Evaluating the Economic Impact of Worksite Physical Activity Interventions in Denmark: An Employer's Perspective

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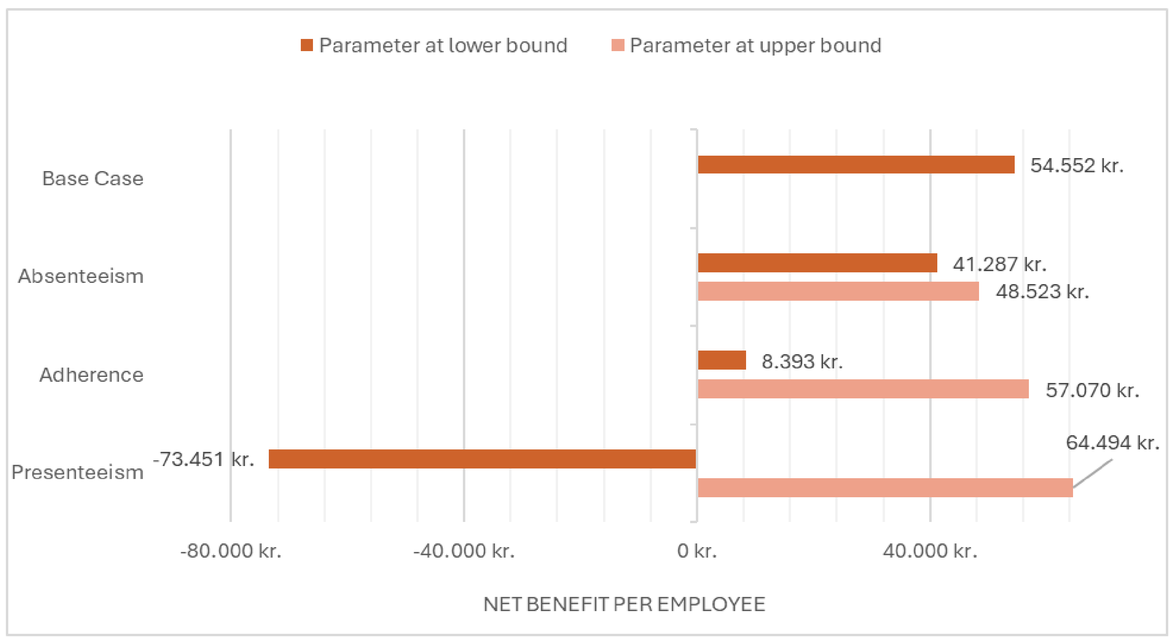
BACKGROUND

Physical inactivity is a leading risk factor for non-communicable diseases and accounts for an approximately 7–8% of all deaths in Denmark. Despite public health efforts, inactivity levels continue to rise. As the workplace offers a unique opportunity to reach a large and diverse segment of the population, understanding the potential economic benefits of such interventions is essential for informing employer investment and policy decisions. This study investigates the potential economic benefits of workplace physical activity (PA) interventions for employers in a Danish context.

Tab 1. Cost, effect and probability inputs

Sedentary Workplace	Value	SD/Assumption	Source
Mean number of sick days before intervention	4.4	-	Justesen et al. 2017
Effect of intervention on sick days (ITT)	-0.55	-1.29, +0.20	Justesen et al. 2017
Self-reported productivity pre intervention	8.3	-	Justesen et al. 2017
Effect of intervention on productivity (ITT)	+0.16	-0.04, +0.35	Justesen et al. 2017
Self-reported workability pre intervention	8.7	-	Justesen et al. 2017
Effect of intervention on workability	+0.26	+0.08, +0.43	Justesen et al. 2017
Effect of intervention on sick days (per protocol)	-1.54	-2.44, -0.64	Justesen et al. 2017
Effect of intervention on productivity (per protocol)	+0.35	+0.1, +0.61	Justesen et al. 2017
Effect of intervention on workability (per protocol)	+0.46	+0.24, +0.69	Justesen et al. 2017
Physically Active Workplace			
Mean number of sick days before intervention	4.5	Assumption +/-15%	Andersen et al. 2015
Effect of intervention on sick days	-1.97	-	Andersen et al. 2015
Self-reported productivity pre intervention	7.5	Assumption +/-15%	Andersen et al. 2015
Effect of intervention on productivity	+0.7	-	Andersen et al. 2015
Self-reported workability pre intervention	7.3	Assumption +/-15%	Andersen et al. 2015
Effect of intervention on workability	+1.2	-	Andersen et al. 2015
Daily employee salary (median for all of Denmark)	2061.45	Inflated to reflect 2025 value	m.statbank.dk
Additional early retirees without intervention	15/100000	-	Konsulenthuset ballisager. 2019
Additional early retirees with intervention	0/100000	-	Konsulenthuset ballisager. 2019
Number of employees leaving pre intervention	0.32	-	Sundhedsstyrelsen, 2022
Number of employees leaving post intervention	0.3	-	Sundhedsstyrelsen, 2022
Hours spent on the intervention per year	81.78	-	Average from multiple sources*
Participant adherence	0.65	[0.1, 0.68]	Assumption

Fig 1. One-way sensitivity analysis for physical workers



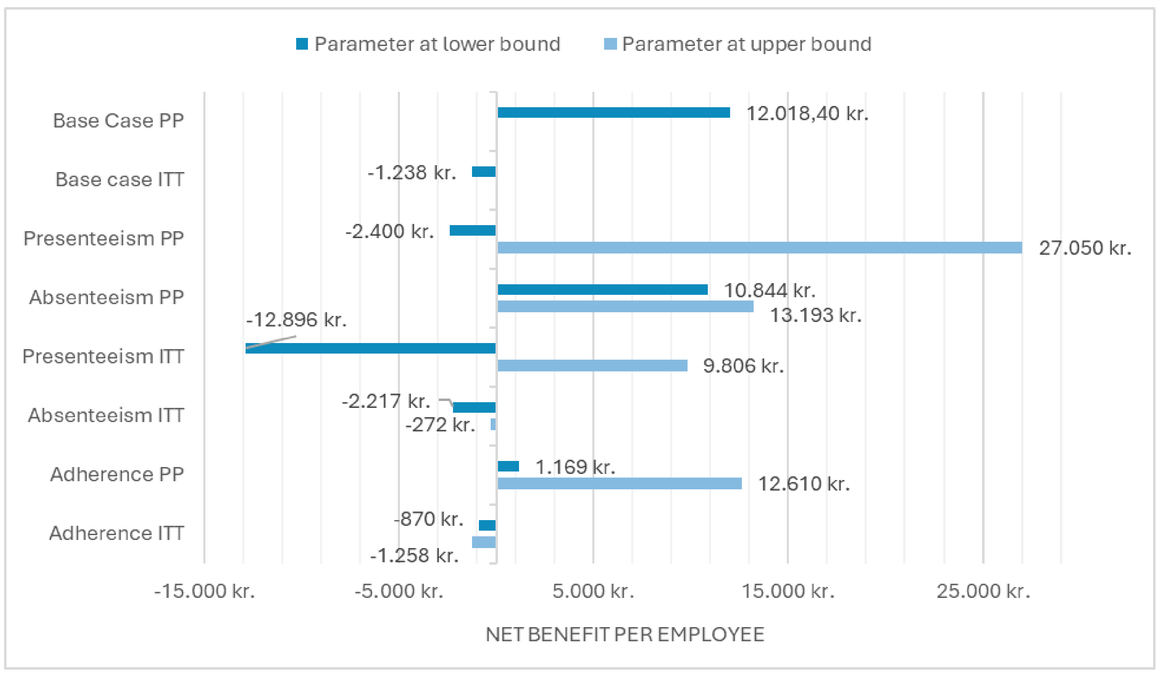
METHODS

We performed a cost benefit analysis from an employer perspective. Only costs and benefits relevant to the employer were considered, including work productivity (absenteeism and presenteeism). Systematic and grey literature searches were used to inform cost, effect and probability input values (Tab. 1). Analyses were performed for two populations: sedentary workers and physical workers. A one-year time-horizon was used. The results are presented as the net cost benefit as well as the return on investment for each company type. Total and per employee net economic benefits are calculated. Sensitivity analyses were conducted to check the robustness of the model.

RESULTS

The base case analysis generated a positive net gain for physically active work environments (Fig 1). For sedentary workers it generated a negative gain for the intention to treat analysis but a positive net gain for the per protocol analysis (Fig. 2). Reducing presenteeism had the greatest impact on outcomes for both sedentary and physical workers. Reducing absenteeism was not enough to generate a positive net gain for neither groups. However, results were uncertain due to the lack of solid evidence.

Fig 2. One-way sensitivity analysis for sedentary workers



CONCLUSION

Implementing physical activity in the workplace may yield cost savings for the employer through improved employee productivity. These results may encourage employers to adopt such interventions and support efforts to tackle physical inactivity. Further research is required to explore the mechanisms through which such interventions influence employee's work productivity.