Symptom clusters in patients with myeloproliferative neoplasms and their associations with patient characteristics: results of a multicenter survey by the East German study group for hematology and oncology (OSHO #97)

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Background

- Myeloproliferative neoplasms (MPN): heterogeneous group of clonal hematopoietic stem cell disorders with distinct molecular pathogenesis and treatment strategies.
- Patients (pts) of all MPN subtypes: substantial and persistent symptom burden that impairs health-related quality of life.
- Symptom management and supportive therapies play a central role in patient care.
- Supportive care targets disease- and treatment-related symptoms rather than the underlying malignancy itself.
- However, it remains unclear whether symptom profiles are comparable across MPN subtypes independent of disease phenotype.

Aim

1. Identify symptom severity clusters (SSCs) among MPN pts
2. Examine their associations with patient characteristics

Methods

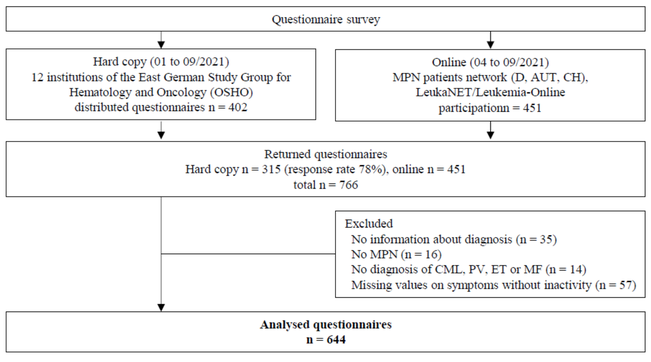

Figure 1. Flow chart of the study

- Sociodemographic and disease-specific data
- Severity of 14 symptoms: visual analogue scale ranging from 0 (absent) to 100 (worst imaginable)
- K-means cluster analyses & multinomial logistic regression

Results

- 187 with CML, 174 with PV, 154 with ET, and 129 with MF
- 63% female, mean age 56.8 ± 13.4 years
- Four SSCs were identified: low, middle, high, very high (Fig. 2)

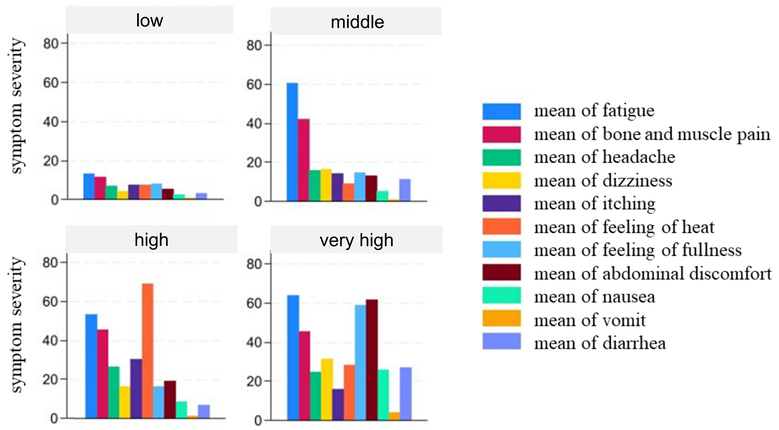

Figure 2. Symptom severity clusters (n = 633)

Table 1. Characteristics of patients depending on the symptom severity cluster

	Low	Middle	High	Very high
Patients, number (%)	284 (45)	165 (26)	106 (17)	78 (12)
Sex, female [%]	54	57	87	69
Age [years]	56.4 ± 13.9	59.2 ± 13.5	57.3 ± 11.0	53.2 ± 12.6
Body Mass Index [kg/m²]	25.3 ± 4.0	25.7 ± 4.8	26.3 ± 4.9	25.1 ± 5.2
Lower secondary education [%]	33	41	52	46
Diagnosi, number (%)				
CML	96 (52)	38 (21)	25 (14)	24 (13)
PV	65 (38)	48 (28)	39 (23)	21 (12)
ET	70 (46)	40 (26)	24 (16)	18 (12)
MF	53 (42)	39 (31)	18 (14)	15 (12)
Time after diagnosis [years]	7.0 ± 6.0	8.1 ± 6.4	6.8 ± 7.3	7.6 ± 7.5

continuous variables: mean ± standard deviation

Abbreviations: *CML*, chronic myeloid leukemia; *PV*, polycythemia vera; *ET*, essential thrombocythemia; *MF*, myelofibrosis; (primary myelofibrosis, post polycythemia vera myelofibrosis, and post essential thrombocythemia myelofibrosis)

Table 2. Multinomial logistic regression with low symptom severity cluster as the base outcome

	Predictor	Coefficient	Standard error	z	*p*-value	95% CI
middle SSC	Sex	0.20	0.22	0.89	0.371	-0.24 – 0.63
	Age	-0.01	0.01	1.13	0.259	-0.01 – 0.03
	Body Mass Index	0.03	0.03	1.07	0.283	-0.02 – 0.08
	School education	-0.24	0.22	-1.07	0.284	-0.67 – 0.20
	Diagnosis					
	PV	0.35	0.32	1.21	0.267	-0.27 – 0.97
	ET	0.19	0. 31	0.61	0.541	-0.42 – 0.79
	MF	0.36	0.32	1.11	0.269	-0.28 – 0.99
	Time after diagnosis	-0.02	0.02	-1.55	0.120	-0.05 – 0.01
	_cons	45.22	30.55	1.48	0.139	-14.64 – 105.10
high SSC	**Sex**	1.82	0.32	5.63	**0.000****	1.19 – 2.45
	Age	0.00	0.01	0.43	0.666	-0.01 – 0.02
	Body Mass Index	0.05	0.03	1.96	**0.049***	0.00 – 0.11
	School education	-0.66	0.26	-2.57	**0.010***	-1.16 – 0.16
	Diagnosis					
	PV	0.417	0.35	1.19	0.234	-0.27 – 1.10
	ET	-0.37	0.37	-10.2	0.308	-1.09 – 0.35
	MF	-0.11	0.38	-0.28	0.779	-0.85 – 0.64
	Time after diagnosis	0.02	0.02	0.86	0.391	-0.03 – 0.06
	_cons	-43.05	46.28	-0.93	0.352	-133.76 – 47.67
very high SSC	Sex	0.57	0.31	1.86	0.063	-0.03 – 1.17
	Age	-0.02	0.01	-2.16	**0.031***	-0.04 – 0.00
	Body Mass Index	-0.05	0.03	-1.51	0.130	-0.12 – 0.02
	School education	-0.60	0.29	-2.09	**0.037***	-1.16 – -0.04
	Diagnosis					
	PV	0.29	0.40	0.74	0.462	-0.48 – 1.07
	ET	-0.12	0.42	-0.29	0.768	-0.94 – 0.69
	MF	0.28	0.42	0.68	0.494	-0.53 – 1.10
	Time after diagnosis	-0.02	0.02	-1.06	0.287	-0.07 – 0.02
	_cons	50.67	46.66	1.09	0.278	-40.79 – 142.12

Bold: statistically significant, * $p \leq 0.05$, ** $p \leq 0.001$

Discussion

The symptoms severity in MPN pts seems to be comparable across subgroups. These findings support a shift toward symptom-focused, multimodal supportive care approaches (e.g., exercise and psychological support). This might be particularly relevant for younger and overweight patients, women, and those with lower educational levels.

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