



Patient Dissatisfaction Following Total knee Arthroplasty (Systematic Review and Meta-Analysis)

*Submitted for Partial Fulfillment of Master Degree in
Orthopedic Surgery*

By
Basem Ahmed Badawy
M.B.B.Ch

Under supervision of
Prof. Dr. Sherif Ahmed EL-Ghazaly
*Professor of Orthopedic Surgery
Faculty of medicine - Ain Shams University*

Dr. Mostafa Mamdouh Ashoub
*Lecture of Orthopaedic Surgery
Faculty of Medicine- Ain Shams University*

*Faculty of Medicine
Ain Shams University
2022*

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

سَبِّحْ اِنَّكَ لَا تَعْلَمُ لَنَا
اِلَّا مَا عَلَّمْتَنَا اِنَّكَ اَنْتَ
الْعَلِيمُ الْعَظِيمُ

صدق الله العظيم

سورة البقرة الآية: ٣٢

Acknowledgment

First and foremost, I feel always indebted to **ALLAH**, the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to Prof. Dr. Sherif Ahmed EL-Ghazaly, Professor of Orthopedic Surgery, Faculty of medicine - Ain Shams University for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.

I am also delighted to express my deepest gratitude and thanks to Dr. Mostafa Mamdouh Ashoub, Lecture of Orthopaedic Surgery, Faculty of Medicine- Ain Shams University, for his kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.

I would be a miss if I did not mention Orthopaedic Surgery, Faculty of Medicine- Ain Shams University, I would like to thank all the staff members of the orthopedic department, who were always ready to help with any questions that I had.

Basem Ahmed

List of Contents

Title	Page No.
List of Abbreviations.....	i
List of Tables	iii
List of Figures	iv
Introduction	1
Aim of the Work.....	4
Review of Literature	
Relevant Anatomy of the Knee.....	5
Relevant Biomechanics of the Knee	21
Total Knee Arthroplasty	27
Patient Dissatisfaction After Total Knee Arthroplasty ...	39
Materials and Methods	62
Results	67
Discussion	84
Summary	99
Conclusion and Recommendations	102
References	104
Arabic Summary	—

List of Abbreviations

Abb.	Full term
ACL.....	Anterior cruciate ligament
AHLM.....	Anterior horn of the lateral meniscus
AP	Anteroposterior
APOAK.....	Advanced painful osteoarthritis of the knee
BC	British Columbia
CCG	Custom cutting guides
KOOS.....	The Knee injury and Osteoarthritis Outcome Score
KSS.....	Knee society score
LFC.....	Lateral femoral condyle
MCL.....	Medial collateral ligament
MTS	Medial tibial spine
OA.....	Osteoarthritis
OKS	Oxford knee score
PCL.....	Posterior cruciate ligament
PRISMA.....	Preferred Reporting Items for Systematic Reviews and Meta-analyses
PROM.....	Patient reported outcome measures
PVD	Peripheral vascular disease
RCT.....	Randomized controlled trials
ROM	Range of motion
SF-12	12-item Short Form Health Survey
SF-36	36-item Short Form Health Survey
SF-MCS	Short form – mental component scores
SF-PCS	Short form – physical component scores
TCP.....	Total condylar prosthesis
THA	Total hip arthroplasty
TKA	Total knee arthroplasty

List of Abbreviations Cont...

Abb.	Full term
VAS.....	Visual Analogue Scale
VMO	Vastus medialis obliquus
WOMAC	The Western Ontario and McMaster Universities Arthritis Index

List of Tables

Table No.	Title	Page No.
Table (1):	Knee Society Score (KSS).....	42
Table (2):	The New Knee Society Score	43
Table (3):	Short Form Health Survey (SF-36).....	45
Table (4):	Short Form Health Survey (SF-12).....	47
Table (5):	The Western Ontario and McMaster Universities (WOMAC) Index of Osteoarthritis.....	48
Table (6):	Type of included studies	67
Table (7):	Patient's characteristics	68
Table (8):	Operation characters.....	69
Table (9):	WOMAC score.....	71
Table (10):	Vas score	72
Table (11):	SP36 mental and physical.....	73
Table (12):	KSS score	74
Table (13):	Factors affecting dissatisfaction	76
Table (14):	Meta-analysis for the number of patients dissatisfied.....	78

List of Figures

Fig. No.	Title	Page No.
Figure (1):	Inferior epiphysis: Posterior view	6
Figure (2):	Knee ligament anatomy in the skeletally immature	8
Figure (3):	X-ray showing lateral view of the knee.	9
Figure (4):	The epicondylar axis.	10
Figure (5):	Superior aspect of the tibial plateau.	10
Figure (6):	The two bundles of the ACL.	12
Figure (7):	Measurements were made from the epiphyseal side of the proliferative zone of the distal femoral physis to the most superior point of the ACL insertion site.	14
Figure (8):	Femoral attachment of the ACL.	15
Figure (9):	Lateral radiography for determination of the femoral ACL insertion.	16
Figure (10):	Tibial attachment of the ACL. AHLM, anterior horn of the lateral meniscus.	17
Figure (11):	Anterior view of the gross anatomy of the intercondylar notch of a right knee joint	18
Figure (12):	Bundles of the anterior cruciate ligament.	22
Figure (13):	The two bundles of the posterior cruciate ligament providing stability throughout the range of motion of the knee	22
Figure (14):	Lateral radiograph demonstrating severe patellofemoral osteoarthritis.	28
Figure (15):	Follow chart.	66
Figure (16):	Funnel plot for incidence of dissatisfaction	77
Figure (17):	Forest plot for incidence of dissatisfaction	77
Figure (18):	Forest plot WOMAC	79
Figure (19):	Funnel plot WOMAC	79

List of Figures Cont...

Fig. No.	Title	Page No.
Figure (20):	Forest plot VAS.....	80
Figure (21):	Funnel plot VAS	80
Figure (22):	Forest plot SF-MCS	81
Figure (23):	Funnel plot SF-MCS.....	81
Figure (24):	Forest plot SF-PCS	82
Figure (25):	Funnel plot SF-PCS.....	82
Figure (26):	Forest plot KSS.....	83
Figure (27):	Funnel plot KSS	83