of the knee, BMI body mass index, EQ-5D EuroQol-5D, NOS Newcastle–Ottawa Scale

^aPaired matching of 100 patients was done

expect a better postoperative score. Many previous studies did not control these preoperative variables and encountered a selection bias [32, 34, 50]. Most of the included studies of this review matched their patients in the preoperative period; hence, this minimized the selection bias. Blevin et al. [7] matched their patients in the ratio of 1:1 for age ± 5 years, gender, and BMI ± 3. On analysis of the results, they noted a statistically significant difference in the mean age. However, the mean difference of 2.6 years was clinically irrelevant. Zuiderbaan et al. [56] reported a mean BMI difference of 1.7 kg/m² between the UKA and TKA groups, but this difference was clinically not significant.

The surgical technique, surgeon’s experience, and prostheses designs are other variables likely to affect the outcome. However, it was not possible to control such confounders in this meta-analysis [54]. We believed that all surgeries were performed in the best possible way with utmost care to execute optimal clinical, functional, and radiological outcome for the patients. There were three studies in this meta-analysis where the UKA surgeries were performed with the assistance of a robot [7, 14, 56]; all the other UKA and TKA surgeries were performed manually. Although robotic-assisted UKA may improve the accuracy of the postoperative alignment and may have better survivorship than manual UKA in the early postoperative period, randomized controlled trials failed to demonstrate a better functional score and patient-reported outcome score in the robotic group in comparison to patients who were manually operated on [8, 20].

Wilson et al. reported better combined patient-reported outcome (PROM) scores in UKA than TKA in a meta-analysis of RCTs, cohort studies, and national joint registries [54]. Thirty-seven postoperative combined PROM scores were evaluated from 29 studies; however, FJS-12 was not evaluated. They found equivocal pain component between the groups. The function scores as evaluated from the national joint registries and cohort studies were significantly better in UKA, but a similar trend was not observed in the analysis of RCTs [54]. Arirachakaran et al. did not find any difference in the knee scores and range of motion (ROM) between UKA and TKA in a meta-analysis of RCTs [3]. They reported an increased (five times) revision rate and lesser early postoperative complications (60% less likely than TKA) in UKA. Several other studies and reviews reported better ROM and cost-effectiveness in UKA than TKA [12, 26, 27, 29, 31, 39, 54]. The advantages of UKA, as reported in these reviews were shorter hospital stay, earlier recovery, reduced complication, and an earlier return to work. The traditional PROM scores, as evaluated in these meta-analyses, show ceiling effect and fail to detect minimal differences among the top scorers or highly active arthroplasty patients [2, 4, 54]. UKA patients are likely to be more active following surgery, and

Table 3 FJS-12 outcome in both UKA and TKA groups at 6 months, 1 year and 2 years

Study		FJS-12 at 6 months	FJS-12 at 1 year	FJS-12 at 2 years
Thienpont [47]	UKA		–	76.4 ± 19
	TKA		–	73.2 ± 22
Zuiderbaan [56]	UKA		73.9 ± 22.8	74.3 ± 24.8
	TKA		59.3 ± 29.5	59.8 ± 31.5
Kim [28]	UKA			67.3 ± 19.8
	TKA			60.6 ± 16.6
Fabre-Aubrespy [17]	UKA			93.9 ± 3.7
	TKA			88.6 ± 4.7
Peersman [40]	UKA	79.1 (95% CI: 73.2–84.9)	91.2 (95% CI: 85.3–97.4)	
	TKA	39.6 (95% CI: 34.7–44.4)	54.8 (95% CI: 49.3–60.2)	
Blevin [7]	UKA			90.5 ± 3.6
	TKA			79.5 ± 9.5
Clement [14]	UKA	77.1 ± 25.9		
	TKA	52.9 ± 32.6		

UKA unicompartmental knee arthroplasty, TKA total knee arthroplasty, FJS-12 forgotten joint score-12
 Zuiderbaan [56]: the 2-year FJS-12 was evaluated from 64 UKA patients and 63 TKA patients

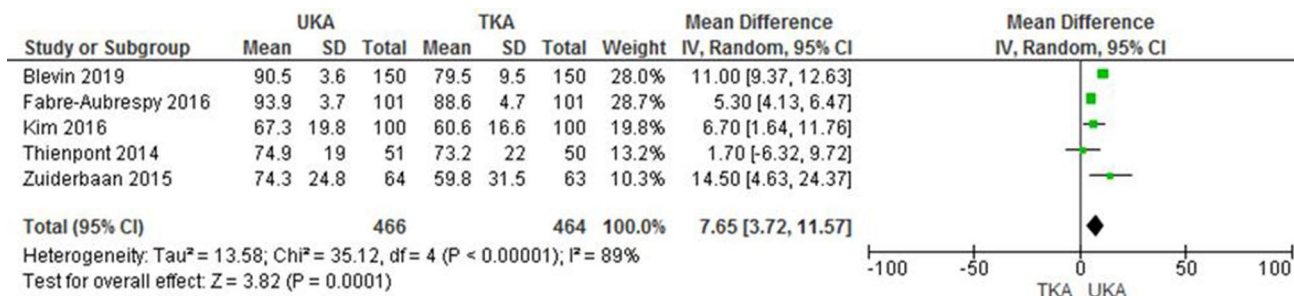


Fig. 2 Forest plot analysis of FJS-12 in UKA and TKA patients at the end of 2 years

Table 4 Sensitivity analyses based on various exclusion criteria for FJS-12 outcome at the end of 2 years in UKA and TKA groups

Excluded trial	No. of trials	No. of patients	UKA	TKA	MD (95% CI)	p value for MD	I ² , %	p value for heterogeneity
Blevin [7]	4	630	316	314	5.88 (3.10, 8.66)	<0.0001	31	0.22
Fabre-Aubrespy [17]	4	728	365	363	8.67 (4.39, 12.94)	<0.0001	61	0.05
Kim [28]	4	730	366	364	7.88 (3.27, 12.50)	0.0008	91	<0.00001
Thienpont [47]	4	829	415	414	8.55 (4.32, 12.78)	<0.0001	91	<0.00001
Zuiderbaan [56]	4	803	402	401	6.86 (2.74, 10.99)	0.001	91	<0.00001

UKA unicompartmental knee arthroplasty, TKA total knee arthroplasty, MD mean difference

FJS-12 is an appropriate PROM as it has minimal ceiling effects [28, 56].

Behrend, who proposed the FJS-12, reported the mean FJS-12 of 82.5 in healthy individuals who were far below the maximum score of 100 [5]. This observation clarified that the FJS-12 could meticulously distinguish the highly functioning group. Dai et al. reported marked improvement in joint awareness during the first year of UKA [15];

it improved slightly after 2 and 3 years. They observed the lowest FJS-12 at 1 month and the highest at 3 years. The evaluation of FJS-12 at 2 years in this meta-analysis probably accurately revealed the perception of the patients towards the artificial joint. The trend of significantly better FJS-12 in UKA patients was demonstrated at 6 months, 1 year, and 2 years in this meta-analysis. Another notable observation was the marked improvement of FJS-12 in both groups over

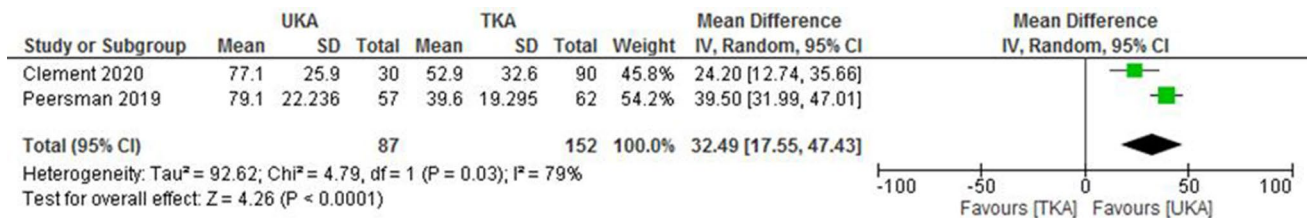


Fig. 3 Forest plot analysis of FJS-12 in UKA and TKA patients at the end of 6 month

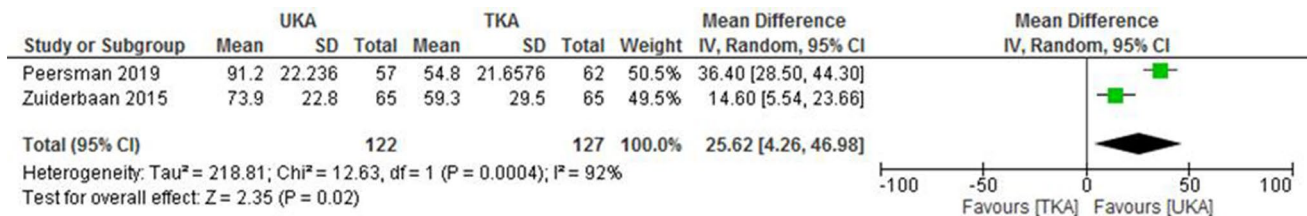


Fig. 4 Forest plot analysis of FJS-12 in UKA and TKA patients at the end of 1 year

time. The joint awareness differences in both groups were maximum at 6 months (MD 32.49), and decreased at 1 year (MD 25.62), with a minimal difference at 2 years (MD 7.65). Hiyama et al. reported that the changes in joint awareness with time follow the course of pain and quadriceps strength [24]. FJS-12 is significantly affected by pain in the initial few months following TKA, but quadriceps strength is the main determinant of joint awareness over the long run, especially between 6 and 12 months after surgery [24]. Carlson et al. reported the onset of the plateau of joint awareness at 1 year in a larger cohort of patients [11]. Lesser surgical morbidity, preservation of quadriceps muscle during surgery, and minimal preoperative quadriceps dysfunction because of lesser disease pathology explain the early achievement of a higher FJS-12 in the UKA patients. The TKA patients' need prolonged time for quadriceps recovery; hence, there was a big difference in FJS-12 at 6 and 12 months, but the difference was minimal at the end of 2 years.

The exact reasons for a more natural feeling of the joint in UKA compared to TKA have not been evaluated. However, minimal bone cut and soft tissue dissections with preservations of cruciate ligaments and quadriceps probably retain the proprioceptive fibers [7, 14, 17, 28, 40, 47, 56]. UKA restores the native pre-degeneration mechanical alignment of the lower limb after surgery; hence, the perception of the natural feeling of the joint persists [49].

There were certain limitations to this meta-analysis. Small sample size, limited studies on this topic, and non-availability of high-quality articles were major shortcomings. The high heterogeneity among the studies was probably because of the differences in patient selection, implant

selection, surgical techniques (robotic vs. manual), and the rehabilitation protocol. Also, the psychological aspect of the patients towards the artificial knee joint may vary from patient to patient based on their ethnicity. Among all the studies in this review, a relatively lower FJS-12 score was reported by Kim et al. in the Asian patients [28]. Finally, the joint awareness over the long run in both groups of patients could not be evaluated because of a lack of data. Despite these limitations, the outcome of this meta-analysis has strong clinical relevance. It is well known that patient satisfaction is closely related to joint awareness [1, 14, 28, 51], and there was no firm conclusion about the impact of the type of knee arthroplasty on this specific outcome until now. This meta-analysis revealed a better FJS-12 in the UKA patients than the TKA patients. Based on these findings, it can be recommended that UKA should be widely adopted for medial compartment osteoarthritis of the knee.

Conclusion

To conclude, the joint awareness of UKA patients is less than of TKA. However, the results are limited by the inadequacy of high-quality studies. Well-designed randomized controlled trials with larger sample sizes and longer follow-up periods are needed to interpret the findings with more certainty.

Funding There was no funding source.

Compliance with ethical standards

Conflict of interest The author(s) declared no potential conflicts of interest for the research, authorship, or publication of this article.

Ethical approval This systematic review has been registered in PROSPERO (Regd no.: CRD42020198747). Each author certifies that he or she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangements, etc.) that might pose a conflict of interest in connection with the submitted article.

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