

Higher Need For Medical Resources Among Moderate-To-Severe Myasthenia Gravis Patients In Comparison To The General Population: Analysis Of Two Digital Observational Datasets

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BACKGROUND

- Myasthenia Gravis (MG) is a neuromuscular disease marked by fluctuating muscles weakness and fatigue.
- MG is considered mild when only ocular muscles are affected, or when the impact on daily activities is minimal.
- Moderate-to-severe MG (msMG) can involve a combination of ocular, bulbar, limb and respiratory muscles.
- During a myasthenic crisis, weakened respiratory muscles can cause breathing problems, requiring intubation.
- This analysis compared the medical resource utilization of moderate-to-severe MG patients with the general population.

METHODS

Study design & Data sets

- The study utilizes data from two digital, prospective, international, observational studies: MyRealWorld-MG among MG patients and POPUP among the general population.

MyRealWorld-MG (MRW)

- MyRealWorld-MG is an observational study conducted in the US, UK, Canada, France, Denmark, Italy, Germany, Spain, and Japan among adult MG patients.
- Patients entered personal and disease characteristics via a smartphone application and provided data on inpatient and outpatient medical resource utilization in the past month.
- All patients with a self-assessed MG-Activities of Daily Living (MG-ADL) score >=5 were considered as msMG.**

General Population Norms (POPUP)

- POPUP is an observational study collecting comparable data among members of the general public and was conducted in similar countries. National samples were representative of age, gender, education and region.
- Besides demographic and health-related quality of life data, the study also captured medical resource utilization.

Demographic characteristics

- POPUP enrolled 9000 members of the general population, and MRW included 431 msMG patients (**Table 1**). Gender distribution was skewed in MRW (76.4% female), but mean ages were similar in both studies.
- Of the msMG patients, 64% has ocular + generalized disease, 31% has generalized disease and 5% has ocular MG. Only 51% has AChR and 5% has MUSK antibodies, and 40% of the patients had a previous thymectomy.

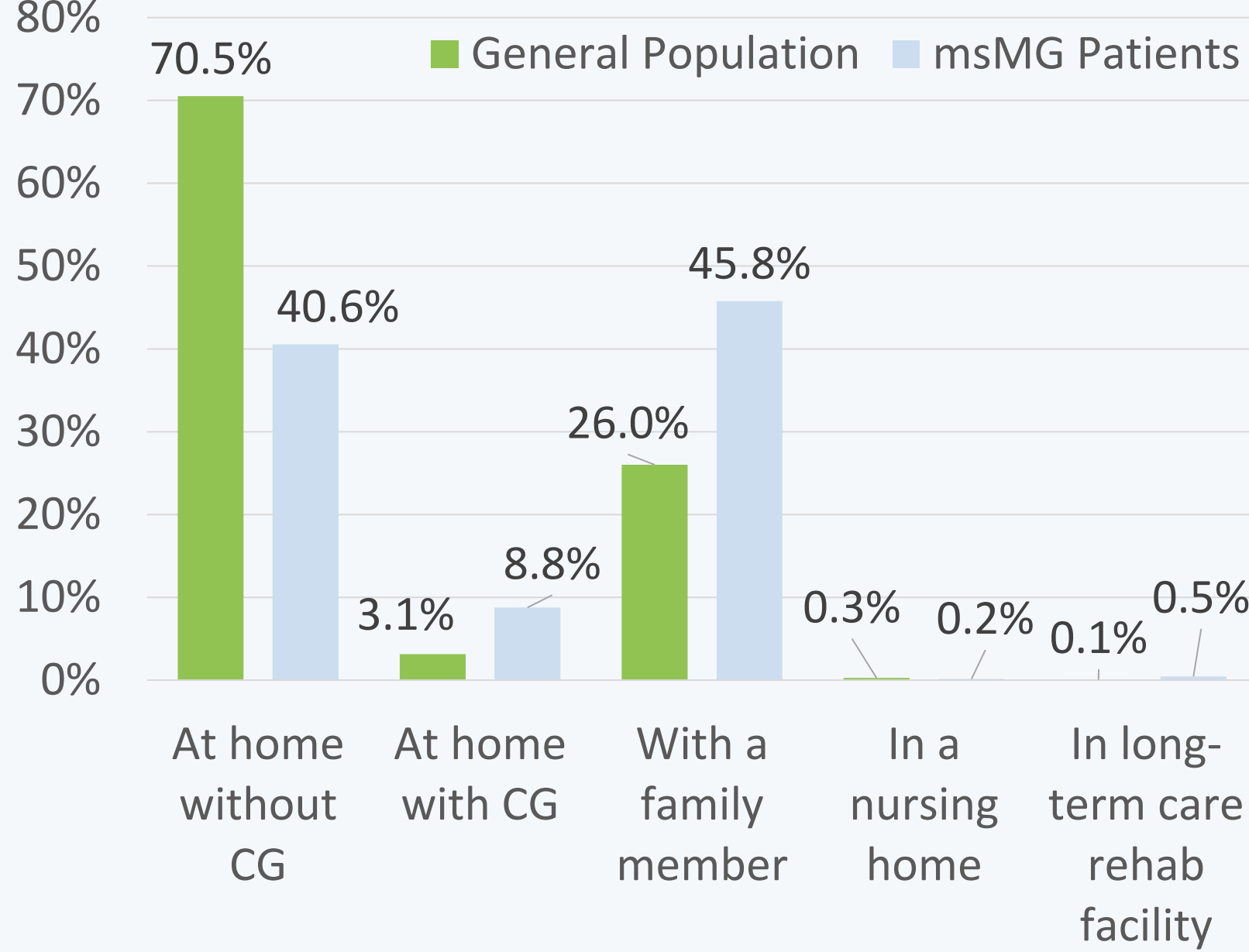
Living situation

- The proportion of respondents in a nursing home was similar for both samples (**Figure 1**). msMG patients are less likely to live independently at home compared to the general population

TABLE 1. Patient characteristics

		POPUP	msMG
N		N=9000	N=431
Gender	Female	51.2%	76.4%
Age	Mean (SD)	47.1 (15.5)	47.8 (14.2)
MG-ADL	Mild: 0-4	93.6%	0%
	Moderate: 5-9	3.5%	68.0%
	Severe: >=10	2.9%	32.0%

FIGURE 1. Living situation



RESULTS

Medical resource utilization

- The hospitalization rate was sixteen times higher among msMG patients with three times longer length-of-stays, compared to the general population (**Table 3**).
- The proportion of participants who had an ER visit in the past month was six times larger in the msMG sample.
- Visits form nurse/healthcare workers were seven times more frequent for msMG.
- msMG patients had triple the number of GP visits per month (and double the number of hospital outpatient visits).

Sick leave

- Four times more msMG patients took sick leave during the past month compared to POPUP (**Table 4**).
- The mean duration of sick leave was slightly longer for msMG patients, compared to the general population.

TABLE 2. Medical resource utilization

	POPUP	msMG	Relative Rate
Use of health care services in the past month	N=9000	N=431	
Had a hospitalization	0.9%	14.1%	16
Length of stay	3.36	9.867	2.9
Number of ER visits	0.022	0.136	6.2
Number of nurse / healthcare worker visit	0.013	0.101	7.8
Number of GP visits	0.132	0.388	2.9
Number of specialist visit	0.211	0.824	3.9
Number of Physiotherapist visit or visit to a rehabilitation center	0.184	0.155	0.8
Number of Hospital outpatient visit	0.092	0.174	1.9

TABLE 3. Sick leave

	POPUP	msMG	Relative Risk
Sick leave	N=9000	N=431	
% Did take time off work / studies in the past month due to illness	10.9%	40.1%	3.7
Average number of days (SD)	12.4 (11.5)	14.9 (11.8)	1.2
% Did not take time off work / studies in the past month due to illness	89.2%	59.9%	0.7
Not been ill	57.0%	32.6%	.
Been ill but did not take any time off	6.9%		4.7
Cannot work/study because of my illness	3.4%	15.6%	4.6
Retired	15.7%	7.2%	0.5

KEY TAKEAWAYS



Moderate-to-severe MG patients require higher medical resource utilization compared to the general population.



Significantly higher hospitalization admissions, more frequent emergency room visits, needing regular help from nurses and frequent GP visits are likely leading to higher health care costs.

DISCUSSION

- Real-world data collected through digital platforms allowed for a large and diverse sample of msMG patients and the general population.
- Selection bias may be present in both studies, as they rely on voluntary participation and access to smartphone devices.
- The findings underscore the need for comprehensive and tailored healthcare strategies for msMG patients

CONCLUSIONS

- Suffering from moderate-to-severe MG was associated with a considerable impact on medical resource utilization compared to the general population.**
- This is likely to result in substantially higher health care costs.**

ABBREVIATIONS

MRU: Medical resource utilization, (ms)MG: (Moderate-to-severe) Myasthenia Gravis, MRW: MyRealWorld-MG, POPUP: General Population Norms, MG-ADL: MG-Activities of Daily Living, SD: Standard deviation, CG: Caregiver, ER: Emergency room, GP: general practitioner.

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