Comorbidities in Bleeding Disorders: Sex and Ethnicity-Specific Insights

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Background

Treatment advancements have aligned the life expectancy of people with bleeding disorders (PWBD) with the general population, leading to age-related comorbidities potentially impacting their overall health.

Understanding these comorbidities is key for optimizing health and wellness outcomes.

Objective

Describe the self-reported comorbidities (SRC) in PWBD, using data from Community Voices in Research (CVR), a registry aimed at collecting the experience of persons affected by these disorders and supported by National Bleeding Disorders Foundation.

Methods

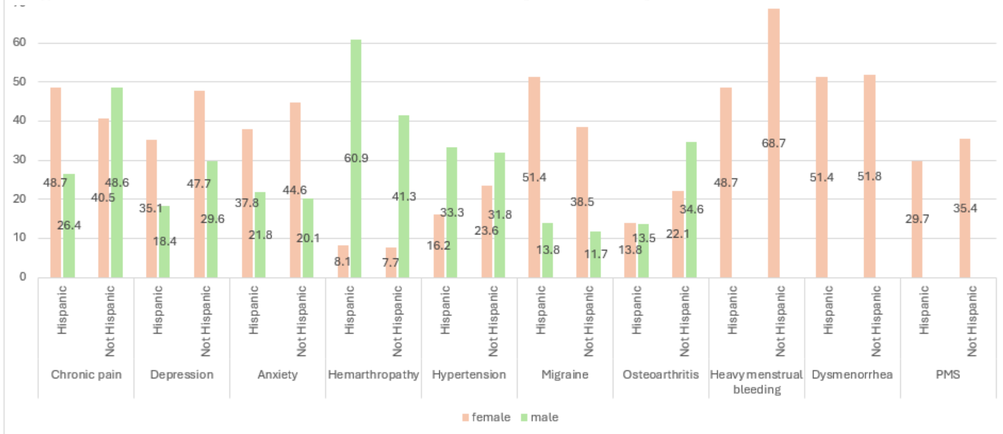
- Retrospective, self-reported data of PWBD (n=505) were analyzed.
- The 10 most frequent SRCs were further evaluated to assess prevalence stratified by age, birth sex, race, ethnicity, and diagnosis.
- Differences in frequency counts and differences in age were also evaluated.

Results

Of the total sample (*n*=235 female, *n*=270 male):

- 243 (48.1%) had hemophilia A (HA), 105 (20.8%) hemophilia B (HB), 82 (16.2%) Von Willebrand disease (VWD) and 75 (14.9%) ultra-rare bleeding disorders (BD) (platelet disorders, Ehlers Danlos, and other Factor deficiencies)
- Females had highest rates of mild HA/HB (n=66, 71.7% vs. n=25, 28.3% in males, $p<0.001$)
- Age was not significantly different between BDs ($p=0.251$), sex ($p=0.709$), or race ($p=0.516$)
- Hispanics were younger ($\bar{x}=40.96$) than non-Hispanics ($\bar{x}=44.12$; $p=0.008$)

Figure 1. Prevalence of Comorbidities by Ethnicity and Sex at birth



p values <0.05 are:
Chronic pain: Hispanic vs. Not Hispanic p=0.03, Male Hispanic vs. Male Not Hispanic p=0.001
Depression: Hispanic vs. Not Hispanic p=0.002
Hemarthropathy: Hispanic vs. Not Hispanic p<0.001, Male Hispanic vs. Male Not Hispanic p=0.003
Osteoarthritis: Hispanic vs. Not Hispanic p=0.001, Male Hispanic vs. Male Not Hispanic p<0.001
Heavy menstrual bleeding: Hispanic vs. Not Hispanic p=0.019

When evaluating presence or absence of SRCs by age and sex at birth:

- Age was younger in females with anxiety (40.52 vs. 45.19, $p=0.006$) and PMS (41.12 vs. 45.51, $p=0.011$).
- Age was older in males with chronic pain (49.09 vs. 38.76, $p<0.001$).
- Age was older in both females (F) and males (M) reporting hemarthropathy (F 49.26 vs. 43.08; $p=0.006$; M 48.38 vs. 38.31; $p<0.001$), hypertension (F 51.42 vs. 41.36; $p<0.001$; M 51.17 vs. 39.36; $p<0.001$) and osteoarthritis (F 50.60 vs. 41.78; $p<0.001$; M 50.09 vs. 40.39; $p<0.001$).

Table 1. Top Self-Reported Comorbidities (SRC)

Comorbidity	Total		Female*		Male*		
	N=505	%	n= 235	%	n=270	%	p^+
Chronic Pain	212	41.98	98	41.70	114	42.22	0.906
Depression	177	35.05	107	45.53	70	25.93	***<0.001***
Anxiety	159	31.49	103	43.83	56	20.74	***<0.001***
Heavy Menstrual Bleeding**			154	65.53			
Hemarthropathy	148	29.31	19	8.09	129	47.78	***<0.001***
Hypertension	138	27.33	52	22.13	86	31.85	***0.014***
Migraine	129	25.54	95	40.43	34	12.59	***<0.001***
Osteoarthritis	124	24.55	49	20.85	76	28.15	***0.044***
Dysmenorrhea**			121	51.49			
PMS**			81	34.47			

*sex assigned at birth
**female only
+p values compare female and male

- All SRC were present in >25% of respondents; 3 were female specific
- Females reported significant differences between BDs for heavy menstrual bleeding ($p=0.001$), dysmenorrhea ($p=0.016$), depression ($p=0.022$), and anxiety ($p=0.001$); VWD had the highest rates for all.
- Highest SRCs include depression for ultra rare BD, hemarthropathy for HA and HB, hypertension for HB, and osteoarthritis for HA.

Conclusion

This study underscores the burden of SRCs among PWBD. Chronic pain is prominent for both males and females. Aside from female specific SRCs, females report more mental health conditions while males report more hemarthropathy/ osteoarthritis. This supports the need to individualize care approaches to optimize outcomes and ensure equitable and comprehensive care for all PWBD.

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