

The association of adolescent spinal-pain-related absenteeism with early adulthood work absenteeism: A six-year follow-up data from a population-based cohort ¹

by Pieter Coenen, PhD Anne Smith, PhD, Peter Kent, PhD, Mark Harris, PhD, Steven J Linton, PhD, Glenn Pransky, PhD, Darren Beales, PhD, Peter O'Sullivan, PhD, Leon Straker, PhD

1. *Appendices*
2. *Correspondence to: Professor Leon Straker, School of Physiotherapy and Exercise Science, Curtin University, GPO Box U1987, Perth, WA 6845, Australia. [E-mail: L.Straker@curtin.edu.au]*

Appendix 1. Descriptive statistics of participant that were involved in the 22 year follow-up of the Raine Study (left columns) and who were included in the current study (right columns)

	In Raine 22 year follow-up		In current study	
	n	Mean (SD)	n	Mean (SD)
Number of participants	1,146		475	
Total absenteeism (hours/year)	603	64.7 (127.0)	475	61.6 (123.9)
Sickness absenteeism (hours/year)	604	40.8 (93.9)	475	39.9 (96.5)
Back pain				
No pain	430 (66%)		314 (67%)	
Pain without pain-related absenteeism	178 (27%)		135 (29%)	
Pain with pain-related absenteeism	43 (7%)		22 (5%)	
Neck pain				
No pain	432 (66%)		319 (67%)	
Pain without pain-related absenteeism	182 (28%)		130 (27%)	
Pain with pain-related absenteeism	39 (6%)		24 (5%)	
Neck and back pain				
No pain	332 (51%)		243 (51%)	
Pain without pain-related absenteeism	252 (38%)		192 (40%)	
Pain with pain-related absenteeism	71 (11%)		40 (8%)	
Occupation				
Managers	29 (3%)		16 (3%)	
Professionals	121 (14%)		77 (16%)	
Technicians and trades workers	132 (15%)		63 (13%)	
Community personal service workers	159 (18%)		89 (19%)	
Clerical and administrative workers	152 (18%)		86 (18%)	
Sales workers	157 (18%)		80 (17%)	
Machinery operators and drivers	30 (3%)		16 (3%)	
Labourers	83 (10%)		46 (10%)	
Work hours (per week)				

≤19 hours	224 (19%)	138 (29%)
>19 to 38 hours	309 (26%)	174 (37%)
>38 to 45 hours	188 (16%)	92 (19%)
>45 hours	460 (39%)	71 (15%)
Years in the current job		
<1 year	120 (10%)	69 (15%)
1-3 years	280 (24%)	148 (31%)
>3 year	781 (66%)	258 (54%)
Comorbidity count		
Zero	380 (32%)	175 (37%)
One	341 (29%)	147 (31%)
Two	193 (16%)	73 (15%)
Three	129 (11%)	41 (9%)
Four	133 (11%)	37 (8%)

Appendix 2. Sensitivity analysis showing the association of adolescent spinal pain-related absenteeism and early adulthood total work absenteeism (hours per year) from a zero-inflated negative binominal model. Number of participants (n), mean group absenteeism in each of the groups and effect-sizes (expressed in incidence rate ratios, IRR; with 95% confidence interval) are shown. Statistically significant findings ($p < 0.05$) are printed in bold.

		Unadjusted IRR [95% CI]	<i>p</i>	Adjusted ¹ IRR [95% CI]	<i>p</i>
Back pain	No pain	Reference		Reference	
	Pain without pain-related absenteeism	1.2 [0.9 1.5] ²	0.244	1.3 [1.0 1.7] ⁵	0.082
	Pain with pain-related absenteeism	1.7 [1.0 2.9]²	0.039	2.0 [1.2 3.4]⁵	0.006
Neck pain	No pain	Reference		Reference	
	Pain without pain-related absenteeism	1.1 [0.8 1.4] ³	0.565	1.2 [0.9 1.5] ⁶	0.171
	Pain with pain-related absenteeism	2.6 [1.5 4.4]³	0.001	2.8 [1.6 4.8]⁶	<0.001
Low-back/neck pain	No pain	Reference		Reference	
	Pain without pain-related absenteeism	1.1 [0.8 1.4] ⁴	0.523	1.1 [0.9 1.5] ⁷	0.315
	Pain with pain-related absenteeism	2.2 [1.5 3.4]⁴	<0.001	2.5 [1.7 3.7]⁷	<0.001

¹ Adjusted for sex, occupation and comorbidities.

² None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of IRR=0.10 [0-0.08 0.28], $p=0.297$

³ None of the modelled variables contributed in a statistically significant manner ($p<0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR=0.11$ $[-0.07\ 0.29]$, $p=0.251$

⁴ None of the modelled variables contributed in a statistically significant manner ($p<0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR=0.16$ $[-0.07\ 0.29]$, $p=0.251$

⁵ None of the modelled variables contributed in a statistically significant manner ($p<0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR=0.09$ $[-0.09\ 0.27]$, $p=0.320$

⁶ None of the modelled variables contributed in a statistically significant manner ($p<0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR=0.10$ $[-0.08\ 0.28]$, $p=0.274$

⁷ None of the modelled variables contributed in a statistically significant manner ($p<0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR=0.10$ $[-0.08\ 0.28]$, $p=0.274$

Appendix 3. Sensitivity analysis showing the association of adolescent spinal pain-related absenteeism and early adulthood health-related work absenteeism (hours per year) from a zero-inflated negative binominal model. Number of participants (n), mean group absenteeism in each of the groups and effect-sizes (expressed in incidence rate ratios, IRR; with 95% confidence interval) are shown. Statistically significant findings ($p<0.05$) are printed in bold.

		Unadjusted <i>IRR</i> [95% <i>CI</i>] ¹	<i>p</i>	Adjusted ¹ <i>IRR</i> [95% <i>CI</i>]	
Back pain	No pain	Reference		Reference	
	Pain without pain-related absenteeism	1.3 [1.0 1.7] ²	0.062	1.3 [1.0 1.8] ⁵	0.043
	Pain with pain-related absenteeism	2.3 [1.3 4.2] ²	0.004	2.6 [1.5 4.6] ⁵	0.001
Neck pain	No pain	Reference		Reference	
	Pain without pain-related absenteeism	1.0 [0.8 1.3] ³	0.874	1.1 [0.8 1.5] ⁶	0.452
	Pain with pain-related absenteeism	2.1 [1.1 3.7] ³	0.015	2.1 [1.1 3.7] ⁶	0.016
Low-back/neck pain	No pain	Reference		Reference	
	Pain without pain-related absenteeism	1.1 [0.8 1.4] ⁴	0.640	1.1 [0.8 1.4] ⁷	0.570
	Pain with pain-related absenteeism	2.4 [1.5 3.7] ⁴	<0.001	2.6 [1.6 4.0] ⁷	<0.001

¹ Adjusted for sex, occupation and comorbidities.

² None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR = 0.25$ [0.06 0.43], $p = 0.008$

³ None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR = 0.25$ [0.07 0.44], $p = 0.006$

⁴ None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR = 0.25$ [0.07 0.44], $p = 0.006$

⁵ None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR = 0.25$ [0.06 0.43], $p = 0.009$

⁶ None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR = 0.25$ [0.07 0.44], $p = 0.007$

⁷ None of the modelled variables contributed in a statistically significant manner ($p < 0.05$) to the zero inflated part of the ZINB model, hence only the constant term was retained, showing an effect size of $IRR = 0.25$ [0.07 0.44], $p = 0.007$