Supplementary material to article by M. de Rooij et al. "Course and predictors of pain and physical functioning in patients with hip osteoarthritis: Systematic review and meta-analysis"

Table SIV. Qualitative data analysis of studies describing predictors and non-predictors for deterioration of physical functioning in patients with hip osteoarthritis

osteoartnritis				
	Outcome measurement	Level of evidence	Uni- and/or multi- variable association (number of variables in multivariable model)	Reference
Predictors for deterioration of physica		Level of evidence	munivariable model)	Reference
Socio-demographics	i functioning			
Older age	Performance-based outcome	Inconsistent	uni, multi (5) uni, multi (4) multi (5) ns	Pisters et al., 2012 (23) van Dijk et al., 2010 (25) Steultjens et al., 2001 (24)
Lower level education	Self-reported outcome	Inconsistent	uni ns multi (11) multi (6)	Holla et al., 2010 (8) Juhakoski et al., 2013 (18) Pisters et al., 2012 (23)
Clinical characteristics – other BMI	Self-reported outcome	Inconsistent	uni uni ns	Holla et al., 2010 (8) Pisters et al., 2012 (23)
More disability	Self-reported outcome	Inconsistent	multi (11) ns uni, multi (7) ns uni, multi (6)	Juhakoski et al., 2013 (18) Holla et al., 2010 (8) van Dijk et al., 2010 (25)
More disability Higher comorbidity count	Performance-based outcome Self-reported outcome	Weak Strong	multi (5) uni, multi (7) uni, multi (6) multi (11) multi (11) ns multi (6)	Steultjens et al., 2001 (24) Holla et al., 2010 (8) van Dijk et al., 2010 (25) Juhakoski et al., 2013 (18) Juhakoski et al., 2013 (18) Pisters et al., 2012 (23)
Higher comorbidity count	Performance-based outcome	Weak	uni, multi (4) multi (5)	van Dijk et al., 2010 (25) Pisters et al., 2012 (23)
Having moderate or severe cardiac disease and eye-ear nose throat disease	Self-reported outcome/ performance-based	Weak	uni, multi (?)	van Dijk et al., 2010 (25)
Presence of CIRS 1, 6 (CIRS ≥2) Presence of CIRS 1, 4, 5, 12, 13 (CIRS ≥2)	Self-reported outcome Performance-based outcome	Weak Weak	uni uni	van Dijk et al., 2010 (25) van Dijk et al., 2010 (25)
Poor general health perception Use of pain medication	Self-reported outcome Self-reported outcome	Weak Inconsistent	uni, multi (7) uni uni ns	Holla et al., 2010 (8) Holla et al., 2010 (8) van Dijk et al., 2010 (25)
Lower walking speed Clinical characteristics – hip	Performance-based outcome	Weak	uni, multi (4)	van Dijk et al., 2010 (25)
Increase in hip pain (change from t0 to t1)	Self-reported outcome	Weak	uni, multi (9)	van Dijk et al., 2010 (25)
Higher hip pain at baseline	Self-reported outcome	Inconsistent	uni ns uni ns multi (8) multi (6)	Holla et al., 2010 (8) van Dijk et al., 2010 (25) Lane et al., 2004 (19) Pisters et al., 2012 (23)
Bilateral hip pain with equal symptoms vs no pain	Self-reported outcome	Weak	uni, multi (7)	Holla et al., 2010 (8)
Morning stiffness hip ≤60 min Change in hip external rotation (ROM) (change from t0 to t1)	Self-reported outcome Self-reported outcome	Weak Weak	uni multi (6)	Holla et al., 2010 (8) Pisters et al., 2012 (23)
Reduced hip flexion at baseline (ROM)	Self-reported outcome	Inconsistent	uni uni ns	Holla et al., 2010 (8) van Dijk et al., 2010 (25)
Reduced muscle strength hip abduction	Performance based outcome	Weak	multi (6) ns uni, multi (3)	Pisters et al., 2012 (23) Pisters et al., 2014 (16)
Clinical characteristics – knee Reduced knee extension (ROM) at baseline	Self-reported outcome	Weak	uni multi (6) ns	van Dijk et al., 2010 (25) Pisters et al., 2012 (23)
Decrease in knee extension (ROM) (change from t0 to t1)	Self-reported outcome	Weak	uni	van Dijk et al., 2010 (25)
Presence of additional knee osteoarthritis	Self-reported outcome	Weak	multi (11)	Juhakoski et al., 2013 (18)
Bilateral knee pain with index knee vs no pain	Self-reported outcome	Weak	uni	Holla et al., 2010 (8)
Morning stiffness knee <30 min	Self-reported outcome	Weak	uni, multi (7)	Holla et al., 2010 (8)

No supervised exercise Self-reported outcome Weak multi (1) Juhakooki et al., 2010 (28)					
Lower Level of physical activity Porce cognitive functioning Self-reported outcome Near	Health behaviour factors	0.10	XX7 1	h: (11)	1.1.1.1.4.1.2012 (10)
Psycho-social factors				` /	
Poore cognitive functioning Self-reported outcome Neonesistent uni, multi (6) mu	1 3	Sen-reported outcome	wcak	muiti (11)	Juliakoski et al., 2013 (18)
Migh bodily pain Self-reported outcome Weak uni, multi (6) is Pisters et al., 2010 (28)	3	Self-reported outcome	Inconsistent	uni, multi (6)	van Dijk et al., 2010 (25)
Lower vitality (SF-36)		P		, , ,	
More avoidance of activity	High bodily pain	Self-reported outcome	Weak	uni, multi (7)	
More avoidance of activity	Lower vitality (SF-36)	Self-reported outcome	Strong	uni	
More avoidance of activity				uni	van Dijk et al., 2011(26)
More avoidance of activity	More avoidance of activity	Self-reported outcome	Weak	\ /	
Resting Self-reported outcome Inconsistent uni unit (5) Pisters et al., 2012 (23)			_		
Resting Self-reported outcome Inconsistent uni	More avoidance of activity	Performance-based outcome	Inconsistent		
Resting Self-reported outcome Inconsistent uni ns van Dijk et al., 2010 (25)				\ /	
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Transformation Self-reported outcome Inconsistent uni ns	Resting	Self-reported outcome	Inconsistent		
Non-predictors for deterioration of physical functioning	Transformation	Salf reported autooms	Inconsistant		
Non-predictors for deterioration of physical functioning	Transformation	Sen-reported outcome	mconsistent		
Socio-demographics Age Self-reported outcome Strong uni ns uni n	Non and distance for determinantion of the			uiii iis	van Dijk et al., 2011(20)
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Sex Self-reported outcome Strong multi (6) ns Pisters et al., 2012 (23)	Age	Sen-reported outcome	Strong		
Sex					
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Sex	Sex	Self-reported outcome	Strong	` /	
New Note Performance-based outcome Strong Multi (5) ns Pisters et al., 2012 (23) Multi (5) ns Pisters et al., 2012 (23) Multi (5) ns Pisters et al., 2010 (2)		2	24-51-8		
Sex				` /	
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Level of education Performance-based outcome Self-reported outcome Se			C	multi (5) ns	Steultjens et al., 2001 (24)
Household composition >1 Self-reported outcome Household composition >1 Ferformance-based outcome Household composition >1 Self-reported outcome Self-reported outcome Final Self-reported outcome Self-reported outcome Self-reported outcome Weak Weak Win in s Win i	Ethnicity	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Household composition > 1 Employment status Self-reported outcome Employment status Self-reported outcome Strong Weak Weak Win in s Win in s Wan Dijk et al., 2011 (26) Van Dijk et al., 2011 (26) Wan Dijk et al., 2011 (26) Weakday alcohol consumption Tobacco use Self-reported outcome Weak Weak Win in s Wan Dijk et al., 2010 (25) Weekday alcohol consumption Tobacco use Self-reported outcome Weak Win in s Wan Dijk et al., 2010 (25) Wan Dijk et al., 2010 (26		Performance-based outcome	Weak	multi (5) ns	Pisters et al., 2012 (23)
Household composition >1 Employment status Self-reported outcome Self-reported outcome Self-reported outcome Self-reported outcome Weak Weekday alcohol consumption Self-reported outcome Weak Uni ns Weekday alcohol consumption Tobacco use Self-reported outcome Weak Uni ns Weak Un	Household composition > 1	Self-reported outcome	Strong	uni ns	
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	Duration of complaints	Performance-based outcome	Strong	multi (5) ns	
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Clinical characteristic-hip				
Hip pain intensity change from t0 to t1		Weak	uni, multi (4) ns	van Dijk et al., 2010 (25)
Hip pain at baseline	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
			multi (5) ns	Pisters et al., 2012 (23)
Bilateral hip pain with index hip	Self-reported outcome	Weak	uni, multi (7) ns	Holla et al., 2010 (8)
Radiological OA hip (K&L grade)	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
r (g)	1	5	uni ns	van Dijk et al., 2010 (25)
			multi (11) ns	Juhakoski et al., 2013 (18)
Radiological OA hip (K&L grade)	Performance-based outcome	Ctnoma	` /	
Radiological OA inp (R&L grade)	renormance-based outcome	Strong	uni ns	van Dijk et al., 2010 (25)
Tri di i more i di io	0.10	*** 1	multi (5) ns	Steultjens et al., 2001 (24)
Hip flexion (ROM) change from t0	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
to t1	performance based outcome			
Reduced hip flexion (ROM) at baseline		Weak	multi (5) ns	Pisters et al., 2012 (23)
External hip rotation (ROM) change	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
from t0 to t1				
Hip internal rotation (ROM) at	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
baseline		21.01.8	uni ns	van Dijk et al., 2010 (25)
basenic				Pisters et al., 2012 (23)
His internal actation (BOM) at hearling	Df	W1-	multi (6) (5) ns	
Hip internal rotation (ROM) at baseline	e Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
			multi (6) (5) ns	Pisters et al., 2012 (23)
Internal hip rotation (ROM) change	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
from t0 to t1	performance based outcome			
Hip external rotation (ROM) at	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
baseline	performance based outcome		multi (6) (5) ns	Pisters et al., 2012 (23)
Muscle strength hip abduction	Self-reported outcome	Weak	uni ns	van Dijk et al., 2010 (25)
widsele strength inp abduction	Sen-reported outcome	weak	multi (6) (5) ns	Pisters et al., 2012 (23)
			* * * * *	
	0.10	*** 1	uni ns	Pisters et al., 2014 (16)
Decrease in muscle strength hip	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
abduction (change from t0 to t1)	performance based outcome			
Pain during hip internal rotation	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Pain during hip flexion	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Clinical characteristic-knee	•			
Knee pain (uni/bilateral pain) vs no	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
pain	sen reported outcome	770412		110114 01 411., 2010 (0)
ROM knee extension	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
KOW KIEC CALCUSION	1 chomanec-based outcome	WCak		
7	D 0	*** 1	multi (5) ns	Pisters et al., 2012 (23)
Knee extension (ROM) change from	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
t0 to t1				
Knee flexion (ROM) at baseline	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
	performance based outcome		multi (6) (5) ns	Pisters et al., 2012 (23)
Knee flexion (ROM) changes from t0	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
to t1	performance based outcome			
Muscle strength knee extension at	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
baseline	performance based	770412	multi (6) (5) ns	Pisters et al., 2012 (23)
Decrease in muscle strength knee	Self-reported outcome/	Weak	uni ns	van Dijk et al., 2010 (25)
_	*	Weak	um ns	van Dijk et al., 2010 (23)
extension (change from t0- t1)	performance based outcome			
Psycho- social factors		_		
Social support	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2011 (26)
			multi (6) ns	Pisters et al., 2012 (23)
Social support	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
11			multi (5) ns	Pisters et al., 2012 (23)
Vitality score	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
vitality score	i ciroimanee basea outcome	Weak	um ns	van Dijk et al., 2011 (20)
Mental health	Salf raparted autac	Stron~	uni ne	Hollo at al. 2010 (9)
Mentai neatti	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2011 (26)
Mental health	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
Cognitive functioning	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
			multi (5) ns	Pisters et al., 2012 (23)
Resting	Performance-based outcome	Strong	uni ns	Steultjens et al., 2001
<u> </u>		2	uni ns	(24)
				van Dijk et al., 2011 (26)
Transformation	Performance-based outcome	Strong	uni ns	Steultjens et al., 2001
11 austyl mativii	1 chomanec-based butcome	buong		
			uni ns	(24)
				van Dijk et al., 2011 (26)

4 M. de Rooij et al.

Distraction	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2011 (26)
Distraction	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
Reducing demands	Self-reported outcome	Weak	uni ns	van Dijk et al., 2011 (26)
			uni ns	Holla et al., 2010 (8)
Reducing demands	Performance-based outcome	Strong	uni ns	Steultjens et al., 2001
			uni ns	(24)
				van Dijk et al., 2011(26)
Retreating	Self-reported outcome	Strong	uni, multi (7) ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2011 (26)
Retreating	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
Worrying	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2011 (26)
Worrying	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)

BMI: body mass index; CIRS: Cumulative Illness Rating Scale; K&L: Kellgren and Lawrence; (?): not known; ns: not significant; ROM: range of motion; t0 to t1: change from baseline to follow-up; Uni: univariable association; Multi: multivariable association.

Predictor in bold represents strong level of evidence.