

Association of Work and Activity Impairment with Clinical Outcomes in Patients with Haemophilia A: A Multivariate Analysis of Data from the CHES II Study

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Introduction

- Haemophilia A (HA; Factor VIII (FVIII) deficiency) is a congenital bleeding disorder most notably characterized by traumatic or spontaneous intraarticular bleeding. Frequent bleeding events are known to result in chronic inflammation, pain and disability, with consequent interference to daily activities and workforce participation.
- The aim of this study was to evaluate the impact of HA-related clinical outcomes on work and activity impairment within a cohort of people with HA using data drawn from ‘The Cost of Haemophilia: a Socioeconomic Study II’ (CHES II)¹.

Methods

- CHES II was a cross-sectional, retrospective burden-of-illness study of adult (18+) males with hereditary HA or haemophilia B in 8 European countries. Physicians recorded patient demographics, clinical outcomes, current treatment, and recent bleeding event history for patients seen between November 2018 and October 2020. These same patients were invited to provide self-reported data on haemophilia-related impairment using the Specific Health Problem version of the Work Productivity and Activity Impairment tool (WPAI:SHP)².
- All HA patients with an evaluable WPAI response, without a history of inhibitors and within the UK, France, Italy, Germany and Spain were included for analysis. The analysis cohort were further stratified by HA severity (mild [FVIII levels >5–40% of normal], moderate [1–5%], severe [<1%]).
- Two ordinary least squares regression models were developed to explore the relationship between clinical covariates and WPAI outcomes 1) work productivity loss (WPL; presenteeism/absenteeism) and 2) activity impairment (AI).
- Presenteeism is the impaired productivity experienced while at work because of the patient’s HA in the previous seven days and absenteeism is work time missed because of the patient’s HA in the previous seven days.
- WPL is therefore a combination of absenteeism -and presenteeism. AI is impairment in daily activities due to the patient’s HA in the previous seven days.

References

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3. O'Hara, J., Noone, D., Jain, M., Pedra, G., Landis, S., Hawes, C., Burke, T. and Camp, C., 2021. Clinical attributes and treatment characteristics are associated with work productivity and activity impairment in people with severe haemophilia A. *Haemophilia*, 27(6), pp.938-946.

Results

- Two hundred and twenty-eight patients had evaluable AI responses, with 45 (19.7%), 56 (24.6%) and 127 (36.7%) having mild, moderate, and severe HA, respectively; n=187 had evaluable WPL responses. Mean (SD) age and BMI was 33.7 (10.9) years and 24.4 (2.5), respectively. Mean (SD) Annualized Bleed Rate (ABR) and number of target joints were 2.6 (2.6) and 0.4 (0.9), respectively. Mean WPL was 30.3 (28.5) and increased with HA severity (range 13.5–39.2 for mild–severe HA) (Figure 1 / Table 1). A similar trend was observed for AI (mean 30.1 (26.1); range 17.3–36.7).
- WPL was positively associated with HA severity (mild severity, p=0.01; moderate and severe pain, p<.001 for both) presence of target joints (p =.03) and severity of chronic joint pain as compared to those with no pain (mild pain, p=0.01; moderate and severe pain, p<.001 for both) (Table 2; Model 2). Target joints (p=0.01) and severity of chronic joint pain as compared to those with no pain (p<.001 for each severity of chronic pain) also showed a positive association with AI (Model 1).

Conclusions

- HA-related morbidity, specifically presence of target joints and chronic joint pain, are associated with higher levels of work productivity loss and impairment in daily activities. Chronic joint pain in particular has been found previously to be positively associated with both AI and WPL³. Severity of HA, as defined by FVIII levels, is additionally associated with impairment to work productivity. Impairment to daily living can be observed across the spectrum of HA severity and warrants additional research.

Figure 1 – Impairment by HA severity

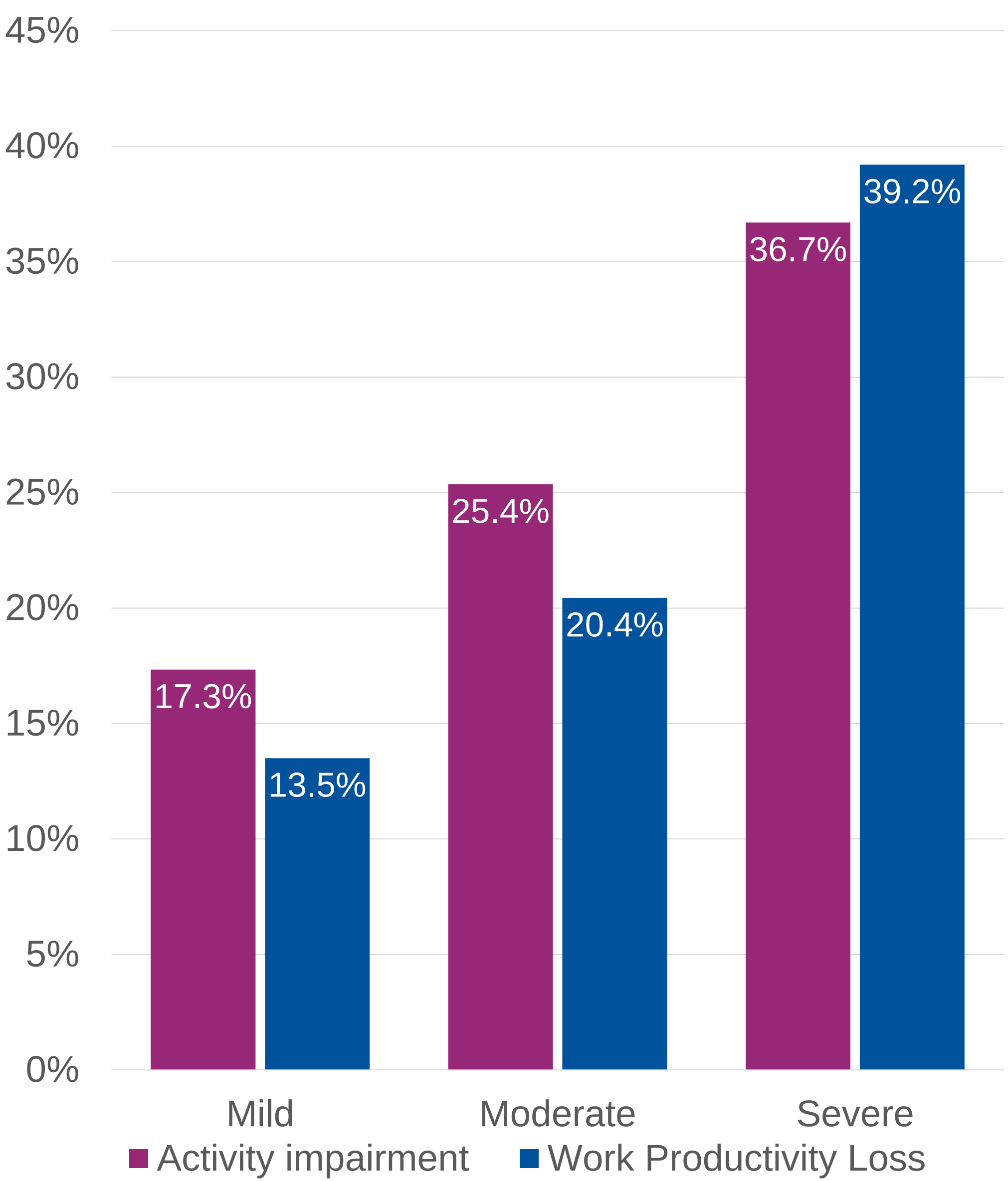


Table 1 - Descriptive statistics

N	228
Age, mean (SD)	33.7 (10.9)
BMI, mean (SD)	24.4 (2.5)
Highest level of education, n (%)	
Secondary education or lower	83 (36.4%)
Vocational or bachelor degree	92 (40.4%)
Postgraduate	37 (16.2%)
Other	16 (7.0%)
Employment type, n (%)	
Administrative/desk based	135 (59.2%)
Physical/manual	63 (27.6%)
Other	10 (4.4%)
Unemployed	20 (8.8%)
Condition severity, n (%)	
Mild	45 (19.7%)
Moderate	56 (24.6%)
Severe	127 (55.7%)
ABR, mean (SD)	2.6 (2.6)
Target joints, mean (SD)	0.4 (0.9)
HA-related chronic pain, n (%)	
None	77 (33.8%)
Mild	92 (40.4%)
Moderate	52 (22.8%)
Severe	7 (3.1%)
Activity impairment, mean (SD)	30.1 (26.1)
Mild HA	17.3 (19.6)
Moderate HA	25.4 (26.6)
Severe HA	36.7 (25.9)
WPL (n=187), mean (SD)	30.3 (28.5)
Mild HA	13.5 (17.3)
Moderate HA	20.4 (23.5)
Severe HA	39.2 (29.5)
Abbreviations: BMI, Body Mass Index; ABR, Annual Bleed Rate; HA, Haemophilia A; WPL, Work Productivity Loss	

Table 2 – Regression models

	Model 1 (AI)		Model 2 (WPL)	
N	228		187	
R ²	0.3136		0.3177	
Adj. R ²	0.265		0.249	
	Coeff.	P	Coeff.	P
Age	0.04	0.80	-0.03	0.89
Country				
Germany	reference		reference	
Spain	-10.71	0.07	-5.54	0.47
France	-5.47	0.35	-7.25	0.40
Italy	-11.48	0.05	-3.33	0.66
United Kingdom	-4.94	0.38	0.33	0.97
Condition severity				
Mild	reference		reference	
Moderate	0.64	0.89	1.19	0.84
Severe	6.47	0.15	13.09	0.02*
ABR	0.04	0.96	-0.19	0.84
Target joints	5.42	0.01*	5.48	0.03*
HA-related chronic pain				
None	reference		reference	
Mild	20.52	<0.001**	12.63	0.01*
Moderate	24.13	<0.001**	21.69	<0.001**
Severe	38.47	<0.001**	38.09	<0.001**
Highest level of education				
Secondary education or lower	reference		reference	
Vocational or bachelor degree	-6.29	0.07	-0.44	0.92
Postgraduate	-1.50	0.74	2.80	0.62
Other	-8.71	0.18	-8.83	0.28
Employment type				
Administrative/desk based			reference	
Physical/manual			1.03	0.82
Other			9.67	0.25
Constant	18.68	0.02*	12.80	0.23
Note: *p<0.05; **p<0.01				
Abbreviations: ABR, Annual Bleed Rate; HA, Haemophilia A; AI, Activity impairment; WPL, Work Productivity Loss; Coeff, Coefficient				

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