

Supplementary materials

Table S1 Literature search strategy

1.Pubmed

Search number	Query	Results
#1	Osteoarthritis[MeSH Terms]	77,203
#2	"Arthritides, Degenerative"[Title/Abstract] OR "arthritis, degenerative"[Title/Abstract] OR "arthritis, noninflammatory "[Title/Abstract] OR "Arthroses"[Title/Abstract] OR "arthrosis"[Title/Abstract] OR "Degenerative Arthritides"[Title/Abstract] OR "degenerative arthritis"[Title/Abstract] OR "degenerative joint disease"[Title/Abstract] OR "Gonarthrosis"[Title/Abstract] OR "noninflammatory arthritis"[Title/Abstract] OR "Osteoarthritis"[Title/Abstract] OR "osteoarthritis"[Title/Abstract] OR "osteo-arthritis"[Title/Abstract] OR "Osteoarthroses"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR "Osteoarthrosis Deformans"[Title/Abstract] OR "primary osteoarthritis"[Title/Abstract] OR "rheumatoid arthrosis"[Title/Abstract]	98,350
#3	("Arthritides, Degenerative"[Title/Abstract] OR "arthritis, degenerative"[Title/Abstract] OR "arthritis, noninflammatory "[Title/Abstract] OR "Arthroses"[Title/Abstract] OR "arthrosis"[Title/Abstract] OR "Degenerative Arthritides"[Title/Abstract] OR "degenerative arthritis"[Title/Abstract] OR	118,847

	"degenerative joint disease"[Title/Abstract] OR "Gonarthrosis"[Title/Abstract] OR "noninflammatory arthritis"[Title/Abstract] OR "Osteoarthritides"[Title/Abstract] OR "osteoarthritis"[Title/Abstract] OR "osteo-arthritis"[Title/Abstract] OR "Osteoarthroses"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR "osteo- arthrosis"[Title/Abstract] OR "Osteoarthrosis Deformans"[Title/Abstract] OR "primary osteoarthritis"[Title/Abstract] OR "rheumatoid arthrosis"[Title/Abstract]) OR (Osteoarthritis[MeSH Terms])	
#4	Deep Learning[MeSH Terms]	15,871
#5	"AlexNet"[Title/Abstract] OR "artificial intelligence"[Title/Abstract] OR "CNN"[Title/Abstract] OR "deep learning"[Title/Abstract] OR "Ensemble Learning"[Title/Abstract] OR "GoogLeNet"[Title/Abstract] OR "Hierarchical Learning"[Title/Abstract] OR "Learning, Deep"[Title/Abstract] OR "Learning, Hierarchical"[Title/Abstract] OR "Machine Learning"[Title/Abstract] OR "Neural Network"[Title/Abstract] OR "Neural Networks"[Title/Abstract] OR "ResNet"[Title/Abstract] OR "ResNet101"[Title/Abstract] OR "ResNet18"[Title/Abstract] OR "ResNet34"[Title/Abstract] OR "ResNet50"[Title/Abstract] OR "Transfer Learning"[Title/Abstract] OR "VGG11"[Title/Abstract] OR "VGG-11"[Title/Abstract] OR "VGG13"[Title/Abstract] OR "VGG-13"[Title/Abstract] OR "VGG16"[Title/Abstract] OR "VGG-16"[Title/Abstract] OR "VGG19"[Title/Abstract] OR "VGG-19"[Title/Abstract] OR	212,410

	"VGGNet"[Title/Abstract]	
#6	("AlexNet"[Title/Abstract] OR "artificial intelligence"[Title/Abstract] OR "CNN"[Title/Abstract] OR "deep learning"[Title/Abstract] OR "Ensemble Learning"[Title/Abstract] OR "GoogLeNet"[Title/Abstract] OR "Hierarchical Learning"[Title/Abstract] OR "Learning, Deep"[Title/Abstract] OR "Learning, Hierarchical"[Title/Abstract] OR "Machine Learning"[Title/Abstract] OR "Neural Network"[Title/Abstract] OR "Neural Networks"[Title/Abstract] OR "ResNet"[Title/Abstract] OR "ResNet101"[Title/Abstract] OR "ResNet18"[Title/Abstract] OR "ResNet34"[Title/Abstract] OR "ResNet50"[Title/Abstract] OR "Transfer Learning"[Title/Abstract] OR "VGG11"[Title/Abstract] OR "VGG-11"[Title/Abstract] OR "VGG13"[Title/Abstract] OR "VGG-13"[Title/Abstract] OR "VGG16"[Title/Abstract] OR "VGG-16"[Title/Abstract] OR "VGG19"[Title/Abstract] OR "VGG-19"[Title/Abstract] OR "VGGNet"[Title/Abstract]) OR (Deep Learning[MeSH Terms])	212,884
#7	(("Arthritides, Degenerative"[Title/Abstract] OR "arthritis, degenerative"[Title/Abstract] OR "arthritis, noninflammatory "[Title/Abstract] OR "Arthroses"[Title/Abstract] OR "arthrosis"[Title/Abstract] OR "Degenerative Arthritides"[Title/Abstract] OR "degenerative arthritis"[Title/Abstract] OR "degenerative joint disease"[Title/Abstract] OR "Gonarthrosis"[Title/Abstract] OR "noninflammatory arthritis"[Title/Abstract] OR "Osteoarthritis"[Title/Abstract]	645

	OR "osteoarthritis"[Title/Abstract] OR "osteo-arthritis"[Title/Abstract] OR "Osteoarthroses"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR "Osteoarthrosis Deformans"[Title/Abstract] OR "primary osteoarthritis"[Title/Abstract] OR "rheumatoid arthrosis"[Title/Abstract]) OR (Osteoarthritis[MeSH Terms])) AND ((("AlexNet"[Title/Abstract] OR "artificial intelligence"[Title/Abstract] OR "CNN"[Title/Abstract] OR "deep learning"[Title/Abstract] OR "Ensemble Learning"[Title/Abstract] OR "GoogLeNet"[Title/Abstract] OR "Hierarchical Learning"[Title/Abstract] OR "Learning, Deep"[Title/Abstract] OR "Learning, Hierarchical"[Title/Abstract] OR "Machine Learning"[Title/Abstract] OR "Neural Network"[Title/Abstract] OR "Neural Networks"[Title/Abstract] OR "ResNet"[Title/Abstract] OR "ResNet101"[Title/Abstract] OR "ResNet18"[Title/Abstract] OR "ResNet34"[Title/Abstract] OR "ResNet50"[Title/Abstract] OR "Transfer Learning"[Title/Abstract] OR "VGG11"[Title/Abstract] OR "VGG-11"[Title/Abstract] OR "VGG13"[Title/Abstract] OR "VGG-13"[Title/Abstract] OR "VGG16"[Title/Abstract] OR "VGG-16"[Title/Abstract] OR "VGG19"[Title/Abstract] OR "VGG-19"[Title/Abstract] OR "VGGNet"[Title/Abstract]) OR (Deep Learning[MeSH Terms]))	
--	--	--

2.Cochrane

Search number	Query	Results
#1	'arthritides, degenerative':ti,ab,kw OR 'arthritis, degenerative':ti,ab,kw OR 'arthritis, noninflammatory':ti,ab,kw OR 'arthroses':ti,ab,kw OR 'arthrosis':ti,ab,kw OR 'degenerative arthritides':ti,ab,kw OR 'degenerative arthritis':ti,ab,kw OR 'degenerative joint disease':ti,ab,kw OR 'gonarthrosis':ti,ab,kw OR 'noninflammatory arthritis':ti,ab,kw OR 'osteoarthritides':ti,ab,kw OR 'osteoarthritis':ti,ab,kw OR 'osteo-arthritis':ti,ab,kw OR 'osteoarthroses':ti,ab,kw OR 'osteoarthrosis':ti,ab,kw OR 'osteoarthrosis':ti,ab,kw OR 'osteoarthrosis deformans':ti,ab,kw OR 'primary osteoarthritis':ti,ab,kw OR 'rheumatoid arthrosis':ti,ab,kw	23625
#2	MeSH descriptor: [Osteoarthritis] explode all trees	10475
#3	'alexnet':ti,ab,kw OR 'artificial intelligence':ti,ab,kw OR 'cnn':ti,ab,kw OR 'deep learning':ti,ab,kw OR 'ensemble learning':ti,ab,kw OR 'googlenet':ti,ab,kw OR 'hierarchical learning':ti,ab,kw OR 'learning, deep':ti,ab,kw OR 'learning, hierarchical':ti,ab,kw OR 'machine learning':ti,ab,kw OR 'neural network':ti,ab,kw OR 'neural networks':ti,ab,kw OR 'resnet':ti,ab,kw OR 'resnet101':ti,ab,kw OR 'resnet18':ti,ab,kw OR 'resnet34':ti,ab,kw OR 'resnet50':ti,ab,kw OR 'transfer learning':ti,ab,kw OR 'vgg11':ti,ab,kw OR 'vgg-11':ti,ab,kw OR 'vgg13':ti,ab,kw OR 'vgg-13':ti,ab,kw OR 'vgg16':ti,ab,kw OR 'vgg-16':ti,ab,kw OR 'vgg19':ti,ab,kw OR 'vgg-19':ti,ab,kw OR 'vggnet':ti,ab,kw	8908

#4	MeSH descriptor: [Deep Learning] explode all trees	272
#5	(#1 OR #2)AND(#3 OR #4)	67

3.Embase

Search number	Query	Results
#1	'osteoarthritis'/exp	163213
#2	'arthritides, degenerative':ti,ab,kw OR 'arthritis, degenerative':ti,ab,kw OR 'arthritis, noninflammatory':ti,ab,kw OR 'arthroses':ti,ab,kw OR 'arthrosis':ti,ab,kw OR 'degenerative arthritides':ti,ab,kw OR 'degenerative arthritis':ti,ab,kw OR 'degenerative joint disease':ti,ab,kw OR 'gonarthrosis':ti,ab,kw OR 'noninflammatory arthritis':ti,ab,kw OR 'osteoarthritides':ti,ab,kw OR 'osteoarthritis':ti,ab,kw OR 'osteo-arthritis':ti,ab,kw OR 'osteoarthroses':ti,ab,kw OR 'osteoarthrosis':ti,ab,kw OR 'osteoarthrosis':ti,ab,kw OR 'osteoarthrosis deformans':ti,ab,kw OR 'primary osteoarthritis':ti,ab,kw OR 'rheumatoid arthrosis':ti,ab,kw	139574
#3	#1 OR #2	193971
#4	'deep learning'/exp	40862
#5	'alexnet':ti,ab,kw OR 'artificial intelligence':ti,ab,kw OR 'cnn':ti,ab,kw OR 'deep	250469

	learning':ti,ab,kw OR 'ensemble learning':ti,ab,kw OR 'googlenet':ti,ab,kw OR 'hierarchical learning':ti,ab,kw OR 'learning, deep':ti,ab,kw OR 'learning, hierarchical':ti,ab,kw OR 'machine learning':ti,ab,kw OR 'neural network':ti,ab,kw OR 'neural networks':ti,ab,kw OR 'resnet':ti,ab,kw OR 'resnet101':ti,ab,kw OR 'resnet18':ti,ab,kw OR 'resnet34':ti,ab,kw OR 'resnet50':ti,ab,kw OR 'transfer learning':ti,ab,kw OR 'vgg11':ti,ab,kw OR 'vgg-11':ti,ab,kw OR 'vgg13':ti,ab,kw OR 'vgg-13':ti,ab,kw OR 'vgg16':ti,ab,kw OR 'vgg-16':ti,ab,kw OR 'vgg19':ti,ab,kw OR 'vgg-19':ti,ab,kw OR 'vggnet':ti,ab,kw	
#6	#4 OR #5	252475
#7	#3 AND #6	1069

4.Web of science

Search number	Query	Results
#1	(TS=('arthritides, degenerative':ti,ab,kw OR 'arthritis, degenerative':ti,ab,kw OR 'arthritis, noninflammatory':ti,ab,kw OR 'arthroses':ti,ab,kw OR 'arthrosis':ti,ab,kw OR 'degenerative arthritides':ti,ab,kw OR 'degenerative arthritis':ti,ab,kw OR 'degenerative joint disease':ti,ab,kw OR 'gonarthrosis':ti,ab,kw OR 'noninflammatory arthritis':ti,ab,kw OR 'osteoarthritides':ti,ab,kw OR 'osteoarthritis':ti,ab,kw OR 'osteo-arthritis':ti,ab,kw OR 'osteoarthroses':ti,ab,kw OR 'osteoarthrosis':ti,ab,kw OR 'osteo-	116243

	arthrosis':ti,ab,kw OR 'osteoarthrosis deformans':ti,ab,kw OR 'primary osteoarthritis':ti,ab,kw OR 'rheumatoid arthrosis':ti,ab,kw)) OR TS=(Osteoarthritis)	
#2	(TS=('alexnet':ti,ab,kw OR 'artificial intelligence':ti,ab,kw OR 'cnn':ti,ab,kw OR 'deep learning':ti,ab,kw OR 'ensemble learning':ti,ab,kw OR 'googlenet':ti,ab,kw OR 'hierarchical learning':ti,ab,kw OR 'learning, deep':ti,ab,kw OR 'learning, hierarchical':ti,ab,kw OR 'machine learning':ti,ab,kw OR 'neural network':ti,ab,kw OR 'neural networks':ti,ab,kw OR 'resnet':ti,ab,kw OR 'resnet101':ti,ab,kw OR 'resnet18':ti,ab,kw OR 'resnet34':ti,ab,kw OR 'resnet50':ti,ab,kw OR 'transfer learning':ti,ab,kw OR 'vgg11':ti,ab,kw OR 'vgg-11':ti,ab,kw OR 'vgg13':ti,ab,kw OR 'vgg-13':ti,ab,kw OR 'vgg16':ti,ab,kw OR 'vgg-16':ti,ab,kw OR 'vgg19':ti,ab,kw OR 'vgg-19':ti,ab,kw OR 'vggnet':ti,ab,kw)) OR TS=(deep learning)	270003
#3	#1 AND #2	353

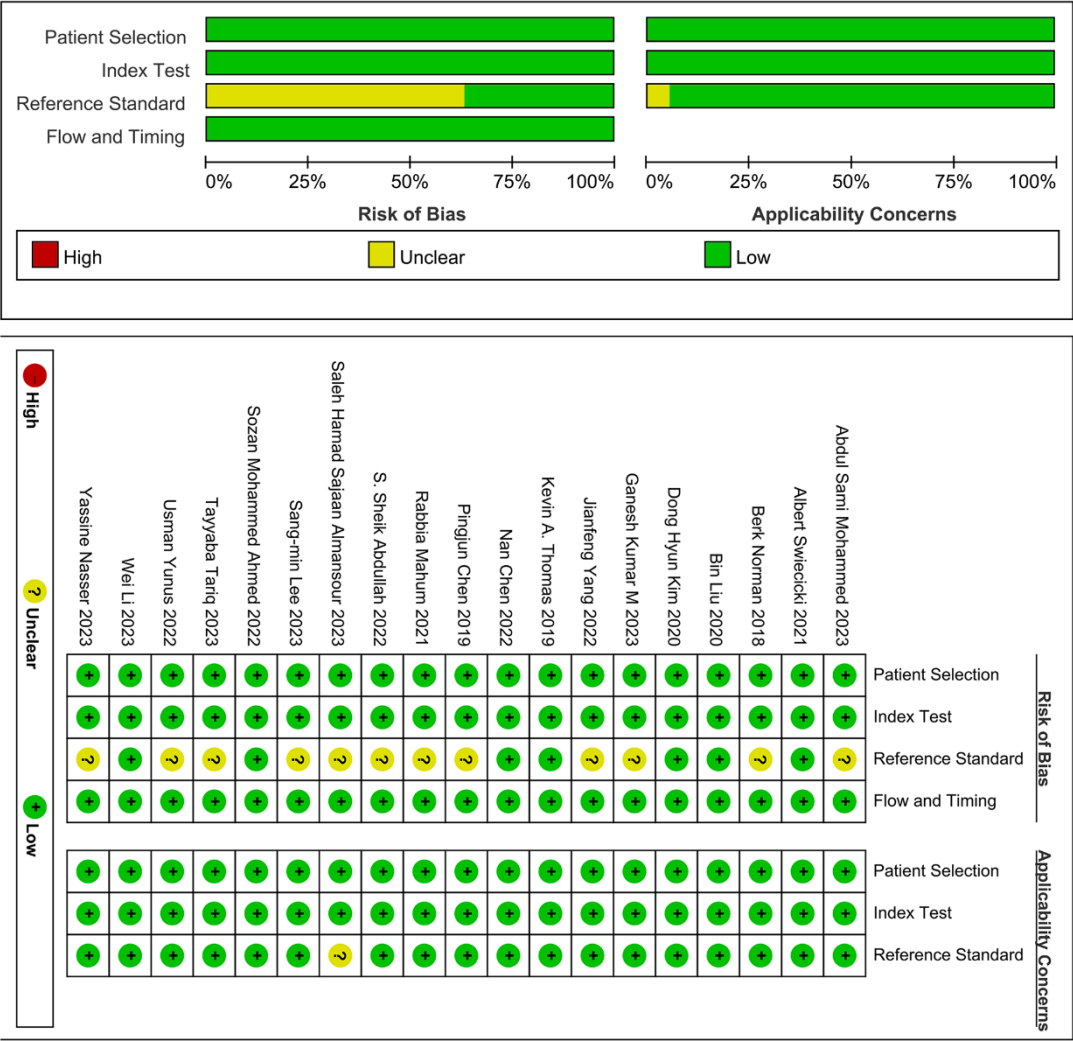


Figure S1 Risk of bias diagram

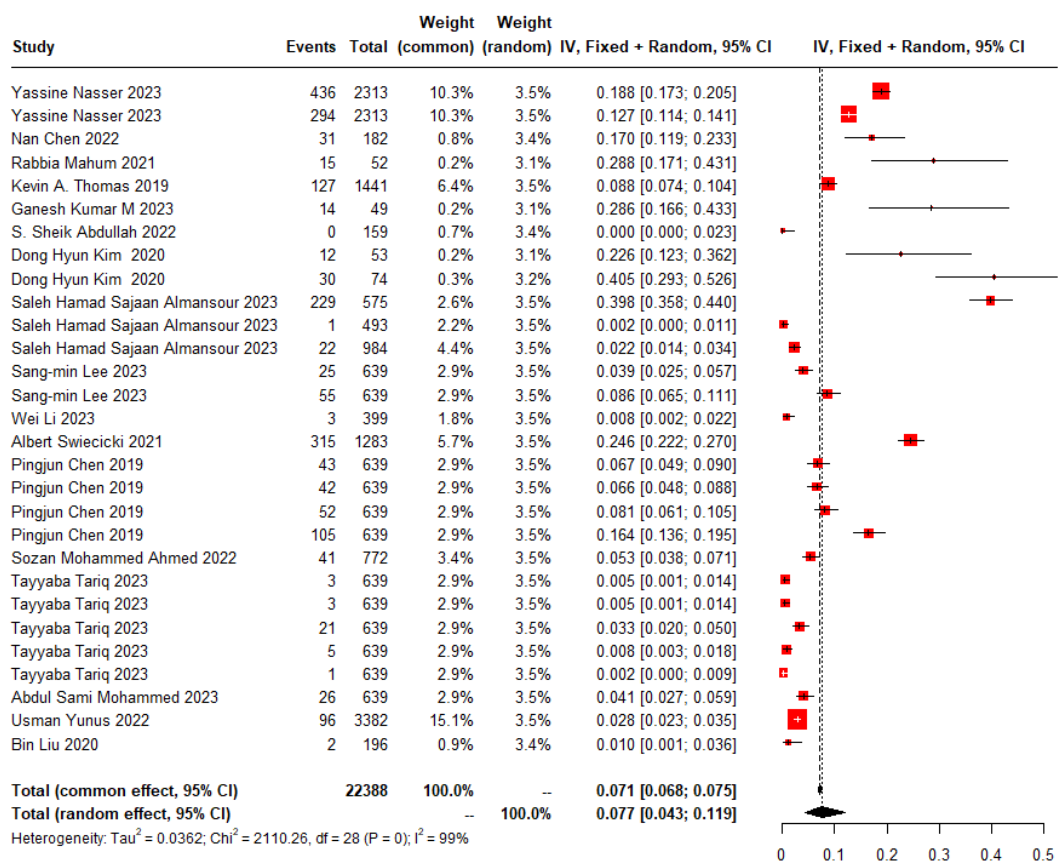


Figure S2: Forest Plot for the Misdiagnosis Rate of K-L₀ Diagnosis by DL Based on X-ray, Misclassified as K-L₁ Grade

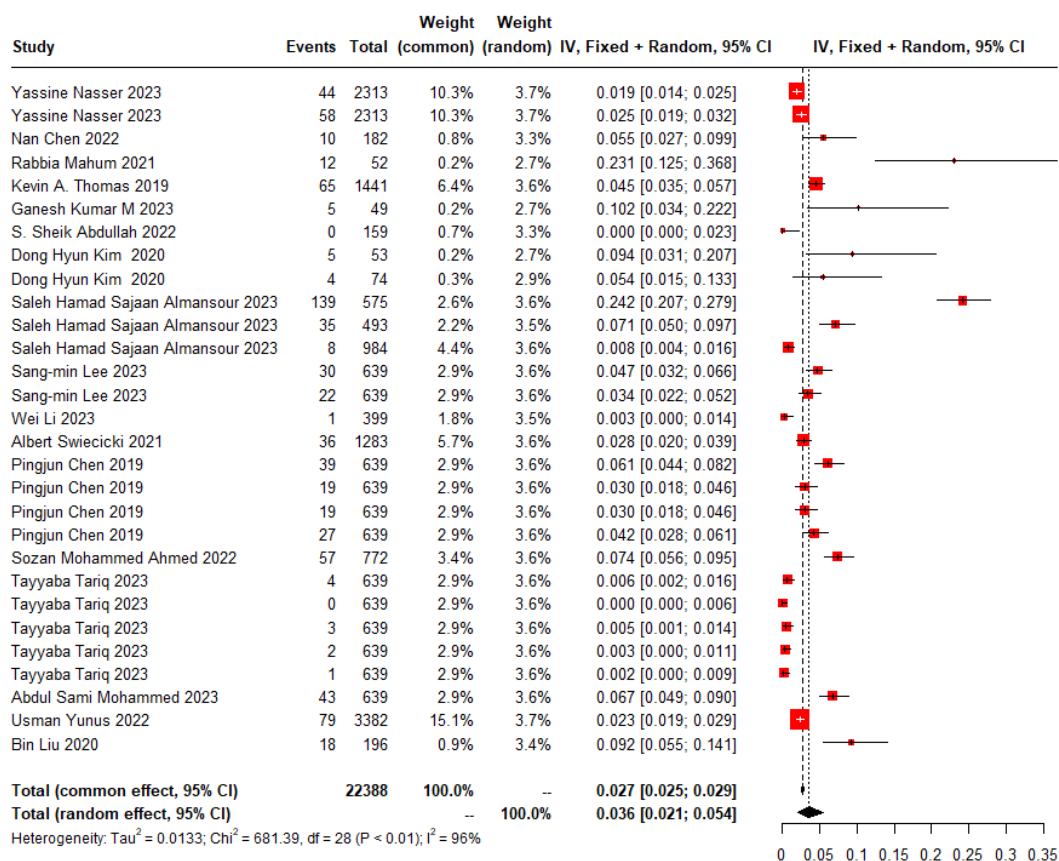


Figure S3: Forest Plot for the Misdiagnosis Rate of K-L₀ Diagnosis by DL Based on X-ray, Misclassified as K-L₂ Grade

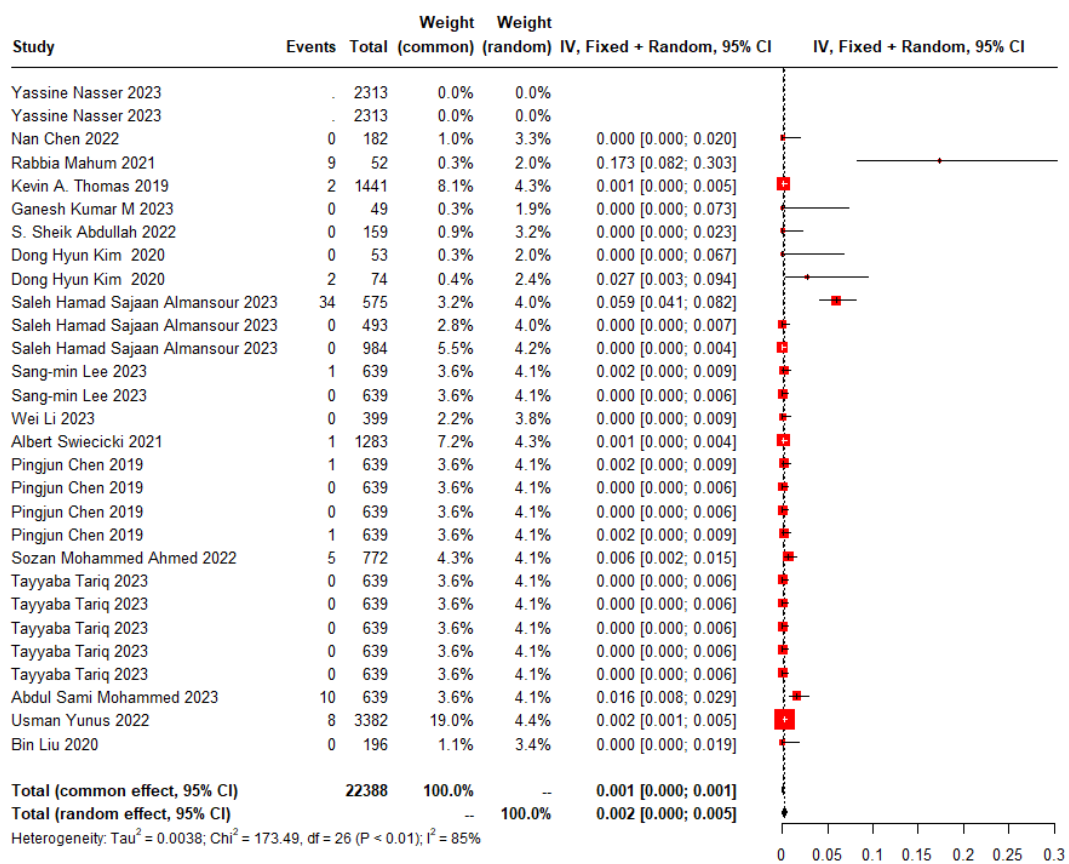


Figure S4: Forest Plot for the Misdiagnosis Rate of K-L₀ Diagnosis by DL Based on X-ray, Misclassified as K-L₃ Grade

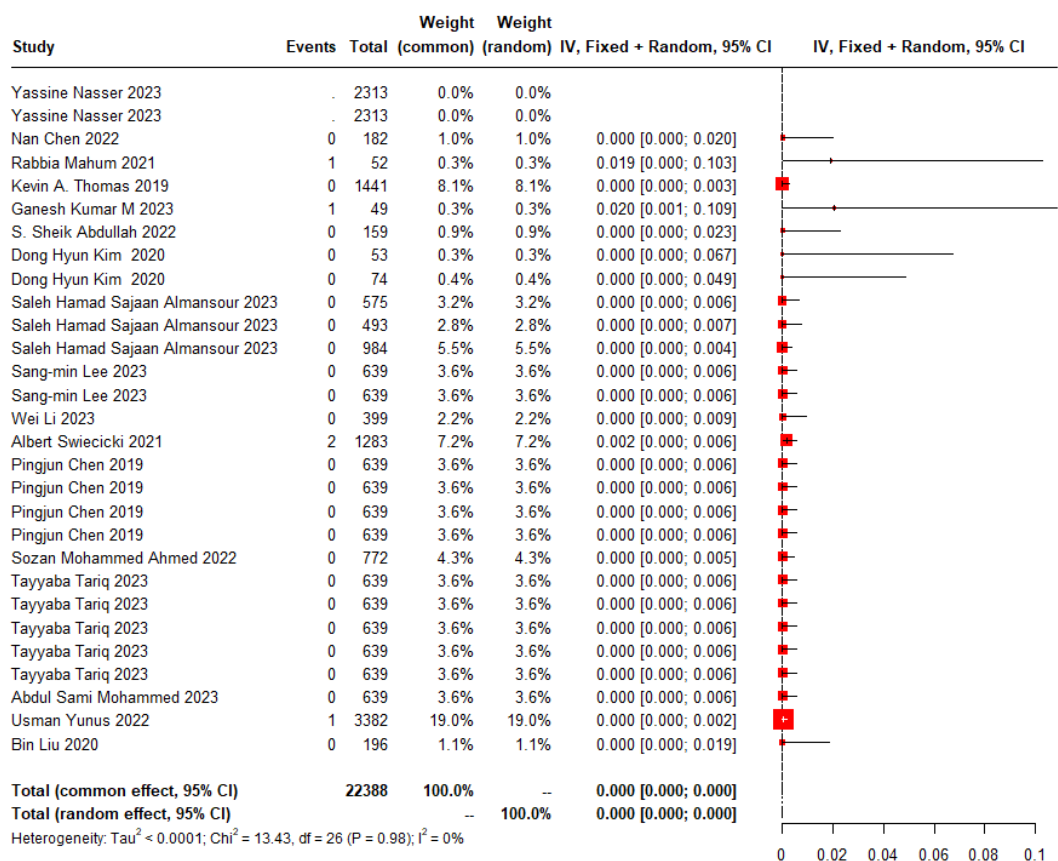


Figure S5: Forest Plot for the Misdiagnosis Rate of K-L₀ Diagnosis by DL Based on X-ray, Misclassified as K-L₄ Grade

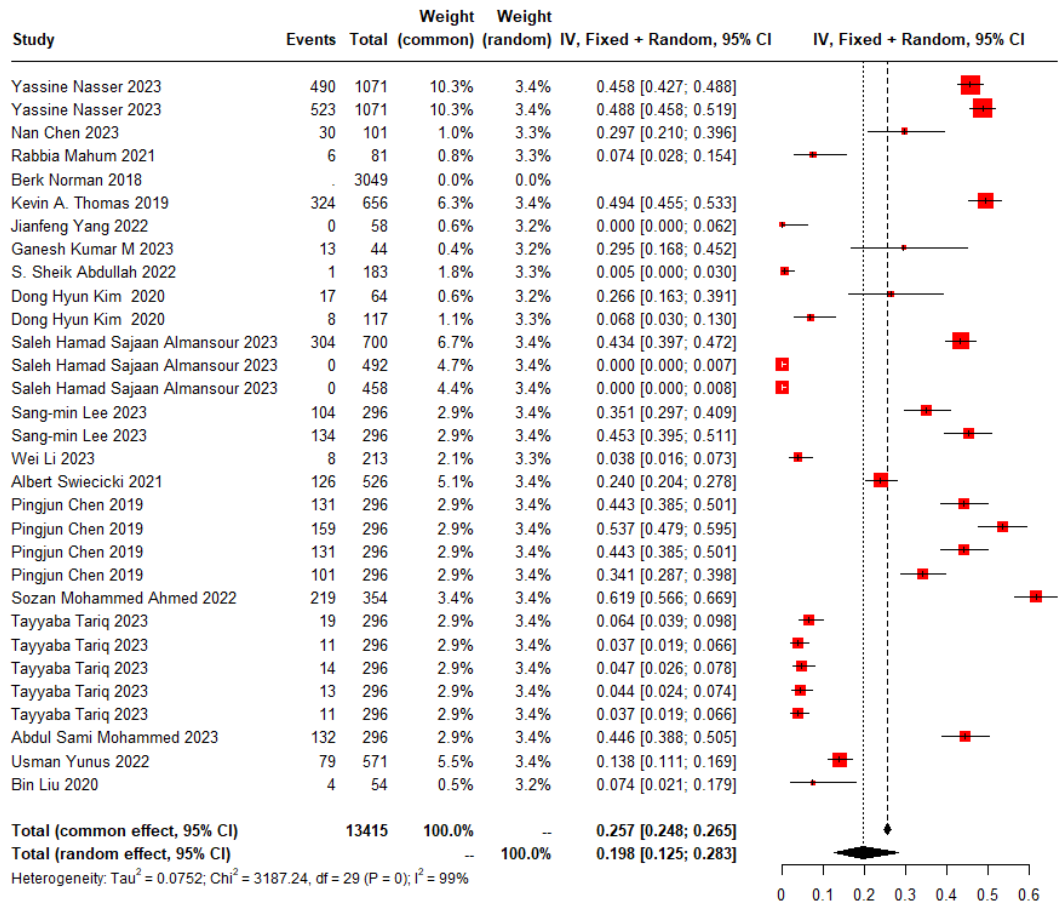


Figure S6: Forest Plot for the Misdiagnosis Rate of K-L₁ Diagnosis Using DL Based on X-ray, Misclassified as K-L₀ Grade

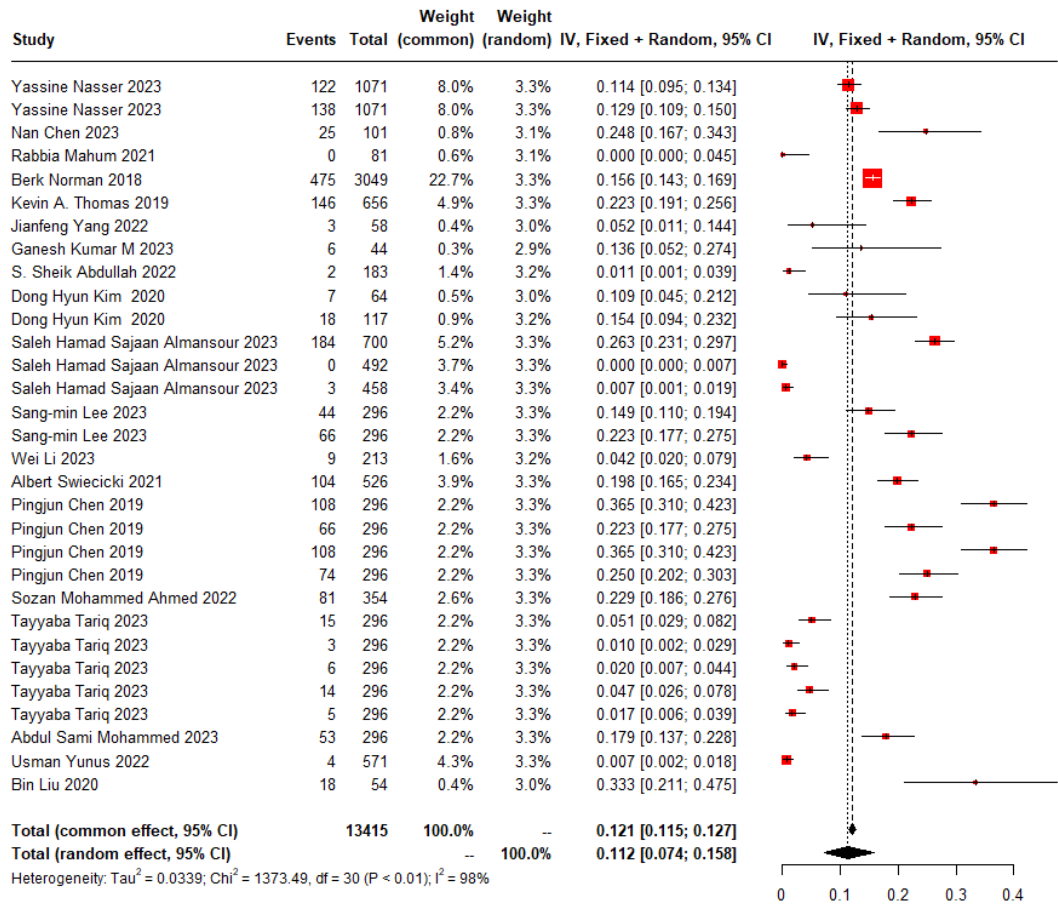


Figure S7: Forest Plot for the Misdiagnosis Rate of K-L₁ Diagnosis Using DL Based on X-ray, Misclassified as K-L₂ Grade

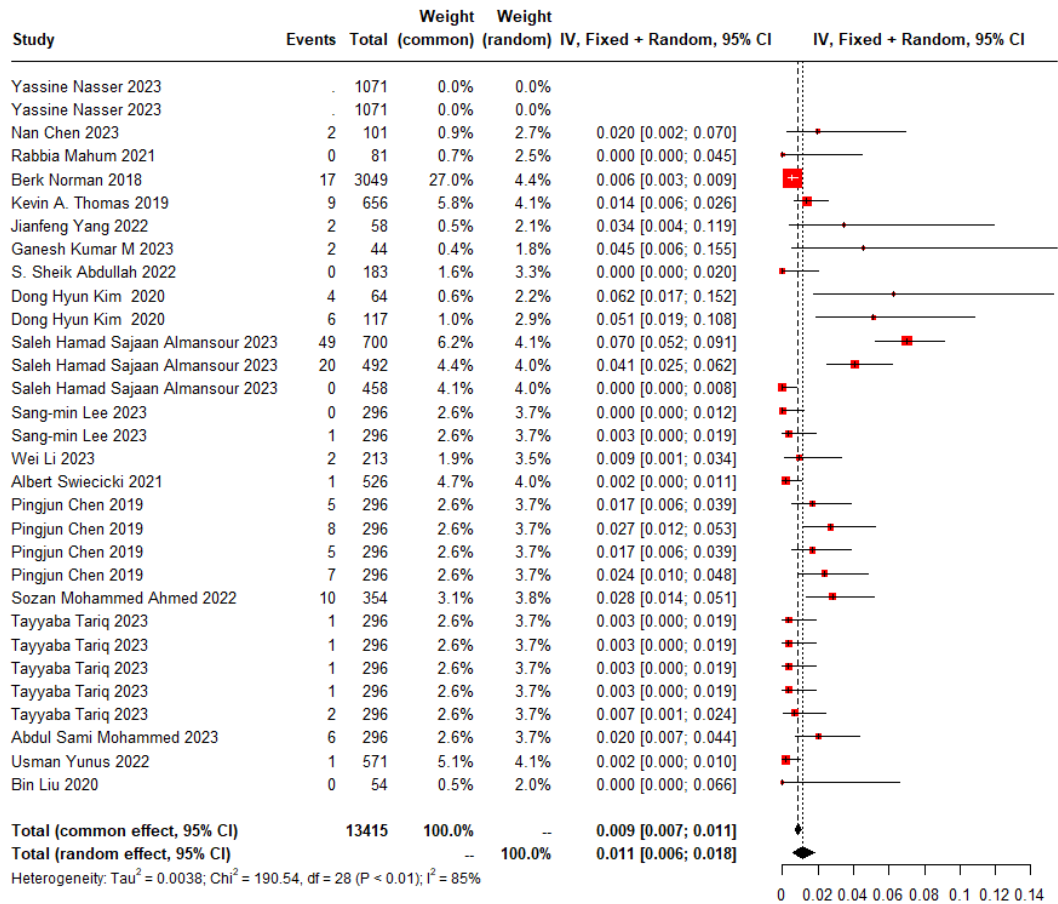


Figure S8: Forest Plot for the Misdiagnosis Rate of K-L₁ Diagnosis Using DL Based on X-ray, Misclassified as K-L₃ Grade

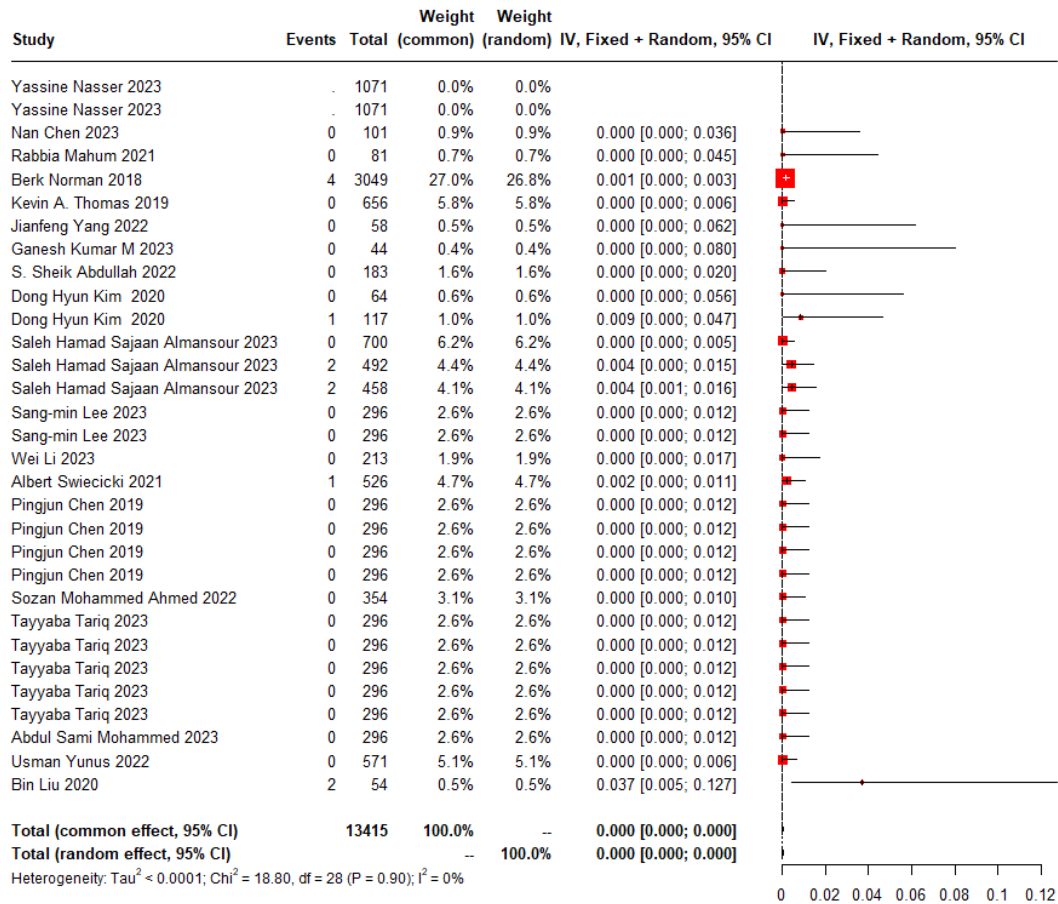


Figure S9: Forest Plot for the Misdiagnosis Rate of K-L₁ Diagnosis Using DL Based on X-ray, Misclassified as K-L₄ Grade

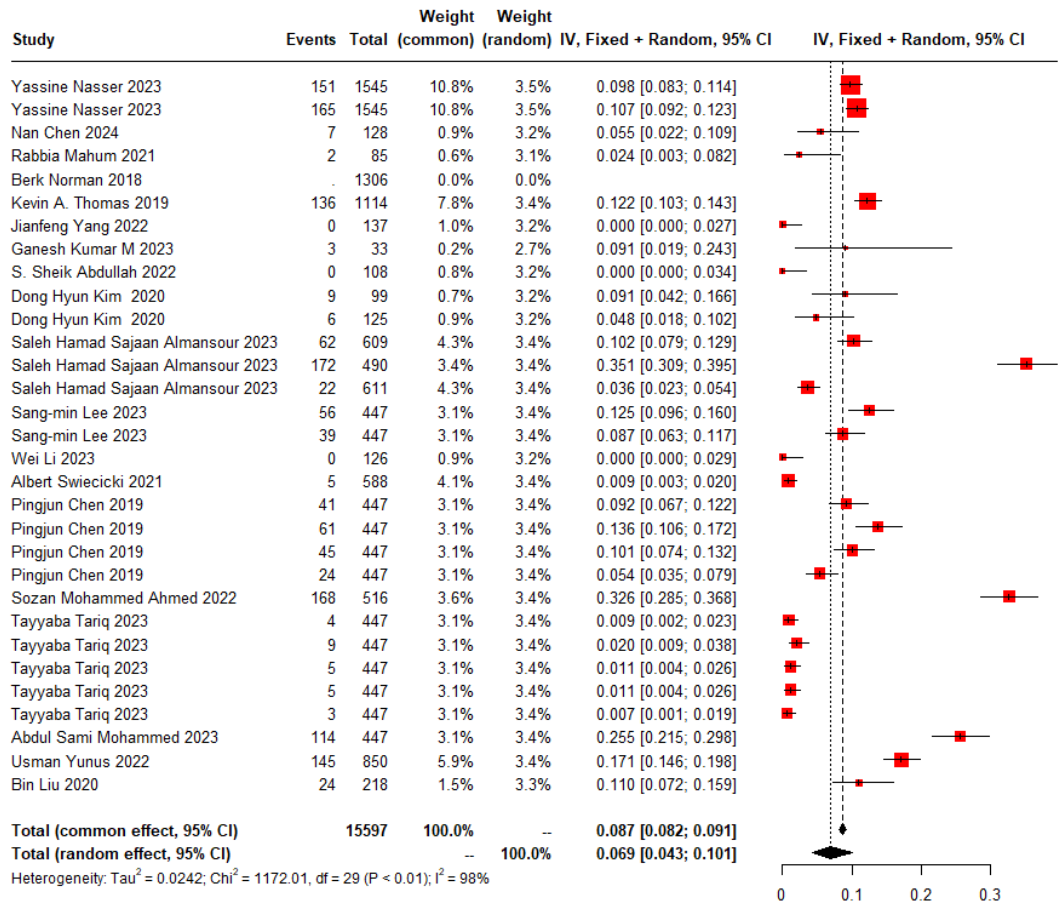


Figure S10: Forest Plot Displaying the Misdiagnosis Rate for K-L₂ Diagnosis Via DL Based on X-ray, Misclassified as K-L₀ Grade

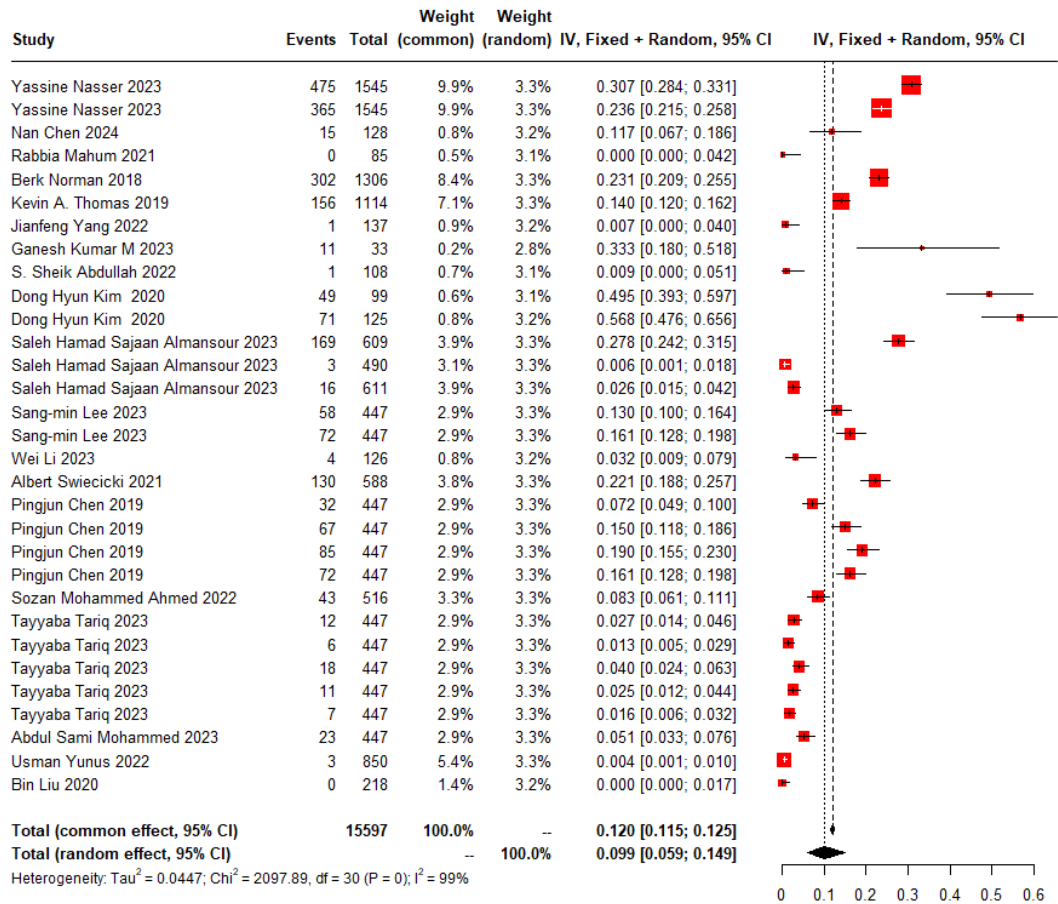


Figure S11: Forest Plot Displaying the Misdiagnosis Rate for K-L₂ Diagnosis Via DL Based on X-ray, Misclassified as K-L₁ Grade

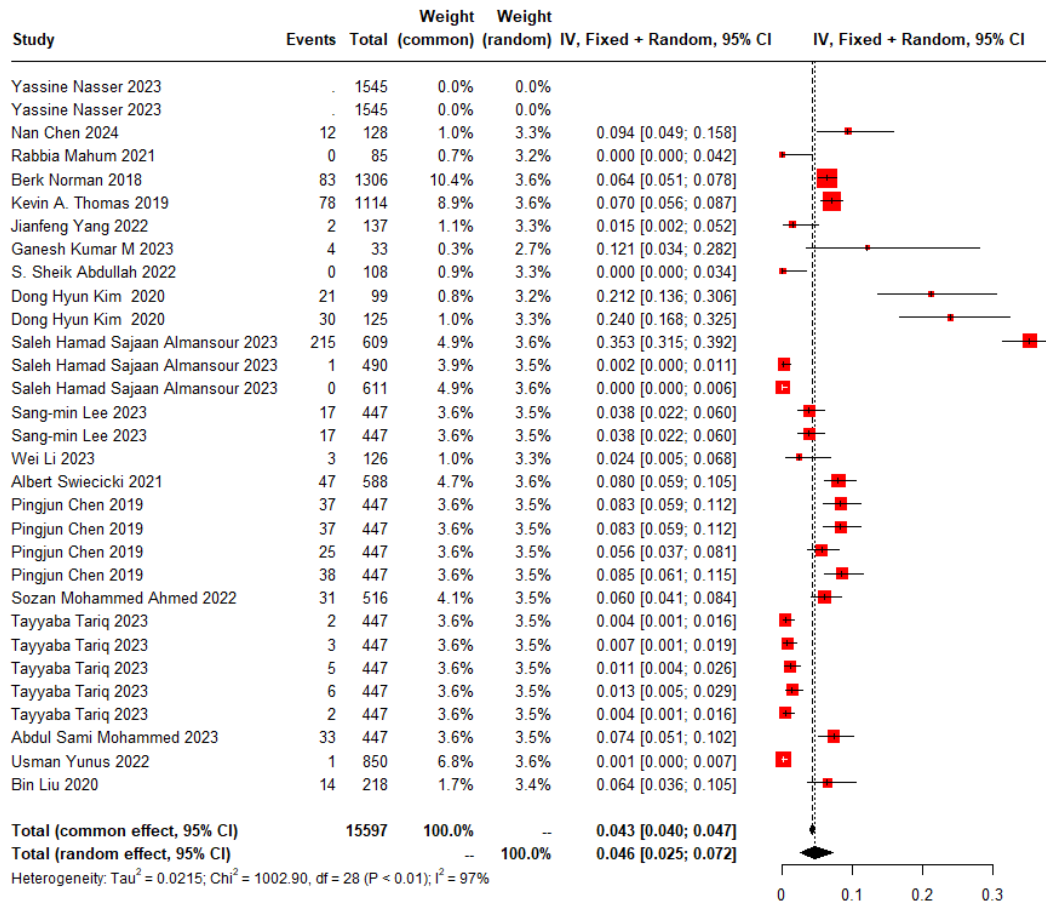


Figure S12: Forest Plot Displaying the Misdiagnosis Rate for K-L₂ Diagnosis Via DL Based on X-ray, Misclassified as K-L₃ Grade

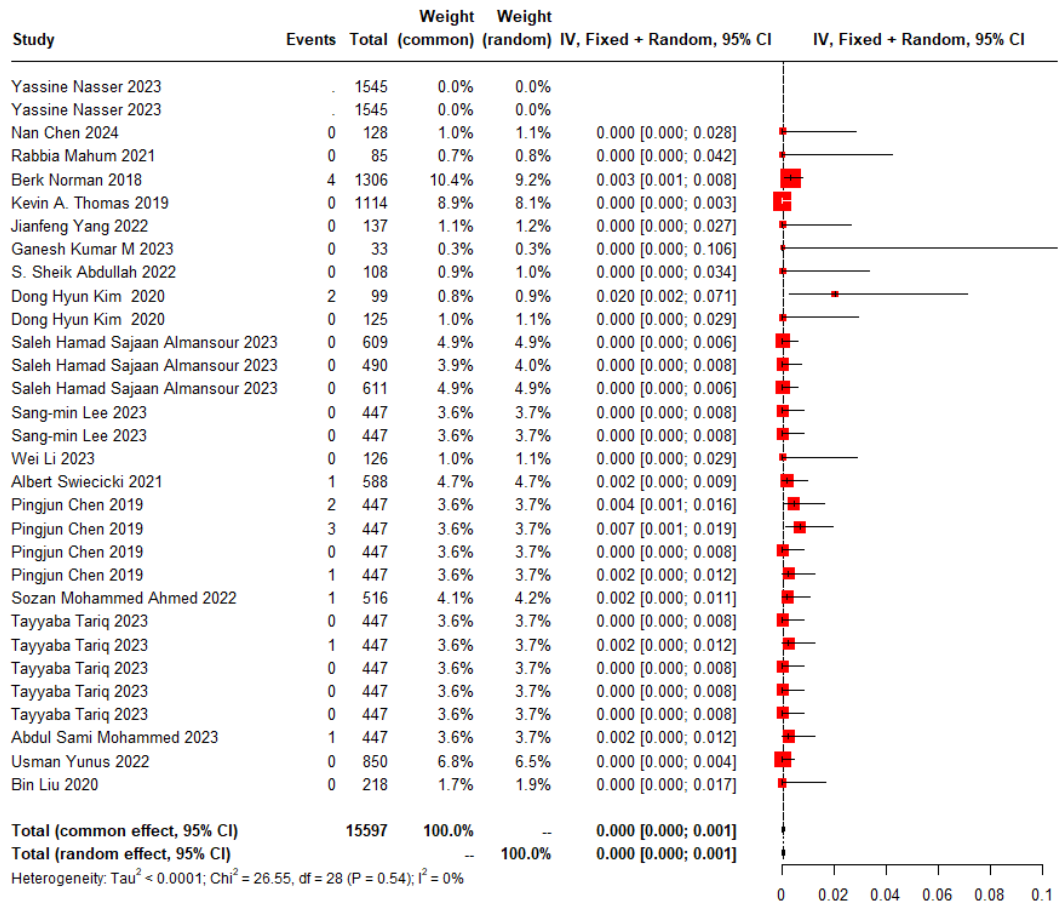


Figure S13: Forest Plot Displaying the Misdiagnosis Rate for K-L₂ Diagnosis Via DL Based on X-ray, Misclassified as K-L₄ Grade.

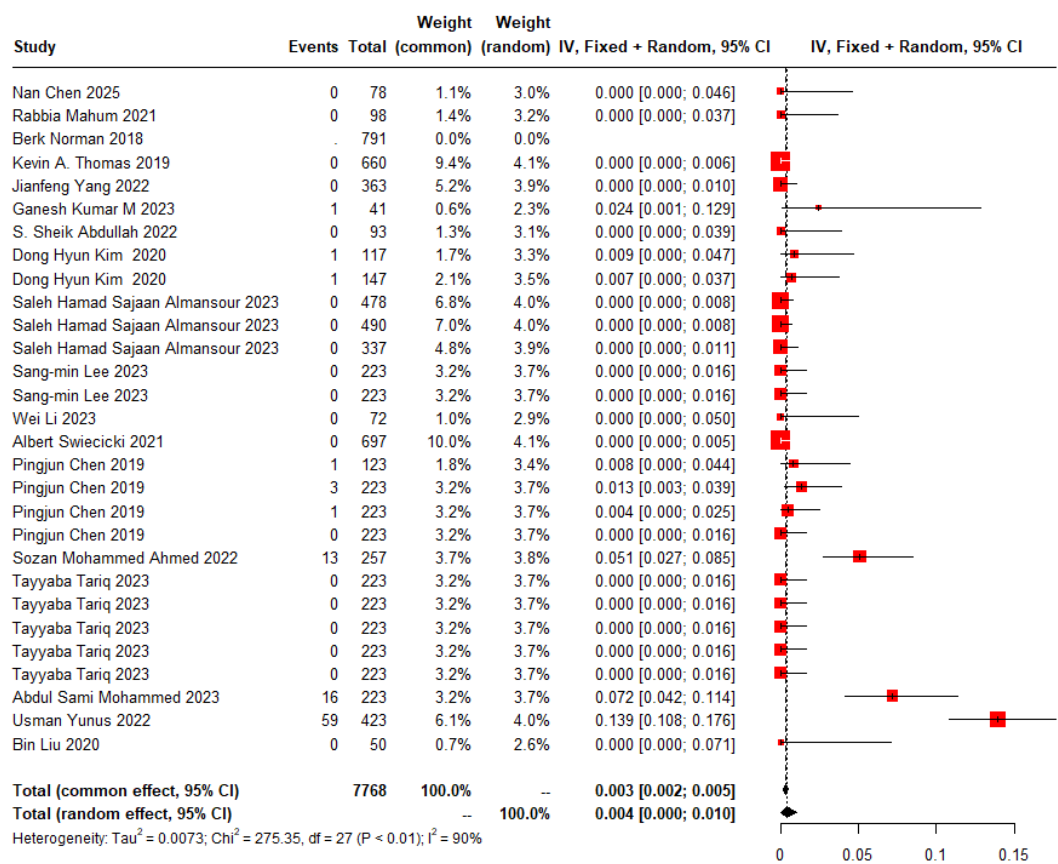


Figure S14: Forest Plot Illustrating the Misclassification Rate of K-L₃ Diagnosis Using DL Based on X-ray, Categorized as K-L₀ Grade

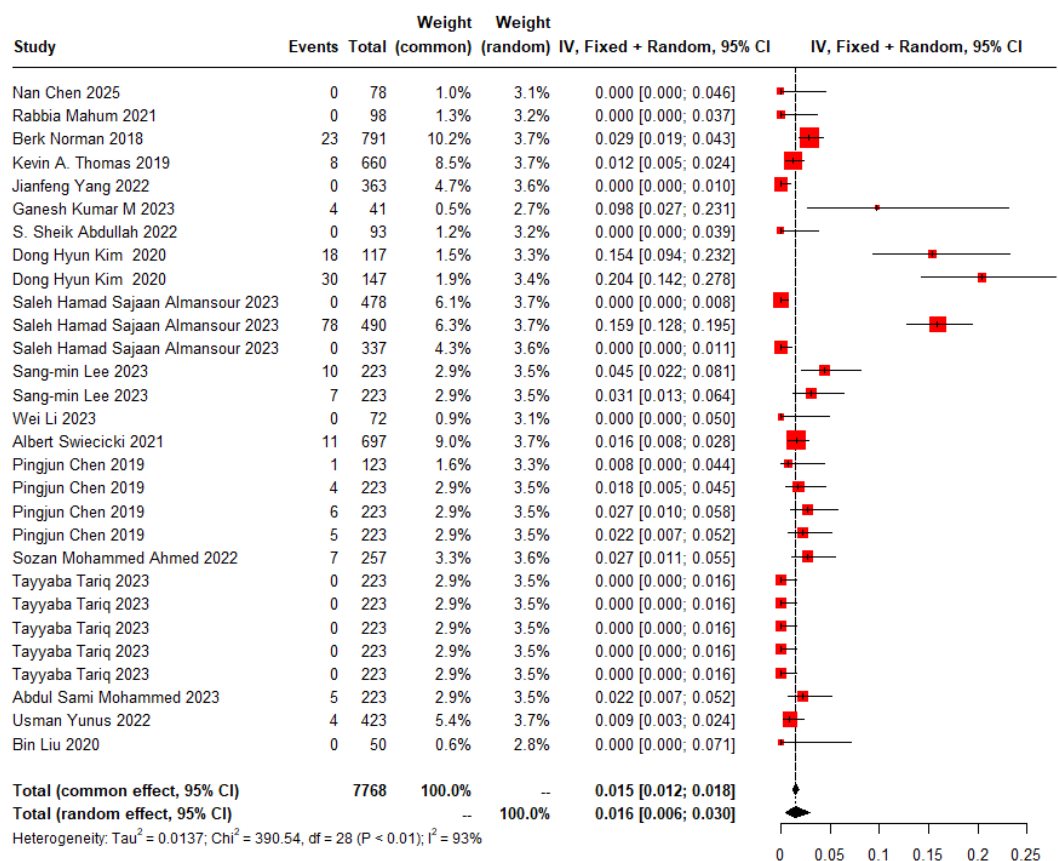


Figure S15: Forest Plot Illustrating the Misclassification Rate of K-L₃ Diagnosis Using DL Based on X-ray, Categorized as K-L₁ Grade

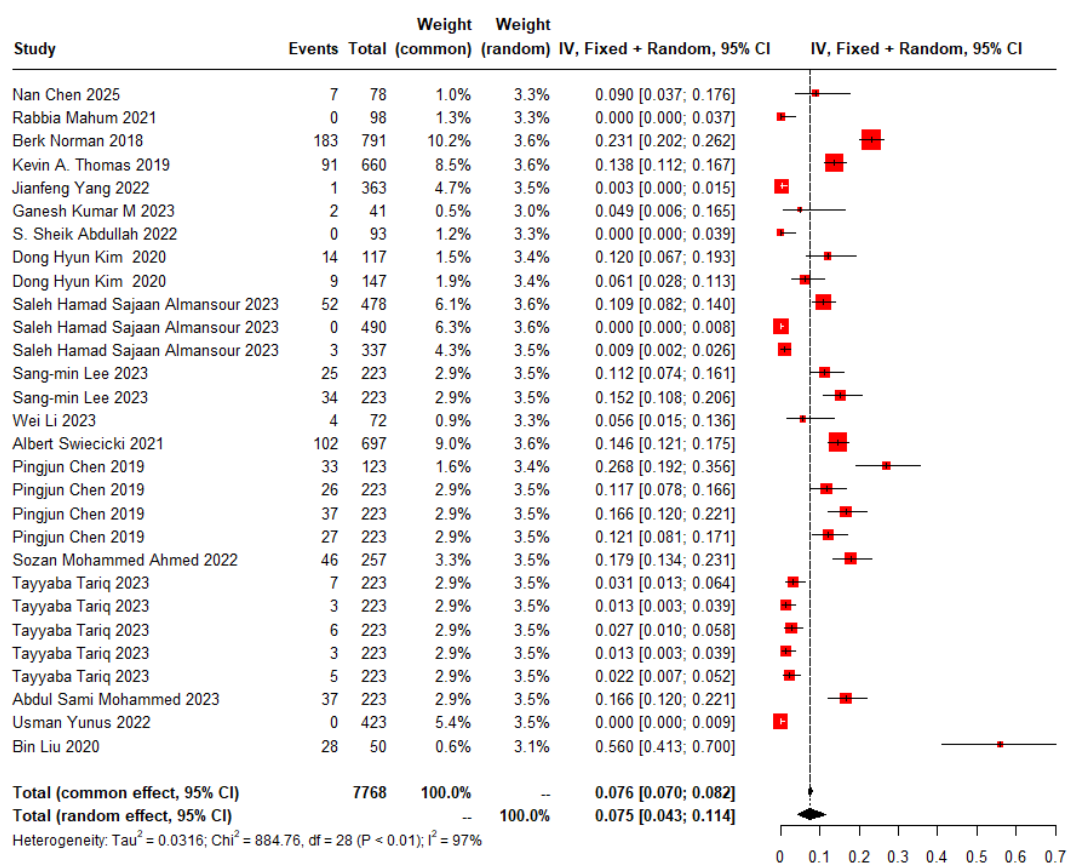


Figure S16: Forest Plot Illustrating the Misclassification Rate of K-L₃ Diagnosis Using DL Based on X-ray, Categorized as K-L₂ Grade.

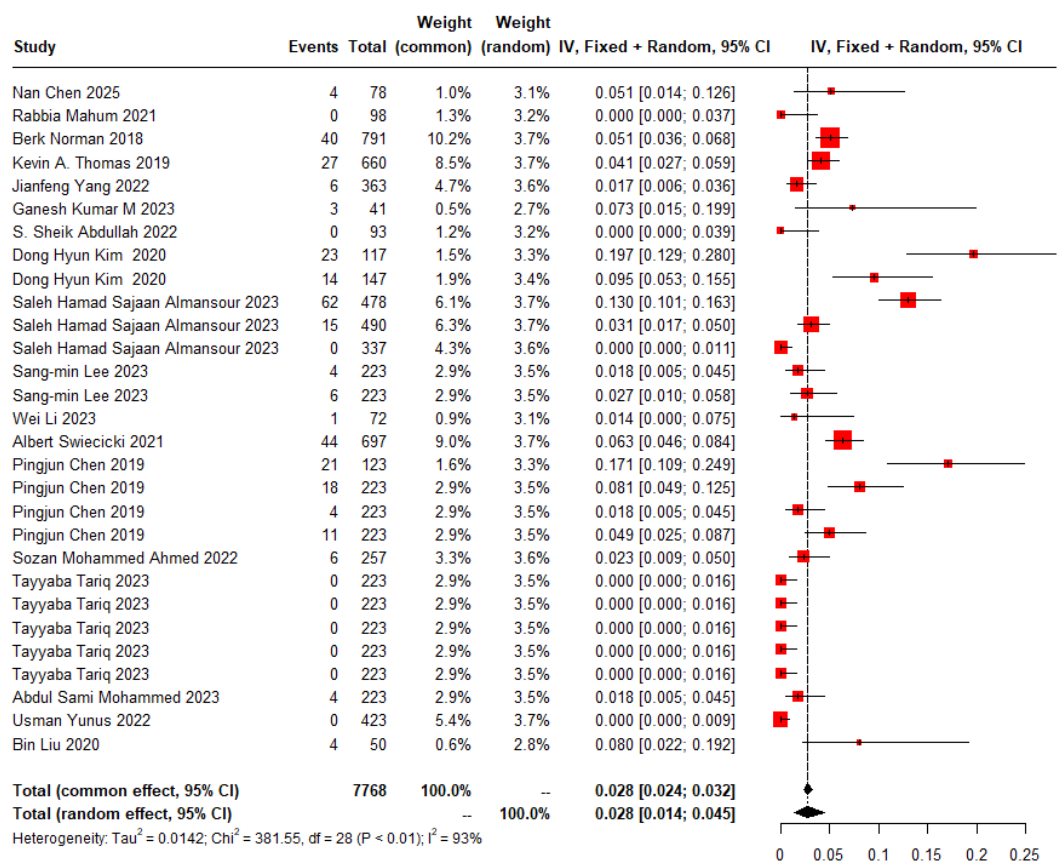


Figure S17: Forest Plot Illustrating the Misclassification Rate of K-L₃ Diagnosis Using DL Based on X-ray, Categorized as K-L₄ Grade.

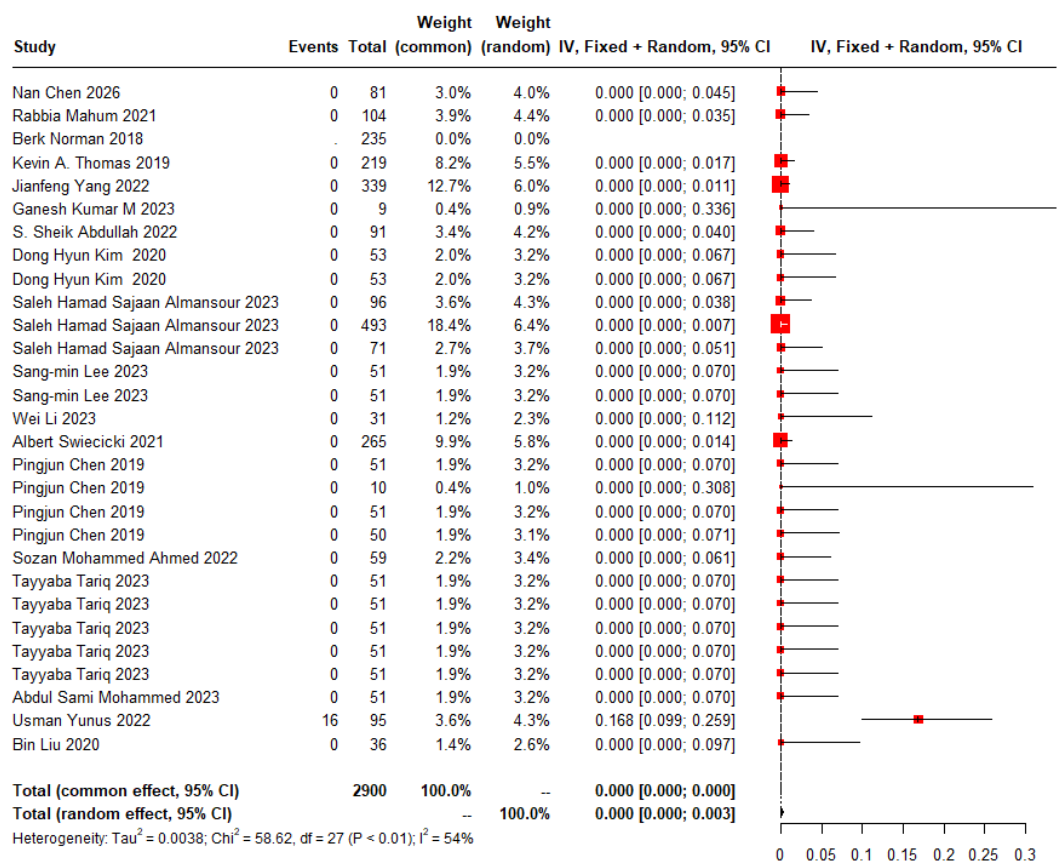


Figure S18: Forest Plot Demonstrating the Misclassification Rate for K-L₄ Diagnosis Using DL

Based on X-ray, Representing Misidentification as K-L₀ Grade.

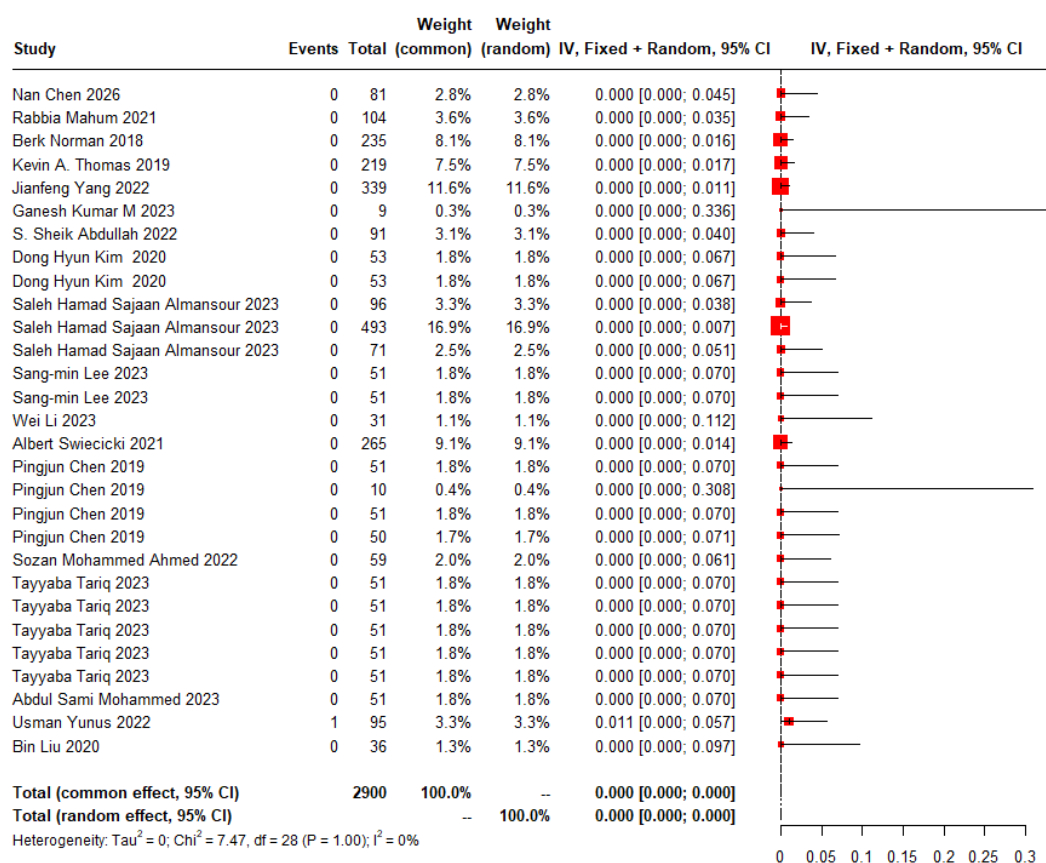


Figure S19: Forest Plot Highlighting the Misclassification Rate for K-L4 Diagnosis via DL

Techniques on X-ray Imagery, Indicating Misidentification as K-L₁ Grade.

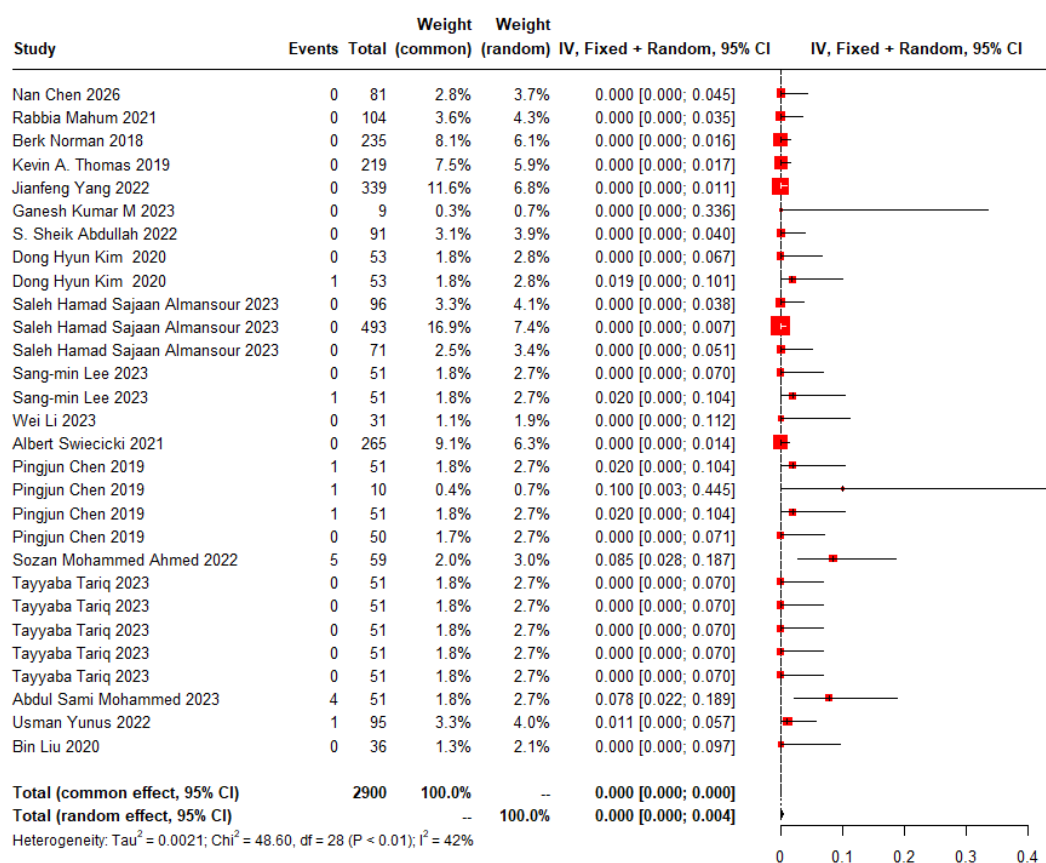


Figure S20: Forest Plot Illustrating the Misclassification Rate for K-L₄ Diagnosis Using DL Based on X-ray, Portraying Misidentification as K-L₂ Grade.

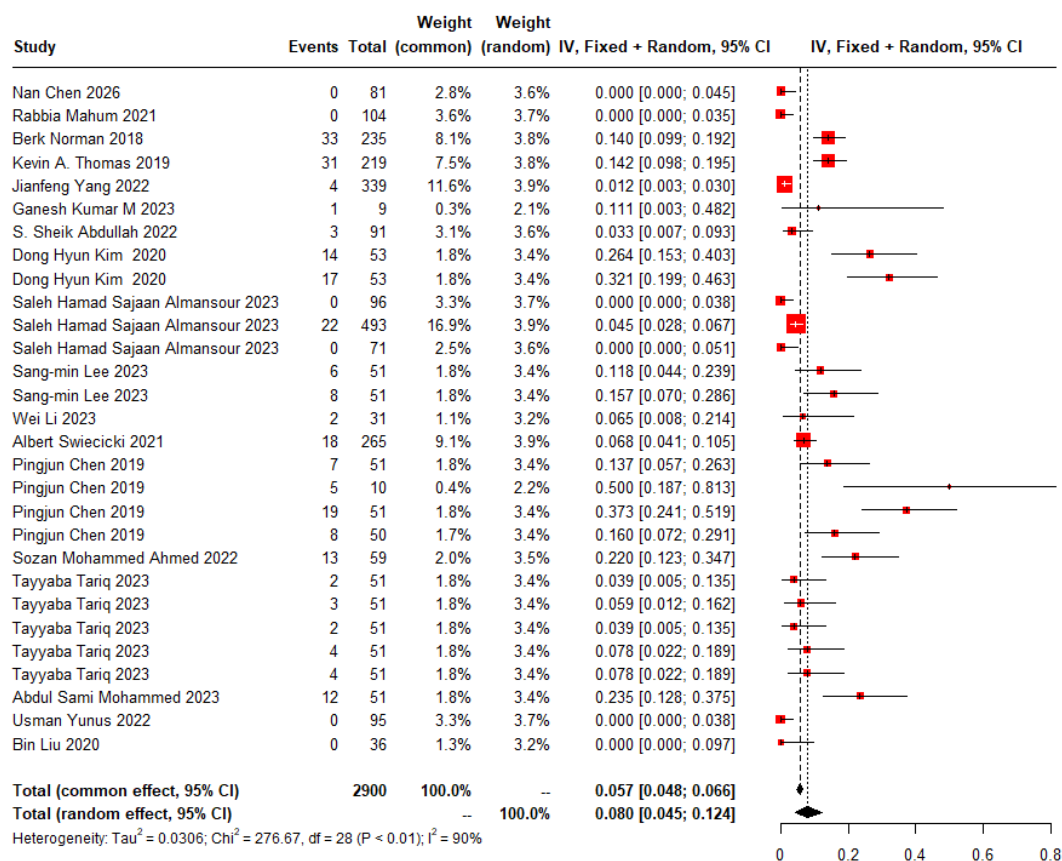


Figure S21: Forest Plot Showcasing the Misclassification Rate for K-L₄ Diagnosis Through DL on X-ray Imagery, Signifying Misidentification as K-L₃ Grade.

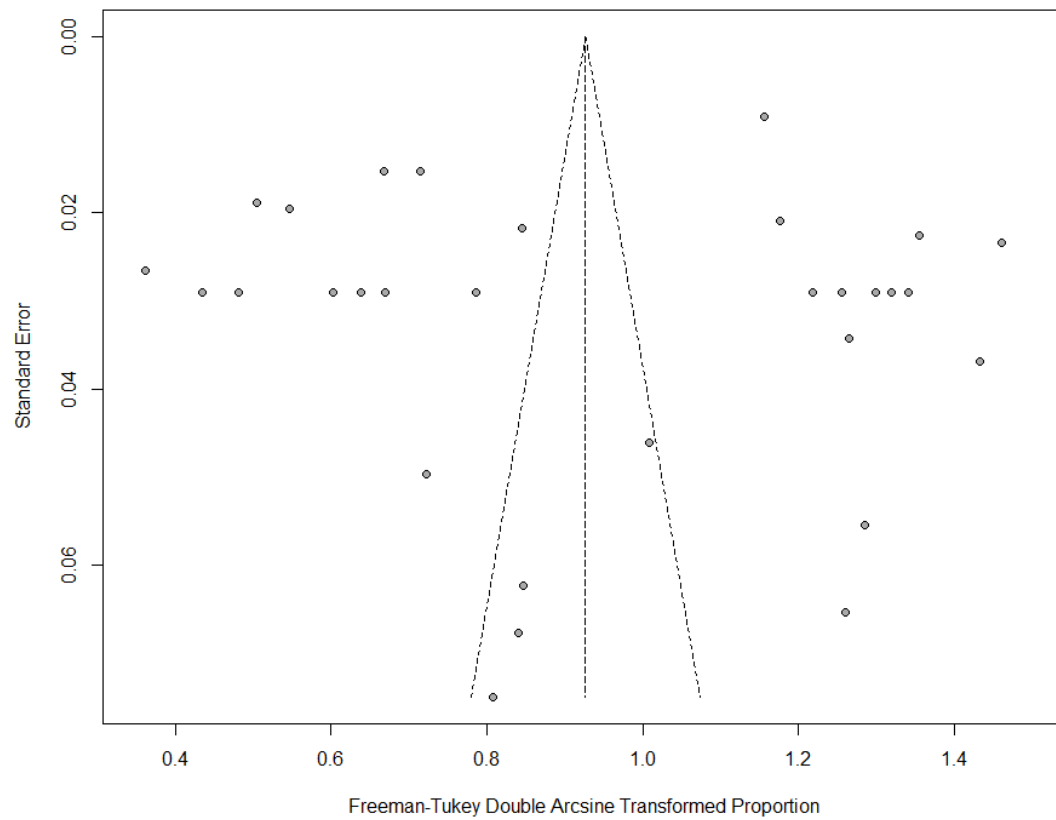


Figure S22 Funnel plot for K-L0

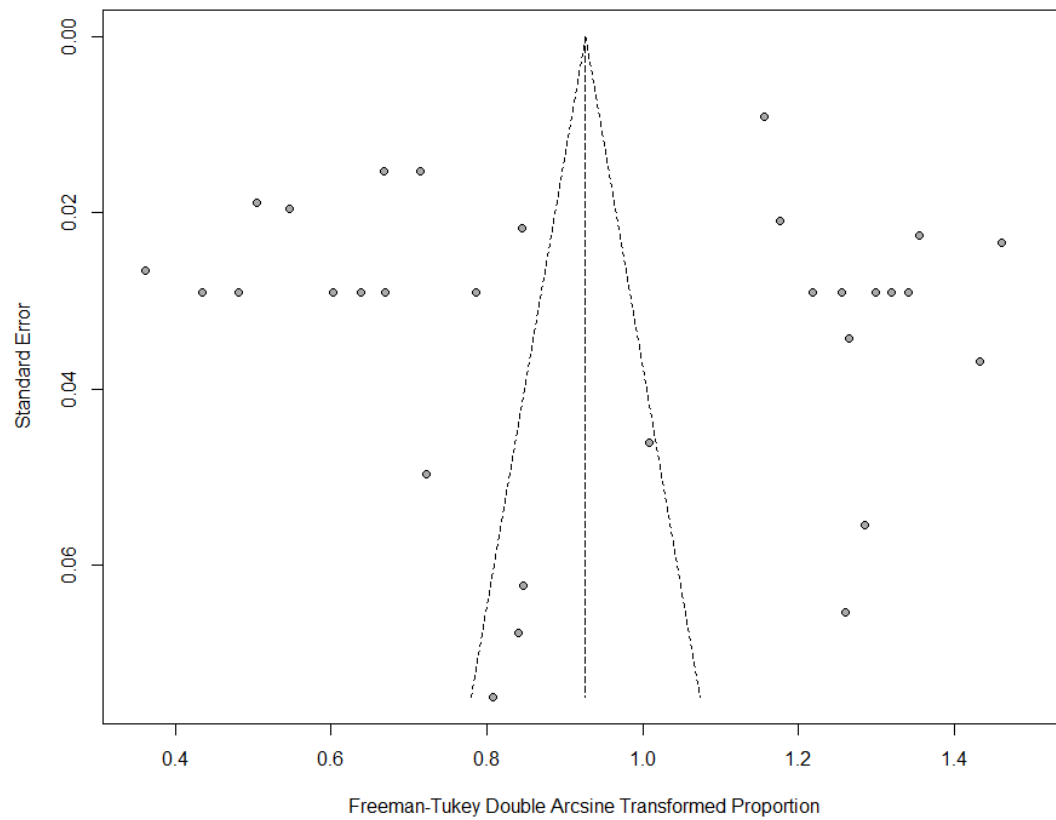


Figure S23 Funnel plot for K-L1

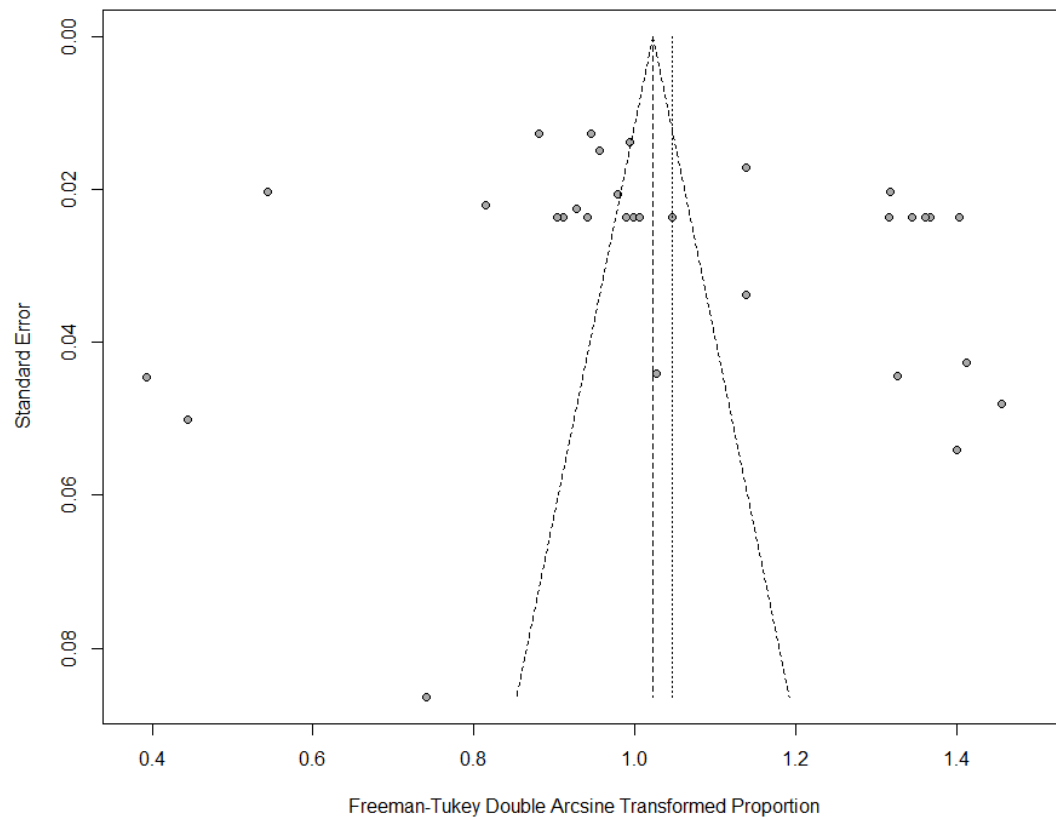


Figure S24 Funnel plot for K-L2

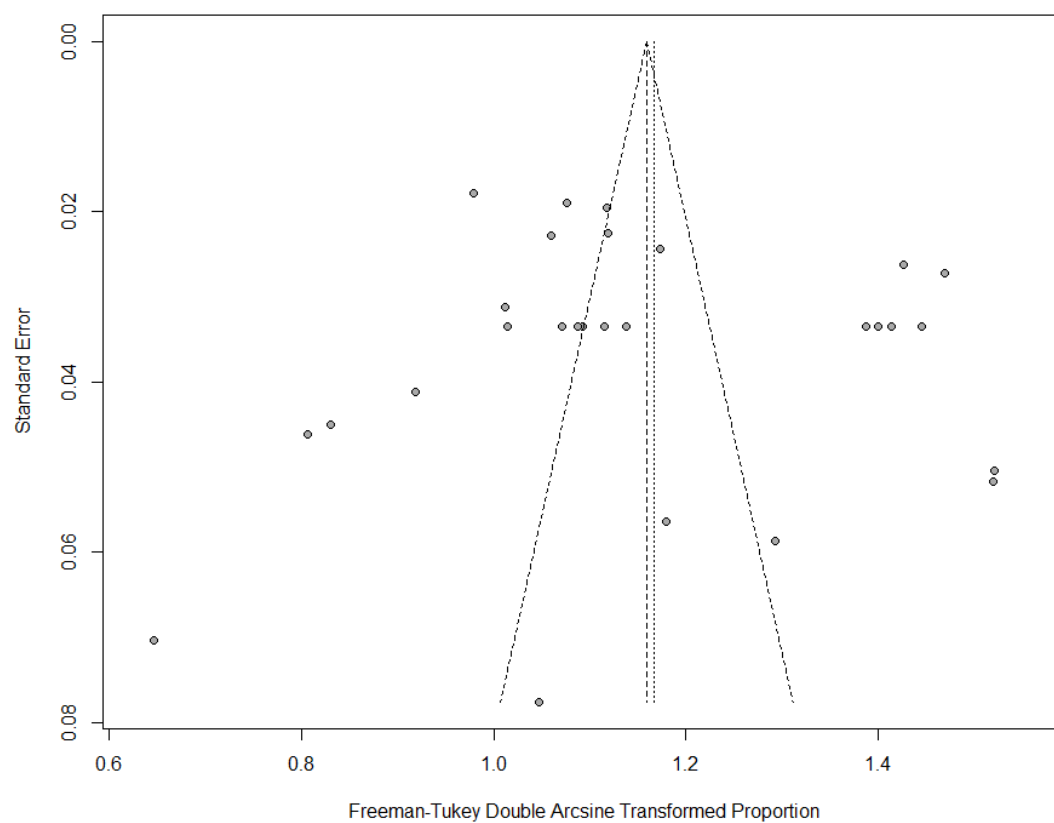


Figure S25 Funnel plot for K-L3

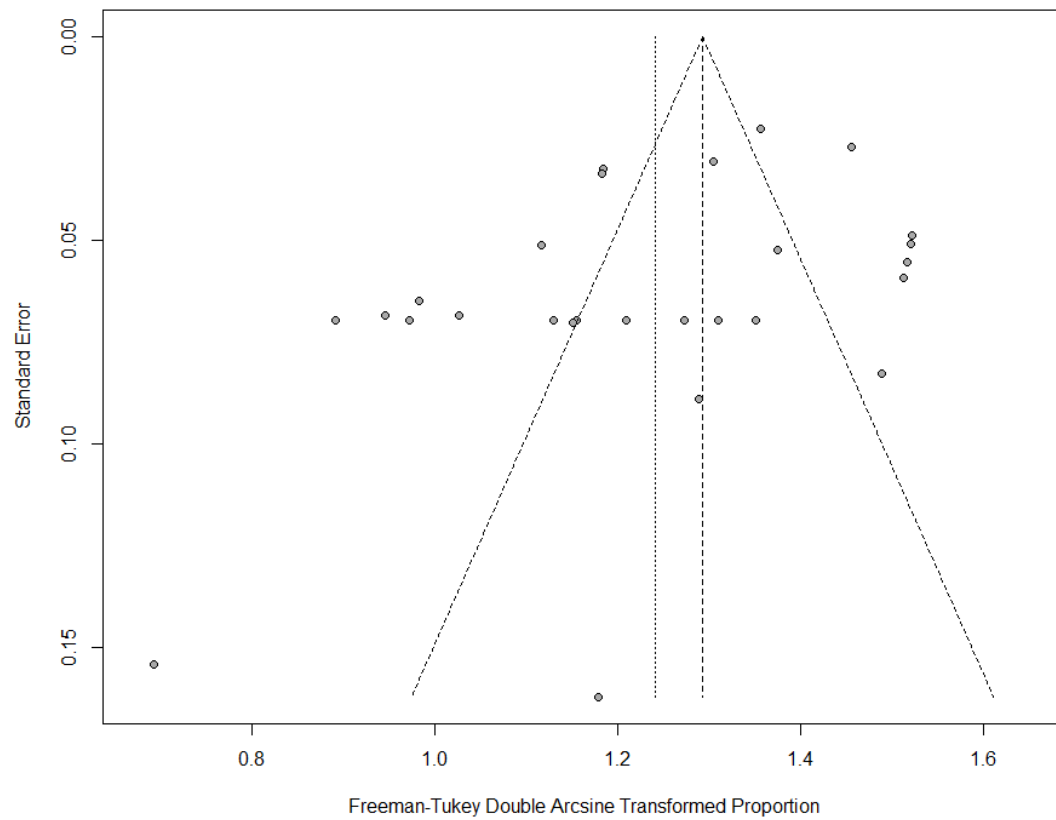


Figure S26 Funnel plot for K-L4