

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

	Outcome measurement	Level of evidence	Uni- and/or multi-variable association (number of variables in multivariable model)	Reference
<i>Predictors for deterioration of physical functioning</i>				
<b>Socio-demographics</b>				
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) Stultjens 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)
<b>Clinical characteristics – other</b>				
BMI	Self-reported outcome	Inconsistent	uni uni ns multi (11) ns	Holla et al., 2010 (8) Pisters et al., 2012 (23) Juhakoski et al., 2013 (18)
More disability	Self-reported outcome	Inconsistent	uni, multi (7) ns uni, multi (6)	Holla et al., 2010 (8) van Dijk et al., 2010 (25)
More disability	Performance-based outcome	Weak	multi (5)	Stultjens et al., 2001 (24)
<b>Higher comorbidity count</b>	Self-reported outcome	Strong	uni, multi (7) uni, multi (6) multi (11) multi (11) ns multi (6)	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 $\geq 2$ )	Self-reported outcome	Weak	uni	van Dijk et al., 2010 (25)
Presence of CIRS 1, 4, 5, 12, 13 (CIRS $\geq 2$ )	Performance-based outcome	Weak	uni	van Dijk et al., 2010 (25)
Poor general health perception	Self-reported outcome	Weak	uni, multi (7)	Holla et al., 2010 (8)
Use of pain medication	Self-reported outcome	Inconsistent	uni uni ns	Holla et al., 2010 (8) van Dijk et al., 2010 (25)
Lower walking speed	Performance-based outcome	Weak	uni, multi (4)	van Dijk et al., 2010 (25)
<b>Clinical characteristics – hip</b>				
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 $\leq 60$ min	Self-reported outcome	Weak	uni	Holla et al., 2010 (8)
Change in hip external rotation (ROM) (change from t0 to t1)	Self-reported outcome	Weak	multi (6)	Pisters et al., 2012 (23)
Reduced hip flexion at baseline (ROM)	Self-reported outcome	Inconsistent	uni uni ns multi (6) ns	Holla et al., 2010 (8) van Dijk et al., 2010 (25) Pisters et al., 2012 (23)
Reduced muscle strength hip abduction	Performance based outcome	Weak	uni, multi (3)	Pisters et al., 2014 (16)
<b>Clinical characteristics – knee</b>				
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)

<b>Health behaviour factors</b>				
No supervised exercise	Self-reported outcome	Weak	multi (11)	Juhakoski et al., 2013 (18)
Lower level of physical activity	Self-reported outcome	Weak	multi (11)	Juhakoski et al., 2013 (18)
<b>Psycho-social factors</b>				
Poorer cognitive functioning	Self-reported outcome	Inconsistent	uni, multi (6) multi (6) ns	van Dijk et al., 2010 (25) Pisters et al., 2012 (23)
High bodily pain	Self-reported outcome	Weak	uni, multi (7)	Holla et al., 2010 (8)
<b>Lower vitality (SF-36)</b>	Self-reported outcome	Strong	uni uni	Holla et al., 2010 (8) van Dijk et al., 2011(26)
More avoidance of activity	Self-reported outcome	Weak	multi (6) uni, multi (3)	Pisters et al., 2012 (23) Pisters et al., 2014 (16)
More avoidance of activity	Performance-based outcome	Inconsistent	uni ns multi (5) uni, multi (3)	Stuultjens et al., 2001 (24) Pisters et al., 2012 (23) Pisters et al., 2014 (16)
Resting	Self-reported outcome	Inconsistent	uni uni ns	Holla et al., 2010 (8) van Dijk et al., 2011 (26)
Transformation	Self-reported outcome	Inconsistent	uni uni ns	Holla et al., 2010 (8) van Dijk et al., 2011(26)
<i>Non-predictors for deterioration of physical functioning</i>				
<b>Socio-demographics</b>				
<b>Age</b>	Self-reported outcome	Strong	uni ns uni ns multi (11) ns multi (6) ns	Holla et al., 2010 (8) van Dijk et al., 2010 (25) Juhakoski et al., 2013 (18) Pisters et al., 2012 (23)
<b>Sex</b>	Self-reported outcome	Strong	uni ns multi (11) ns multi (6) ns	Holla et al., 2010 (8) Juhakoski et al., 2013 (18) Pisters et al., 2012 (23)
<b>Sex</b>	Performance-based outcome	Strong	multi (5) ns multi (5) ns	Pisters et al., 2012 (23) Stuultjens et al., 2001 (24)
Ethnicity	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Level of education	Performance-based outcome	Weak	multi (5) ns	Pisters et al., 2012 (23)
<b>Household composition &gt; 1</b>	Self-reported outcome	Strong	uni ns uni ns	Holla et al., 2010 (8) van Dijk et al., 2011 (26)
Household composition > 1	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
<b>Employment status</b>	Self-reported outcome	Strong	uni ns multi (11) ns multi (6) ns	Holla et al., 2010 (8) Juhakoski et al., 2013 (18) van Dijk et al., 2010 (25)
Weekday alcohol consumption	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Tobacco use	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
<b>Clinical characteristics – other</b>				
<b>BMI</b>	Performance-based outcome	Strong	uni ns uni ns multi (5) ns	van Dijk et al., 2010 (25) Pisters et al., 2012 (23) Stuultjens et al., 2001(24)
Obesity (BMI > 30 kg/m <sup>2</sup> )	Self-reported outcome/ performance-based outcome	Weak	uni ns multi (6), (5) ns	van Dijk et al., 2010 (25) Pisters et al., 2012 (23)
Presence of CIRS 2, 9, 13 (CIRS ≥ 2)	Self-reported outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Presence of CIRS 2, 3, 7, 8, 9, 10, 11 (CIRS ≥ 2)	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Physical activity during leisure	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Surgery during follow-up	Self-reported outcome/ performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Knee or hip surgery during past year	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Surgery for inclusion	Self-reported outcome/ performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Demanding physical work, often/ always	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
ESR, mm/h	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
Presence of Heberden's nodes	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
<b>Duration of complaints</b>	Self-reported outcome	Strong	multi (11) ns multi (6) ns	Juhakoski et al., 2013 (18) Pisters et al., 2012 (23)
<b>Duration of complaints</b>	Performance-based outcome	Strong	multi (5) ns multi (5) ns	Pisters et al., 2012 (23) Stuultjens et al., 2001 (24)
Use of medication	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Pain during sitting/lying (WOMAC)	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)

Clinical characteristic-hip				
Hip pain intensity change from t0 to t1	Performance-based outcome	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)
Bilateral hip pain with index hip	Self-reported outcome	Weak	multi (5) ns	Pisters et al., 2012 (23)
<b>Radiological OA hip (K&amp;L grade)</b>	Self-reported outcome	Strong	uni, multi (7) ns	Holla et al., 2010 (8)
			uni ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2010 (25)
<b>Radiological OA hip (K&amp;L grade)</b>	Performance-based outcome	Strong	multi (11) ns	Juhakoski et al., 2013 (18)
			uni ns	van Dijk et al., 2010 (25)
			multi (5) ns	Stultjens et al., 2001 (24)
Hip flexion (ROM) change from t0 to t1	Self-reported outcome/ performance based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Reduced hip flexion (ROM) at baseline	Performance-based outcome	Weak	multi (5) ns	Pisters et al., 2012 (23)
External hip rotation (ROM) change from t0 to t1	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
<b>Hip internal rotation (ROM) at baseline</b>	Self-reported outcome	Strong	uni ns	Holla et al., 2010 (8)
			uni ns	van Dijk et al., 2010 (25)
			multi (6) (5) ns	Pisters et al., 2012 (23)
Hip internal rotation (ROM) at baseline	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 from t0 to t1	Self-reported outcome/ performance based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Hip external rotation (ROM) at baseline	Self-reported outcome/ performance based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Muscle strength hip abduction	Self-reported outcome	Weak	multi (6) (5) ns	Pisters et al., 2012 (23)
			uni ns	van Dijk et al., 2010 (25)
			multi (6) (5) ns	Pisters et al., 2012 (23)
			uni ns	Pisters et al., 2014 (16)
			uni ns	van Dijk et al., 2010 (25)
Decrease in muscle strength hip abduction (change from t0 to t1)	Self-reported outcome/ performance based outcome	Weak		
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 pain	Self-reported outcome	Weak	uni ns	Holla et al., 2010 (8)
ROM knee extension	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
			multi (5) ns	Pisters et al., 2012 (23)
Knee extension (ROM) change from t0 to t1	Performance-based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Knee flexion (ROM) at baseline	Self-reported outcome/ performance based outcome	Weak	multi (6) (5) ns	Pisters et al., 2012 (23)
Knee flexion (ROM) changes from t0 to t1	Self-reported outcome/ performance based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Muscle strength knee extension at baseline	Self-reported outcome/ performance based	Weak	uni ns	van Dijk et al., 2010 (25)
			multi (6) (5) ns	Pisters et al., 2012 (23)
Decrease in muscle strength knee extension (change from t0- t1)	Self-reported outcome/ performance based outcome	Weak	uni ns	van Dijk et al., 2010 (25)
Psycho- social factors				
<b>Social support</b>	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)
			multi (5) ns	Pisters et al., 2012 (23)
Vitality score	Performance-based outcome	Weak	uni ns	van Dijk et al., 2011 (26)
<b>Mental health</b>				
	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)
<b>Resting</b>	Performance-based outcome	Strong	uni ns	Stultjens et al., 2001 (24)
			uni ns	van Dijk et al., 2011 (26)
<b>Transformation</b>	Performance-based outcome	Strong	uni ns	Stultjens et al., 2001 (24)
			uni ns	van Dijk et al., 2011 (26)

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