

Economic Burden of Charcot–Marie–Tooth Disease: A Systematic Review

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INTRODUCTION

- Charcot–Marie–Tooth disease (CMT) is one of the most prevalent hereditary neurological illnesses, affecting roughly 1 in 2,500 persons worldwide¹
- It includes a range of genetically and clinically diverse disorders that are characterized by a persistent, increasing peripheral nerve impairment²
- The economic cost of CMT is still poorly understood, despite its widespread occurrence

OBJECTIVES

This study aimed to identify the factors influencing the disease burden associated with CMT.

METHODS

- A systematic literature search was conducted in the Embase® and Medline® databases in adherence to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, to identify articles that reported data on healthcare costs and resource utilization related to CMT
- The search strategy employed relevant keywords to identify English-language studies focusing on the cost and resource utilization of patients with CMT
- Inclusion criteria were pre-defined, with a specific emphasis on studies reporting cost and healthcare resource utilization data for adult patients with CMT (Table 1)
- Two independent reviewers initially screened the titles and abstracts of all records identified through the electronic search. Subsequently, potentially relevant full-text articles were assessed by the same reviewers
- In cases of disagreement or uncertainty regarding inclusion, a third reviewer was consulted to reach a consensus

Table 1. Inclusion criteria

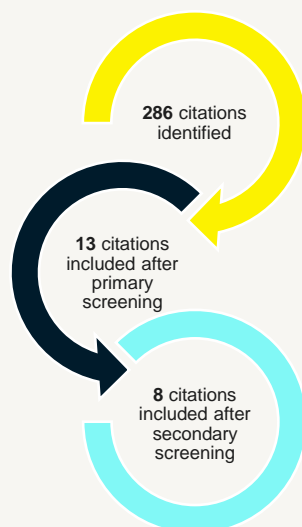
Population	Patients diagnosed with CMT
Population	Patients diagnosed with CMT
Outcomes	Cost and health-care resource use outcomes: <ul style="list-style-type: none"> Direct and indirect cost components Total cost Healthcare resource cost Resource use data Societal costs
Language	English
Study design	<ul style="list-style-type: none"> Cost studies Resource use studies Cost/economic burden studies Economic evaluations reporting costs or resource use Budget impact analysis Cost–benefit analysis Cost–consequence analysis Cost–minimization analysis Cost–utility analysis
Time frame	Inception–present (2024)
Language	English
Publication type	Full-text articles, conference abstracts
Intervention and comparator	No restriction
Country	No restriction

Keys: CMT, Charcot–Marie–Tooth disease.
Note: No restriction was applied for the age of patients with CMT.

RESULTS

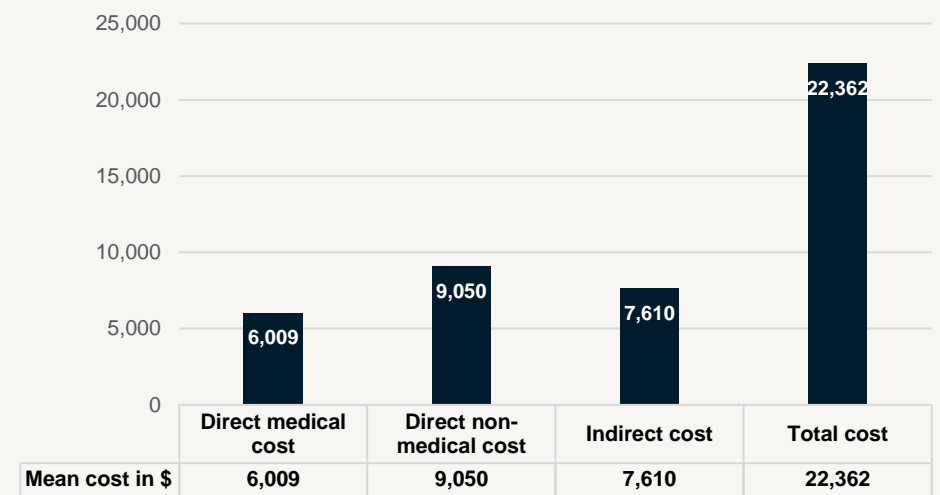
- Among the 286 records screened, eight publications providing data across various geographies were included: Germany (1), England (1), EU and US (5), and the UK (1). Study flow diagram is provided in Figure 1

Figure 1. Study flow diagram



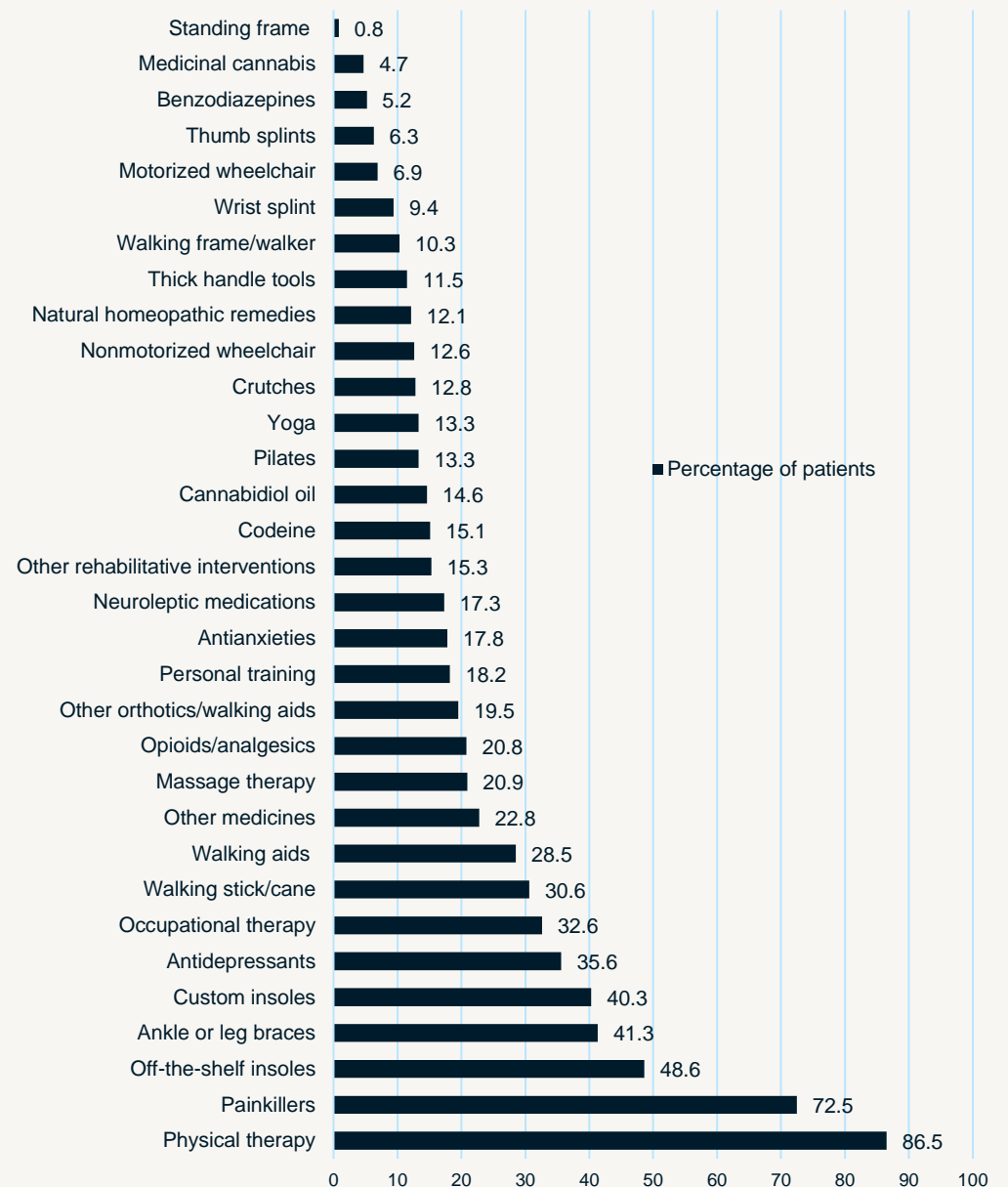
- More than half of these studies (five studies) reported data on the utilization of medical and non-medical resources associated with CMT disease, highlighting significant contributors to its direct cost burden
- In Germany, the reported yearly total cost of illness was \$22,362 (Figure 2)³ In the EU and the US, rehabilitative interventions and medication usage utilization rates ranged from 15.3% to 86.5% and 4.7% to 72.5%, respectively (Figure 3)² Orthotics/walking aids were utilized by 0.8% (EU and US) to 62.5% (England) of patients^{2,4}
- Healthcare professional visits ranged from 36% (the UK) to 76% (Germany), with physiotherapists being the most frequently consulted, followed by neurologists⁵
- Furthermore, CMT was associated with considerable indirect costs. In the EU and US, high rates of disability-related unemployment (62%) and absenteeism from work (32%) were reported⁶
- On average, patients missed 21 (the US) to 75 (France) workdays per year due to the disease⁷ The majority of patients in Spain (96%), UK (78%), Germany (76%) and US (70%) reported that their work life is affected by CMT⁷

Figure 2. Types of costs in CMT



Key: CMT, Charcot–Marie–Tooth disease.
Note: Cost year 2015, Country: Germany.
Source: Schorling et al. *Neurology*. 2019; 92(17):e2027–e37.

Figure 3. Healthcare resources used by patients with CMT



Key: CMT, Charcot–Marie–Tooth disease.
Source: Thomas et al. *J Clin Neuromuscul Dis*. 2022; 24(1):7–17.

CONCLUSIONS

These findings underscore the considerable impact of CMT on healthcare resource utilization and productivity losses, highlighting the multifaceted challenges experienced by individuals affected by this progressive neurological condition.

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