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## Background

- Osteoarthritis (OA) affects 1/10 Canadians and is one of the leading causes of disability
- Physical activity is a key component of successful OA management
- Theory of Planned Behaviour states that adoption of a health behaviour (e.g., being active) is driven by a set of constructs comprising Perceived Behavioural Control (PBC), Attitude, and Subjective Norm

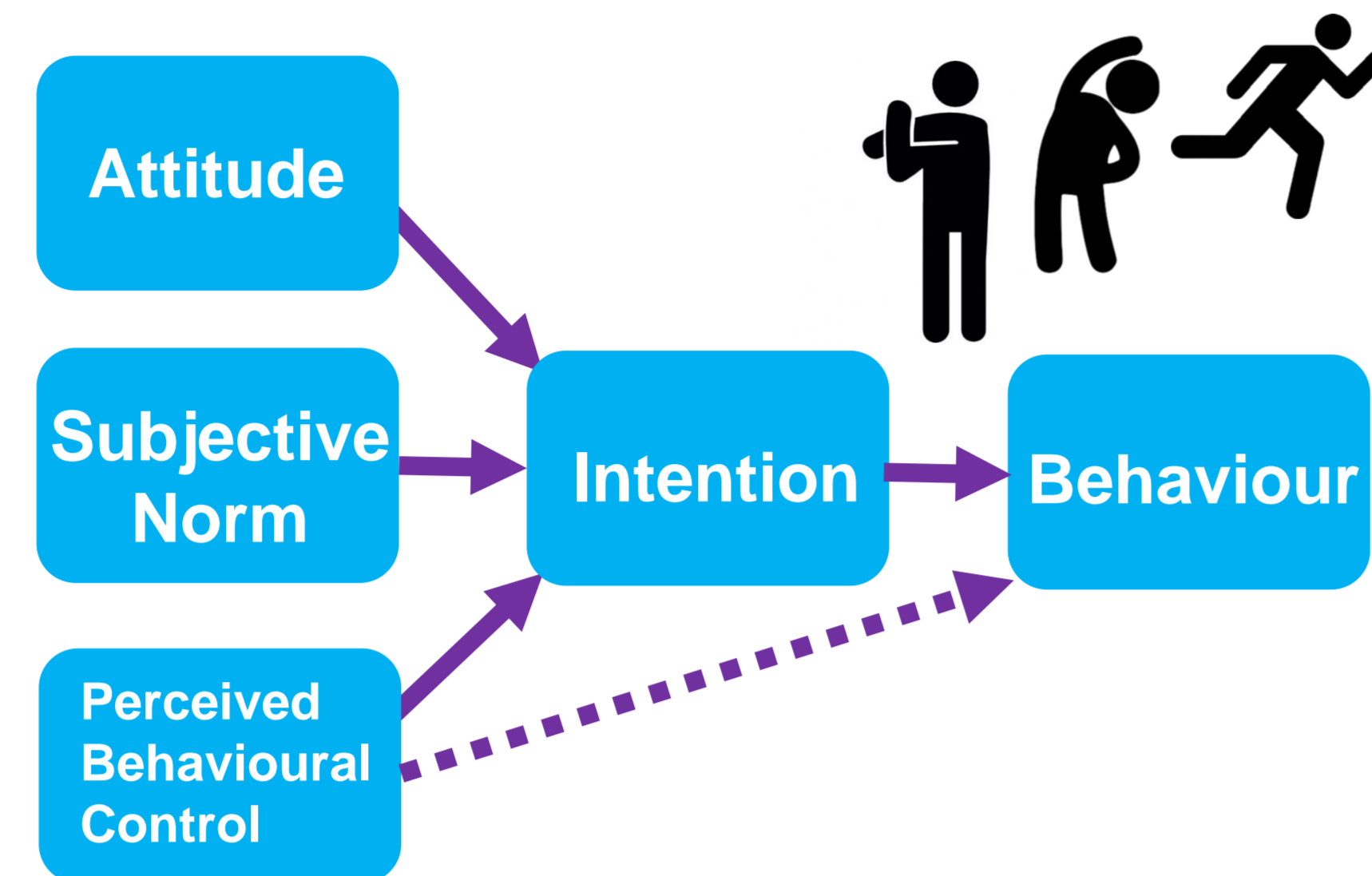


Figure 1: Theory of Planned Behaviour

## Objective

To explore associations between Theory of Planned Behaviour motivational constructs and physical activity participation in knee OA patients.

## Methods

**1 Participant Recruitment**

- Knee OA
- No contraindications to physical activity

**2a Questionnaire Data Collection**

- Knee Injury and OA Outcome Score (KOOS) to assess OA severity
- Demographics: BMI, age, gender, education
- Rhode's Theory of Planned Behaviour Questionnaire


N=51

**2b Physical Activity Data Collection**

- SenseWear accelerometer worn for 7 days continuously to record:
  - moderate-to-vigorous physical activity (MVPA) at >3 METs (ie. easy walking) and
  - >4 METs (ie. gardening or higher level activity)

**3 Data Analysis**

- Spearman's rank correlation was used to explore the associations of time spent in physical activity behaviours, KOOS and Theory of Planned Behaviour questionnaire.
- Independent variables significantly associated with physical activity behaviours ( $p < 0.05$ ) were entered in a linear regression models



SenseWear Accelerometer worn on non-dominant arm for 7 continuous days to record physical activity levels

Table 1: Patient Characteristics

Demographics	N=51
Age (years)	Mean: 62.5 (SD=9.0)
Sex	Male: 9 (17.7%) Female: 42 (82.4%)
BMI	Mean: 28.1 (SD=5.7)

Table 2: Descriptive Statistics

Outcome Measure	Mean (SD)
<b>Theory of Planned Behaviour (0-7, lower=less motivation)</b>	
PBC	5.9 (1.2)
Attitude	6.0 (0.8)
Subjective Norm	6.3 (0.8)
MVPA: 3+ METs (mins/day)	59.2 (53.7)
MVPA: 4+ METs (mins/day)	21.7 (31.9)
<b>KOOS Subscales (0-100, lower=better)</b>	
Pain	66.8 (18.0)
ADL (Activities of Daily Living)	74.0 (17.3)
QoL (Quality of Life)	42.8 (18.1)
Sports and Activities	52.3 (28.0)

Table 3: Spearman's Correlation ( $r_s$ )

	3+ METs	4+ METs
Attitude	0.39**	0.37**
PBC	0.22	0.28*
Subjective Norm	-0.01	0.13
KOOS ADL	0.27	0.32*
BMI	-0.26**	-0.38**
Age	-0.27	-0.22
Sex (M)	0.20	0.19

\* $P < 0.05$ , \*\* $P < 0.01$

## Results

Figure 2: Linear Model Estimates: METs 4+

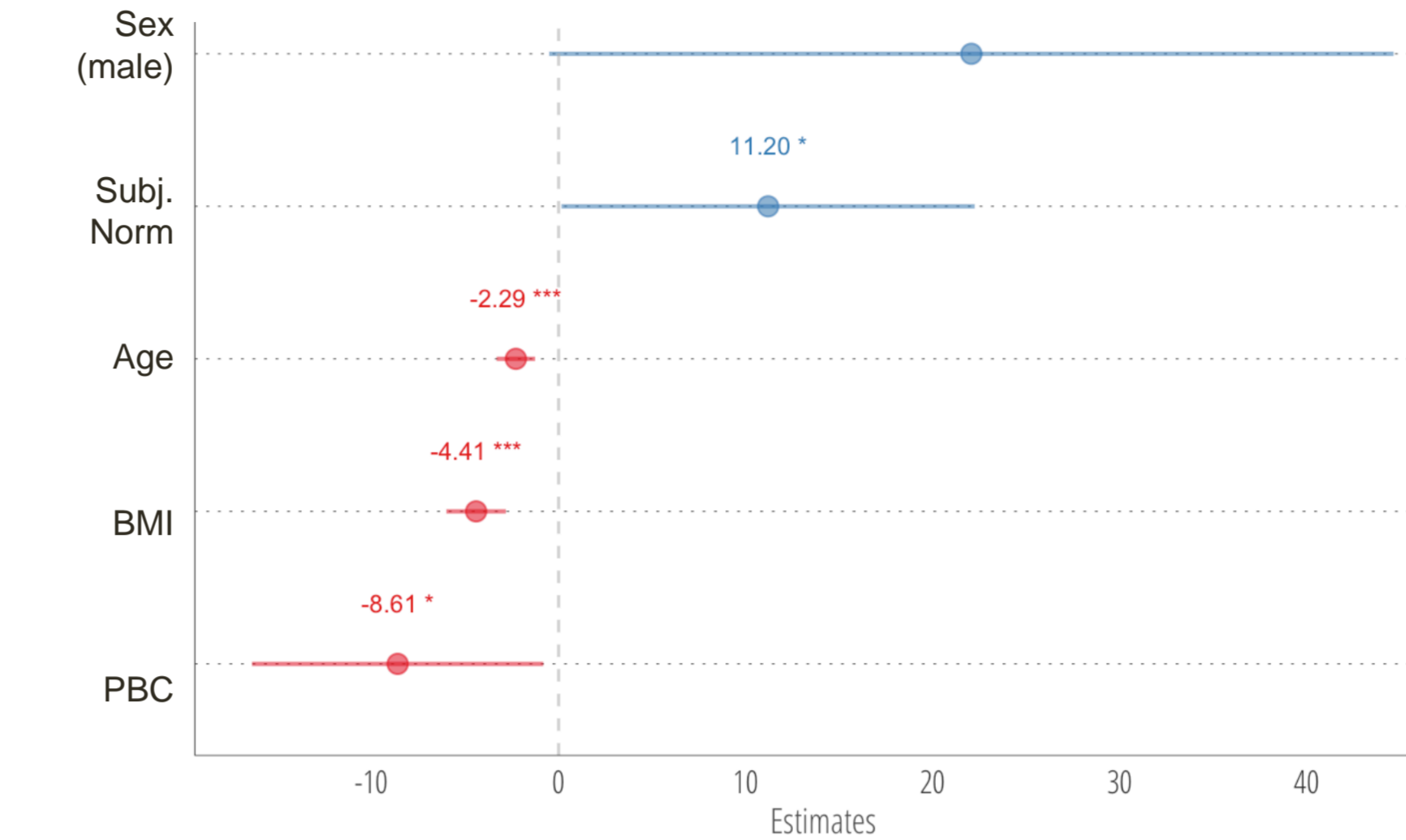


Figure 3: Linear Model Estimates: METs 3+

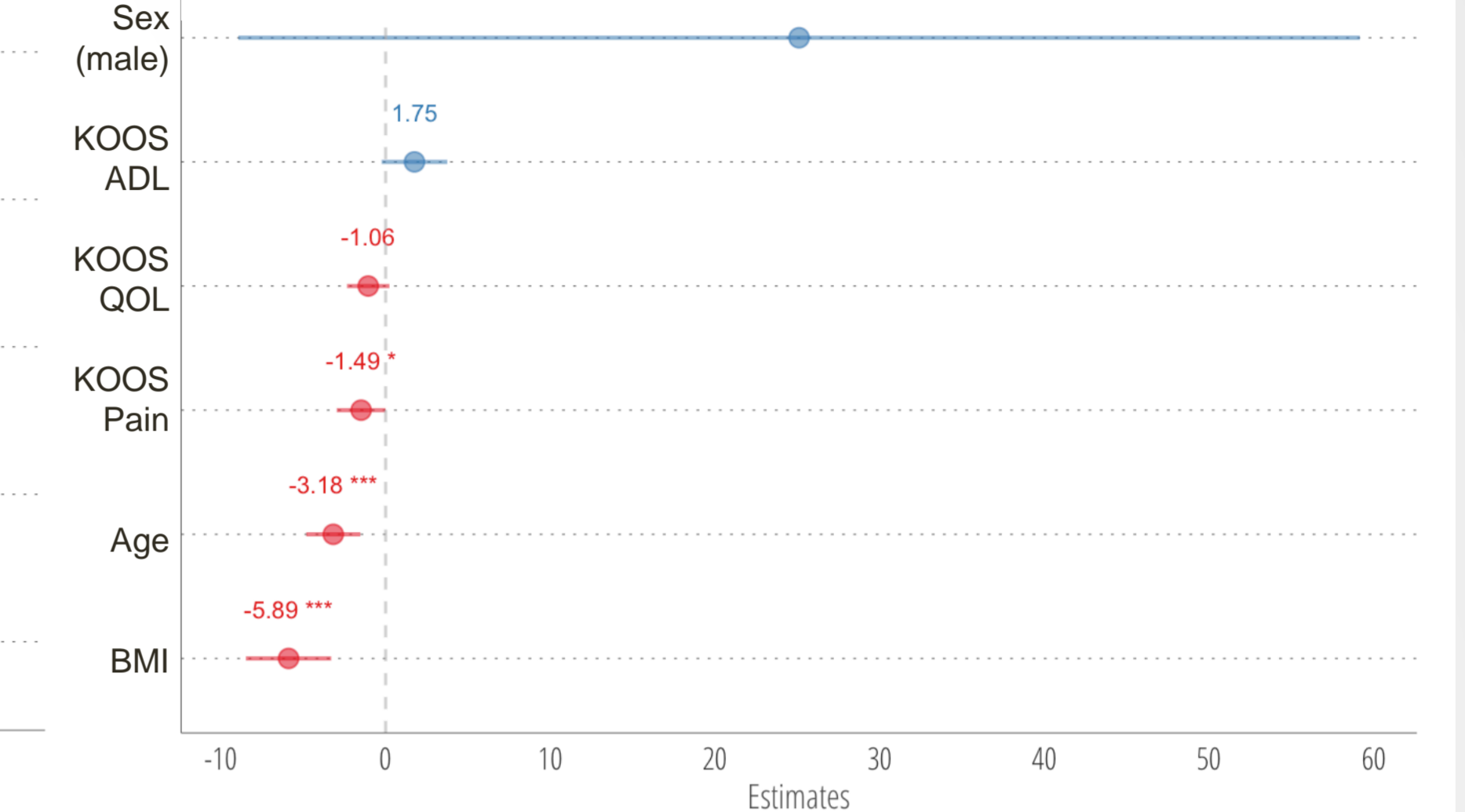


Table 4: Linear Regression Models

Predictors	Dependent Variables					
	METs 3+			METs 4+		
	B	CI	p	B	CI	p
(Intercept)	457.57	278.73 – 636.42	<.001	272.90	167.25 – 378.56	<.001
age	-3.18	-4.82 – -1.54	<.001	-2.29	-3.31 – -1.26	<.001
sex (Male)	25.10	-8.94 – 59.14	.144	22.07	-0.51 – 44.64	.055
KOOS pain	-1.49	-2.97 – -0.01	.049			
KOOS ADL	1.75	-0.24 – 3.74	.083			
KOOS QOL	-1.06	-2.34 – 0.23	.105			
BMI	-5.89	-8.48 – -3.30	<.001	-4.41	-6.00 – -2.82	<.001
Sub Norm				11.20	0.15 – 22.25	.047
PBC				-8.61	-16.39 – -0.82	.031
R <sup>2</sup> / adj. R <sup>2</sup>	.521 / .454			.479 / .420		

- There is a weak but significant correlation between motivational constructs and MVPA.
- Linear regression shows a significant association between motivational constructs and  $\geq 4$  METs MVPA.
- The model fit suggests that other factors such as BMI and osteoarthritis severity may play additional roles in MVPA participation. This hypothesis can be tested in future studies.

## References and Acknowledgements

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## Conclusion

Results from this pilot study suggest weak but significant correlations between Theory of Planned Behaviour constructs and MVPA. Linear regressions showed a significant association between these constructs, BMI and age with  $\geq 4$  METs MVPA suggesting that MVPA participation is a complex behaviour that can be attributed to a combination of motivational and demographic factors.