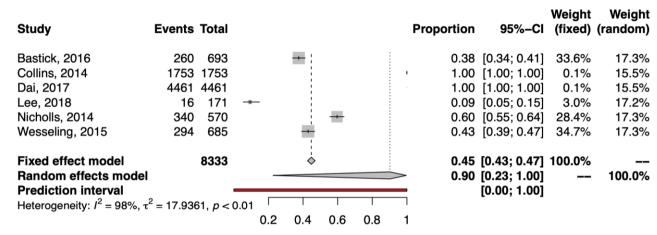
A meta-analysis of proportions was attempted to quantify the prevalence of the different pain trajectories in patients with knee OA. However, since the paucity and the high heterogeneity of the retrieved data limited the statistical strength and the relevance of the results of the meta-analysis, results were reported only as proportions as explained in paragraph 2.9. The forest plots are reported here for completeness.



**Supplementary Figure S1.** Forest plot of the meta-analysis of prevalence for the patients with a constant pain trajectory.

Study	Events Tot	tal				Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016 Collins, 2014 Dai, 2017 Lee, 2018 Nicholls, 2014	187 175 3245 446 0 17	61 71 ⊢	+			0.11 0.73 0.00	[0.00; 0.01] [0.09; 0.12] [0.71; 0.74] [0.00; 0.02] [0.31; 0.39]	0.0% 14.1% 74.8% 0.0% 11.0%	15.1% 18.2% 18.2% 15.1% 18.2%
Wesseling, 2015  Fixed effect model Random effects model Prediction interval Heterogeneity: $I^2 = 100\%$ ,	833		0.4	0.6	0.8	0.59	[0.00; 0.01] [0.57; 0.60] [0.00; 0.31] [0.00; 1.00]	0.0% <b>100.0%</b> —	15.1%  100.0%

**Supplementary Figure S2.** Forest plot of the meta-analysis of prevalence for the patients with a constant minimal pain trajectory.

Study	<b>Events Total</b>		Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016	100 000	-	0.27	[0.24; 0.30]	10.7%	18.3%
Collins, 2014	1169 1753	<b>=</b>	0.67	[0.64; 0.69]	30.6%	18.3%
Dai, 2017	948 4461		0.21	[0.20; 0.22]	58.6%	18.3%
Lee, 2018	0 171 ⊢	;	0.00	[0.00; 0.02]	0.0%	15.0%
Nicholls, 2014	0 570		0.00	[0.00; 0.01]	0.0%	15.0%
Wesseling, 2015	0 685		0.00	[0.00; 0.01]	0.0%	15.0%
Fixed effect model	8333	÷		[0.33; 0.35]	100.0%	
Random effects mode		_	0.04	[0.00; 0.31]		100.0%
Prediction interval				[0.00; 1.00]		
Heterogeneity: $I^2 = 100\%$	$\tau$ , $\tau^2 = 9.0206$ , $p < 0.01$					
	0 0.2	0.4 0.6 0.8	}			

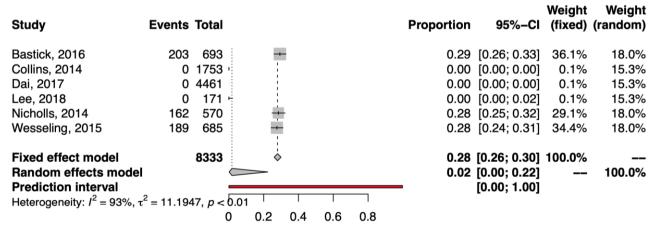
**Supplementary Figure S3.** Forest plot of the meta-analysis of prevalence for the patients with a constant mild pain trajectory.

Study	Events Total		Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016 Collins, 2014 Dai, 2017 Lee, 2018 Nicholls, 2014 Wesseling, 2015	0 693   1	*	0.17 0.06 0.00 0.22	[0.00; 0.01] [0.15; 0.18] [0.05; 0.07] [0.00; 0.02] [0.18; 0.25] [0.39; 0.47]	33.1% 0.1% 12.7%	12.8% 18.6% 18.6% 12.8% 18.6%
Fixed effect model Random effects mode Prediction interval Heterogeneity: $I^2 = 99\%$ ,		0.4 0.6		[0.15; 0.17] [0.01; 0.27] [0.00; 0.97]	100.0%	 100.0%

**Supplementary Figure S4.** Forest plot of the meta-analysis of prevalence for the patients with a constant moderate pain trajectory.

Study	Events Tota	I				Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016	74 693	3 : :=				0.11	[0.08; 0.13]	33.9%	18.5%
Collins, 2014	105 1753	3 +				0.06	[0.05; 0.07]	50.6%	18.5%
Dai, 2017	0 446					0.00	[0.00; 0.00]	0.3%	13.2%
Lee, 2018	16 17	<del>1</del> =-				0.09	[0.05; 0.15]	7.4%	18.3%
Nicholls, 2014	15 570	) =				0.03	[0.01; 0.04]	7.5%	18.3%
Wesseling, 2015	0 688	5 +				0.00	[0.00; 0.01]	0.3%	13.2%
Fixed effect model Random effects model Prediction interval	8333	<b>&gt;</b>					[0.06; 0.08] [0.00; 0.10] [0.00; 0.93]	100.0% 	 100.0%
Heterogeneity: $I^2 = 92\%$ , $\tau^2$	$^{2} - 5.0044 n <$	001			$\neg$	•	[0.00; 0.93]		
rieterogeneity. 7 = 92/6, t	= 5.0044, p <	0 0.2	0.4	0.6	8.0				

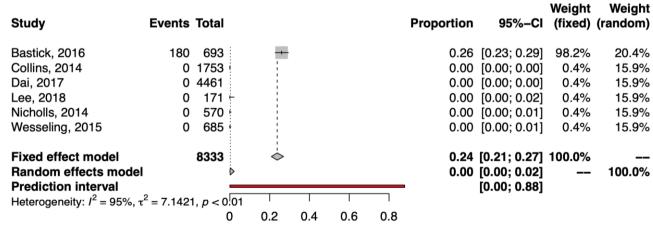
**Supplementary Figure S5.** Forest plot of the meta-analysis of prevalence for the patients with a constant severe pain trajectory.



Supplementary Figure S6. Forest plot of the meta-analysis of prevalence for the patients with an increasing pain trajectory.

Study	Events Total					Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016	23 693 =	1				0.03	[0.02; 0.05]	15.9%	19.2%
Collins, 2014	0 1753	-				0.00	[0.00; 0.00]	0.4%	15.4%
Dai, 2017	0 4461					0.00	[0.00; 0.00]	0.4%	15.4%
Lee, 2018	0 171 -					0.00	[0.00; 0.02]	0.4%	15.4%
Nicholls, 2014	162 570	-	+			0.28	[0.25; 0.32]	82.7%	19.3%
Wesseling, 2015	0 685					0.00	[0.00; 0.01]	0.4%	15.4%
Fixed effect model Random effects model Prediction interval	8333	<b>\$</b>					[0.17; 0.22] [0.00; 0.04] [0.00; 0.95]	100.0%	 100.0%
Heterogeneity: $I^2 = 97\%$ , $\tau$	$\frac{1}{2} = 7.7194 \text{ n} < 0.01$					_	[0.00, 0.95]		
1.0.0.0g0.10.ty. r = 01 /0, t	0	0.2	0.4	0.6	0.8				

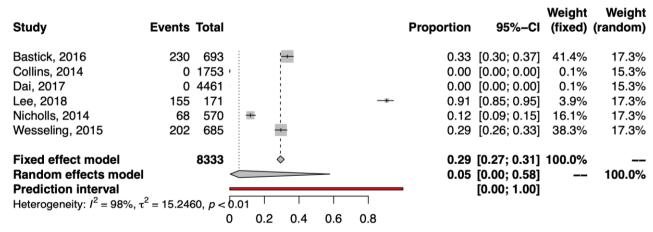
**Supplementary Figure S7.** Forest plot of the meta-analysis of prevalence for the patients with an increasing mild pain trajectory.



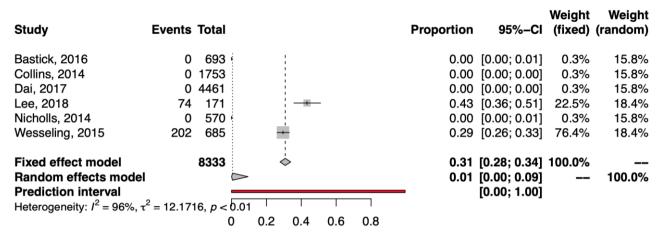
Supplementary Figure S8. Forest plot of the meta-analysis of prevalence for the patients with an increasing moderate pain trajectory.

Study	Events Total					Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016	0 693	:				0.00	[0.00; 0.01]	0.4%	15.9%
Collins, 2014	0 1753	- 1				0.00	[0.00; 0.00]	0.4%	15.9%
Dai, 2017	0 4461					0.00	[0.00; 0.00]	0.4%	15.9%
Lee, 2018	0 171 -	i				0.00	[0.00; 0.02]	0.4%	15.9%
Nicholls, 2014	0 570					0.00	[0.00; 0.01]	0.4%	15.9%
Wesseling, 2015	189 685	-	+			0.28	[0.24; 0.31]	98.2%	20.3%
Fixed effect model Random effects mode Prediction interval	8333 I	<b>\$</b>					[0.22; 0.29] [0.00; 0.02] [0.00; 0.89]	100.0%	 100.0%
Heterogeneity: $I^2 = 95\%$ ,	$r^2 = 73037 n < 0.01$				$\overline{}$	•	[0.00, 0.09]		
rieterogeneity. 1 – 95 /6,	t = 7.3037, p < 0.01	0.2	0.4	0.6	8.0				

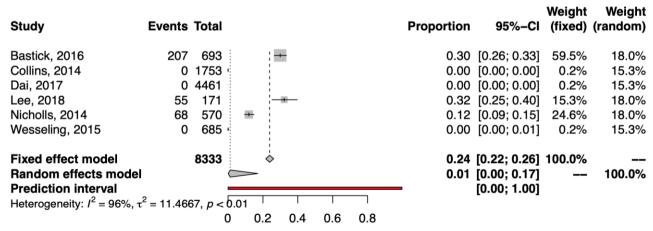
**Supplementary Figure S9.** Forest plot of the meta-analysis of prevalence for the patients with an increasing severe pain trajectory.



**Supplementary Figure S10.** Forest plot of the meta-analysis of prevalence for the patients with a decreasing pain trajectory.



**Supplementary Figure S11.** Forest plot of the meta-analysis of prevalence for the patients with a decreasing mild pain trajectory.



**Supplementary Figure S12.** Forest plot of the meta-analysis of prevalence for the patients with a decreasing moderate pain trajectory.

Study	Events Total		Proportion	95%-CI	Weight (fixed)	Weight (random)
Bastick, 2016	23 693 -		0.03	[0.02; 0.05]	48.0%	19.6%
Collins, 2014	0 1753		0.00	[0.00; 0.00]	1.1%	15.2%
Dai, 2017	0 4461		0.00	[0.00; 0.00]	1.1%	15.2%
Lee, 2018	26 171		0.15	[0.10; 0.21]	47.6%	19.6%
Nicholls, 2014	0 570		0.00	[0.00; 0.01]	1.1%	15.2%
Wesseling, 2015	0 685		0.00	[0.00; 0.01]	1.1%	15.2%
Fixed effect model Random effects model Prediction interval	8333			[0.04; 0.08] [0.00; 0.03] [0.00; 0.89]	100.0% 	 100.0%
Heterogeneity: $I^2 = 94\%$ , $\tau$	• •	0.4 0.6	0.8	[0.00, 0.09]		
	0 0.2	0.4 0.6	0.8			

**Supplementary Figure S13.** Forest plot of the meta-analysis of prevalence for the patients with a decreasing severe pain trajectory.

## Table S1



## PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE		•	
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	1
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	2
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	2
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	2
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	2
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	2
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	3
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	3
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	3
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	3
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I <sup>2</sup> ) for each meta-analysis.	3



## PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	3
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	3
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	3-4
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	3-5
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	6
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	5-6
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	5-7
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	6
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	6-8
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	8-9
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	9
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	9-10
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	10

From: Moher D, Liberati A, Tetziaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097