

A Systematic Literature Review on Symptom Burden and Impact of Disease on Quality of Life in Patients With Essential Thrombocythemia

Mavis Obeng-Kusi¹; Xiaoqin Yang¹; Rishabh Pandey²; Saikrishna Kandalam²; Shruthi Bethi²
¹Merck & Co., Inc., Rahway, NJ, USA; ²Parexel International, Hyderabad, India

Background

- Essential thrombocythemia (ET) is an acquired Philadelphia chromosome–negative myeloproliferative neoplasm characterized by clonal blood cell proliferation and excessive platelet production associated with an increased risk of vascular complications (thrombotic and hemorrhagic events).¹ Patients with ET are also at risk of disease transformation to myelofibrosis or acute myeloid leukemia¹
- ET patients may experience a range of constitutional symptoms including fatigue, night sweats, itching, weight loss, and fevers²
- These complications and symptoms may impair patients' quality of life (QoL)
- Describing symptom burden and QoL in ET patients may help to highlight areas of unmet need, to guide more effective disease management and treatment strategies²⁻⁵

Objective

- To identify and summarize the current literature related to symptom burden and QoL associated with ET

Methods

- A systematic literature search was conducted in the MEDLINE®, Embase®, and Cochrane databases from inception through October 6, 2023. The studies were screened based on the criteria for population, intervention, comparator, outcomes, time, and study design (PICOTS) (Table 1)
- In addition, relevant conference proceedings were searched from 2019 to 2023. The search included the following conferences: American Society of Clinical Oncology and Association (ASCO), American Society of Hematology (ASH), European Hematology Association (EHA), International Conference on Malignant Lymphoma (ICML), and International Society on Thrombosis and Haemostasis (ISTH)
- The first stage screening (based upon titles and abstracts) was undertaken by a single reviewer, followed by a sample (20%) check of excluded studies by another independent reviewer. Full texts of relevant studies were then examined to determine a final list of included studies, using the same approach. Data extraction was conducted by a single reviewer and validated by an independent reviewer

Table 1. Study selection PICOTS criteria and outcomes used

Parameter	Inclusion criteria	
Population(s)	Disease:	ET
	Age:	Any (No restriction)
	Gender:	Any (No restriction)
	Race:	Any (No restriction)
Interventions	No restriction	
Comparisons	No restriction	
Outcomes	Studies reporting humanistic burden including (but not limited to):	
	<div><ul style="list-style-type: none">• Quality of life• Psychological well-being• Life satisfaction• Subjective well-being• Patient-reported outcomes (PRO)• Treatment satisfaction</div>	<div><ul style="list-style-type: none">• Social functioning• Work and productivity• Cognitive functioning• Sexual and reproductive health• Patient knowledge and empowerment• Caregiver burden</div>
Time	Database inception to October 6, 2023	
Study design	<div><ul style="list-style-type: none">• Randomized controlled trials• Non-randomized controlled trials• Cohort studies (retrospective observational)• Cohort studies (prospective observational)• Single-arm studies</div>	
	<div><ul style="list-style-type: none">• Database/registry-based studies• Questionnaires/surveys• Case-control and cross-sectional studies• Literature reviews/systematic reviews/relevant general reviews for bibliographic searching</div>	
Language	Studies with full texts published in the English language only	

Outcomes presented in this poster include ET symptom frequency and severity in affected patients as well as impact of ET on patients' QoL, work productivity, and activity.

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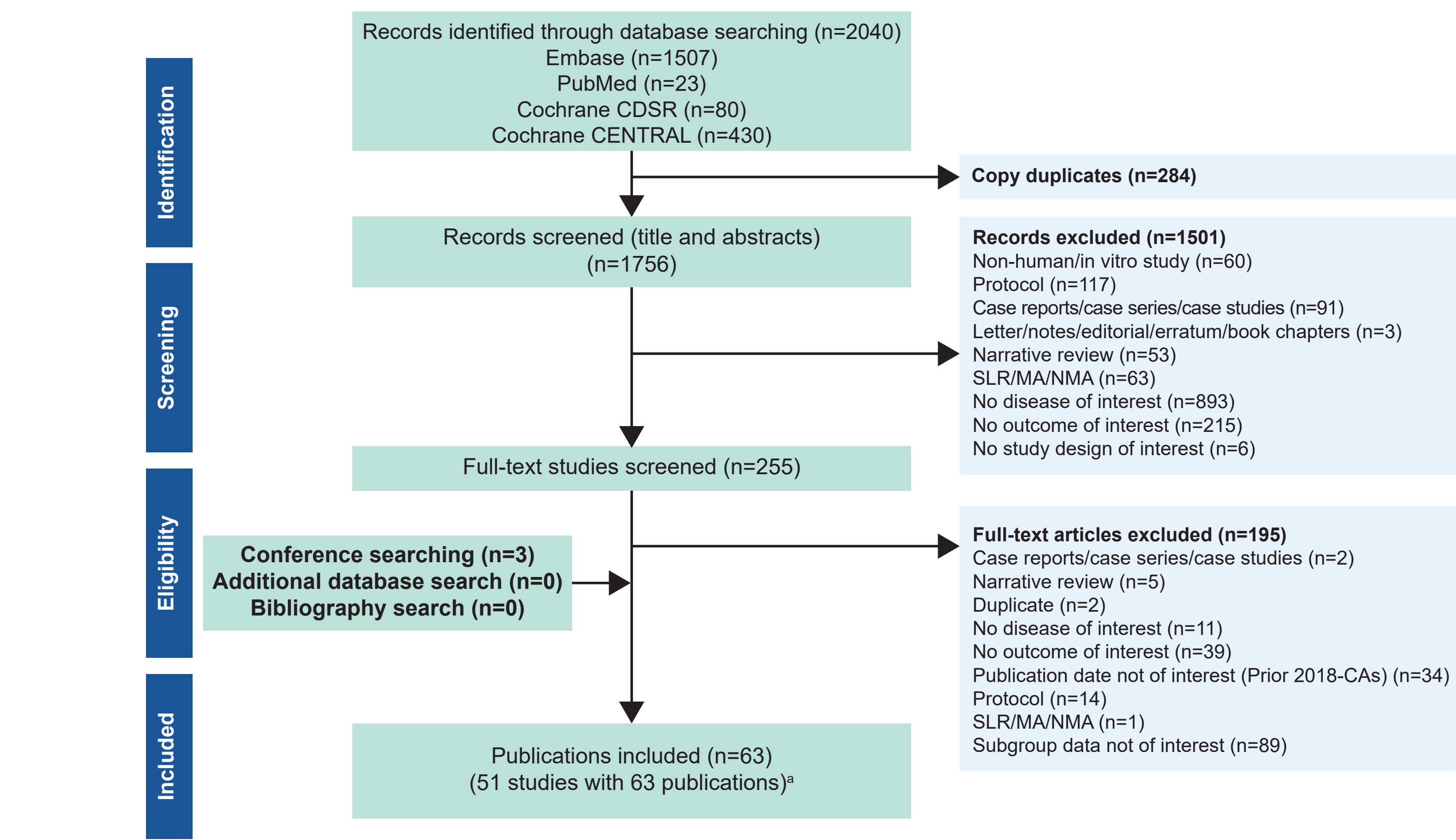
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Results

Summary of included studies

- The analysis included 51 studies (40 journal articles, 11 conference abstracts)
- Among the journal articles, 19 focused on measuring symptom burden, 7 assessed QoL, 13 evaluated both symptom burden and QoL, and 1 conducted a qualitative study (Figure 1). Some studies included multiple scales
 - MPN-SAF TSS/MPN-10 was utilized in 17 studies,⁴⁻²⁰ 3 studies utilized MPN-SAF-18,²¹⁻²³ 5 studies utilized the MPN-SAF-27,²⁴⁻²⁸ and 2 studies utilized MPN-SAF questionnaires (unspecified versions)^{29,30}
 - 9 studies utilized EORTC QLQ-C30 questionnaire^{5,16,17,21,25,26,28,31,32}
 - Work productivity and activity impairment-specific health problem questionnaire (WPAI-SHP) was utilized in 3 studies^{5,12,29}

Figure 1. PRISMA flow diagram for ET

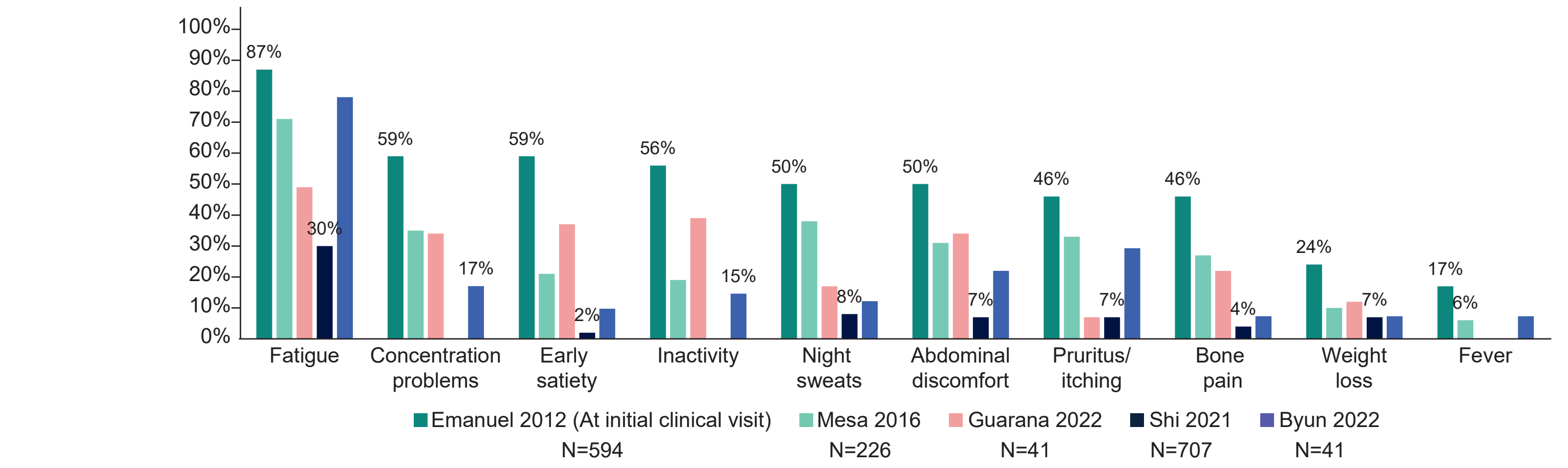


*Journal articles (n=40) prioritized for inclusion.

ET symptom incidence

- Among ET patients, the highest incidence of symptoms was observed for fatigue (30% to 87%) (Figure 2)^{4,6,13,16,19}

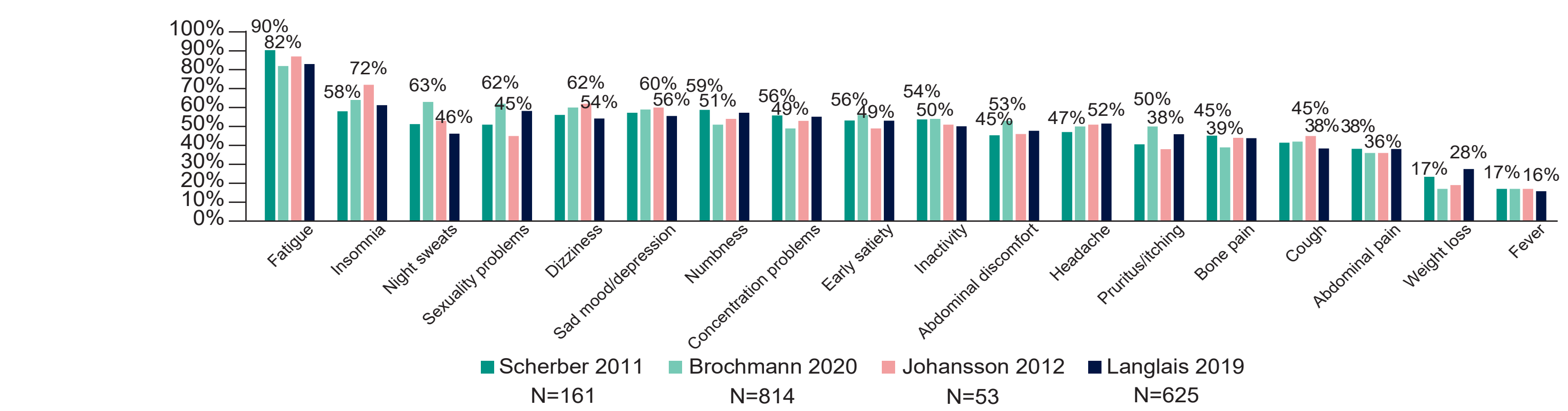
Figure 2. ET symptoms incidence reported across studies^{4,6,13,16,19}



ET symptom prevalence

- The most prevalent symptom was fatigue (82% to 90%), followed by insomnia (58% to 72%), night sweats (46% to 63%), sexuality problems (45% to 62%), dizziness (54% to 62%), and sad mood/depression (56% to 60%) (Figure 3)^{21,25-27}

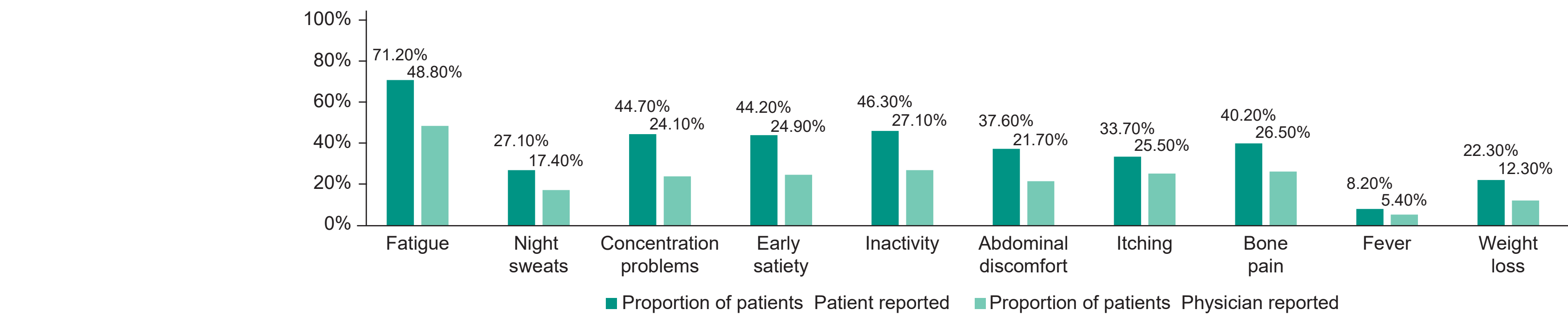
Figure 3. ET symptoms prevalence reported across studies^{21,25-27}



Patient and physician assessment of ET-associated symptoms

- In a study conducted by Yassin et al., patients reported (PR) a higher rate of symptoms compared to physician observations (PO), such as fatigue (PR: 71.2%, PO: 48.8%), inactivity (PR: 46.3%, PO: 27.1%), and concentration problems (PR: 44.7%, PO: 24.1%) (Figure 4)⁸

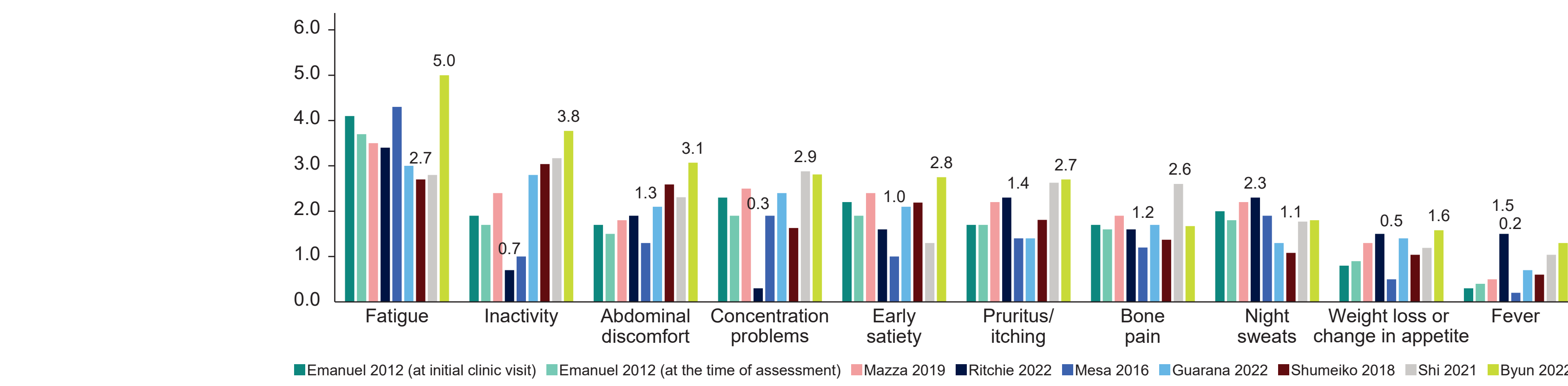
Figure 4. Individual symptoms reported by patients and physicians (MPN-SAF TSS/MPN-10)⁸



ET symptom severity/difficulty

- Fatigue was reported with the highest mean severity scores when compared to other symptoms (2.7 to 5.0), followed by inactivity (0.7 to 3.8) and abdominal discomfort (1.5 to 3.1) (Figure 5)^{4-7,13,15,16,19}
- A qualitative study also described the impact of fatigue with ET, with one patient reporting "I feel pretty much semi-conscious...a sensation that I can't really move"³⁶

Figure 5. ET symptom severity by MPN-SAF TSS/MPN-10^{4-7,13,15,16,19}

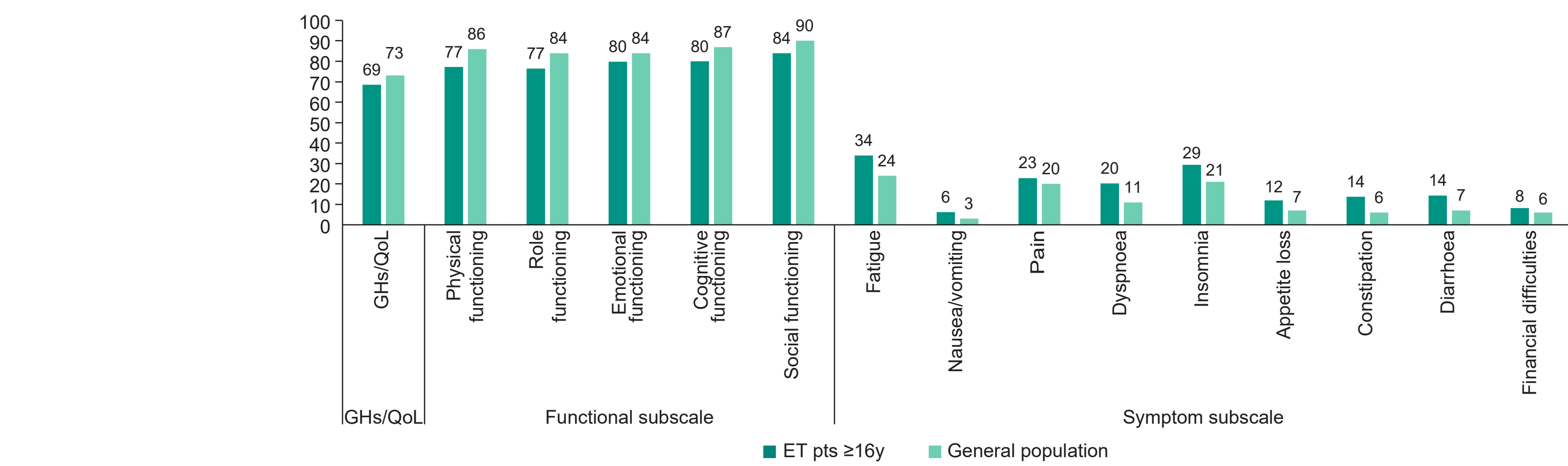


- ET patients reported higher symptom scores than matched controls, with fatigue reported as most severe (MPN-SAF 27-item, ET: 4.6, controls: 3.4)³³
- Mean TSS reported among studies using the MPN-SAF TSS/MPN-10 questionnaire ranged from 13.3 to 28.3 out of 100 (higher scores indicate higher symptom severity)^{4-6,8,9,12-16,18,19}
- Interestingly, in patients receiving cytoreductive therapy, patients with low-risk ET reported higher MPN-SAF TSS scores compared to those with high-risk ET⁵

ET impact on patients' QoL

- Studies reported that the ET significantly affected patients' QoL and their ability to perform daily activities
 - 57% to 75% of patients reported that ET affected their QoL, often necessitating caregiver support (12% to 33%)^{19,20,34,35}
 - 23% of ET patients expressed that their condition had caused emotional hardship (26% to 87% experienced worry or anxiety)^{20,35}
 - 8% of patients experienced high impact and 62% some impact of ET on their daily activities. Both patients (97%) and physicians (85%) indicated pain/discomfort as a significant limiting factor^{34,35}
- ET patients exhibited impaired functioning, more severe symptom burden and worse QoL compared to the general population (Figure 6)^{26,37,38}
- Across studies which utilized EORTC QLQ-C30, mean global health status (GHS)/QoL reported ranged from 50.8 to 72.8 (higher scores indicate better QoL)^{5,6,16,17,21,25,26,28,31}
- ET patients exhibited impaired functioning, more severe symptom burden and worse QoL compared to the general population (Figure 6)²⁶

Figure 6. Differences in QoL between patients with ET and the general population²⁶



Impact on patients' work productivity and activity

- Patients with ET reported substantially impacted work productivity and activity: Work productivity loss ranged from 11.5% to 35.7%, and activity impairment ranged from 18.3% to 36.3^{5,12,20}

Conclusions

- ET patients experience constitutional symptoms, with fatigue consistently reported as the most prevalent and severe symptom. Furthermore, patients reported a higher rate of symptoms than the rate observed by physicians, highlighting a disconnect between patients' and physicians' perception of symptoms
- ET patients reported lower scores on the QoL scales compared to the general population across various domains, including physical, emotional, and social functioning, indicating impaired QoL for ET patients
- ET significantly impacted patients' ability to perform daily activities and maintain work productivity
- Implementing effective ET management strategies are crucial for reducing symptom burden and preserving patients' QoL

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