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INTRODUCTION AND OBJECTIVE

Background

- Fibromyalgia (FM)** is a chronic pain disorder affecting muscles and soft tissue while causing significant health and economic burden to patients. Patients with FM typically experience widespread pain and stiffness in the soft tissues, leading to fatigue, disturbed and unsatisfying sleep, morning stiffness, anxiety, depression, headaches and an irritable bowel or bladder [1,2].
- Prevalence** of FM is estimated to range from 0.2% to 4.7% [3] globally, with mean prevalence rates of 3.1 % in the Americas, 2.5% in Europe, and 1.7 % in Asia [4]. The prevalence of FM in China, as measured in Hong Kong, was estimated to be 0.82% in adults aged 18-65 years (0.35%-1.29%) [5].
- Healthcare resource use and cost:** Patients with FM utilize significant resources, incurring additional costs compared to their non-FM counterparts. FM patients were found to have 25 visits and 11 prescriptions per year, more than twice non FM patients in the UK [6]. A study of 33,176 FM patients from a health insurance claims database in the U.S. found FM patients were more likely to have various comorbidities, including painful neuropathies (23% vs. 3% for comparison group), anxiety (5% vs. 1%), and depression (12% vs. 3%) (all p < 0.001); more likely to have used pain-related medications (65% vs. 34%; p < 0.001); and their mean total healthcare costs over 12 months were about three times as high as the control (\$9573 vs. \$3291; p < 0.001) [7]. In Spain, FM patients had more visits to clinics per year (7.7 vs. 13.5), incurred higher healthcare costs (935 vs.1677 EURO) and non-healthcare cost (2331 vs. 6977), and had more sick-leave days (9.5 vs. 29.9) compared to non-FM patients [8].
- Health status burden to patients** is also significantly impacted by FM. A literature review of health-related quality of life (HRQoL) for FM patients found FM patients had an overall health status burden that was greater in magnitude compared to people with other specific pain conditions that are widely accepted as impairing [9].
- Current Treatment Options in China:** Medication options for FM patients in China include anti-depressants (amitriptyline, fluoxetine, duloxetine), pregabalin, cyclobenzaprine, tramadol, pramipexole, and sedatives according for the published guidelines [10]. In clinical practice, pregabalin and duloxetine are the most common prescriptions in the clinic, with pregabalin (Lyrica®) being the only medication in China approved for treatment of FM. The results from five placebo controlled randomized clinical studies have demonstrated pregabalin to be effective, safe and well tolerated at daily doses of 300mg and 450mg in patients with FM; however, the 450mg dose was rarely used in China.

Study Objective

To estimate the direct and indirect economic burden of patients with FM in China.

METHODS

- A cost-calculator was developed to estimate the direct and indirect costs of patients with FM in China. The model utilized a micro-costing approach to consider direct costs related to FM medications, medications for FM-related comorbidities, and healthcare resource utilization. FM-related comorbidities included sleep disturbances, anxiety, and depression, and healthcare resource utilization included physician visits, hospitalizations, blood tests, and radiologic tests. Indirect costs included lost wages due to FM.
- Data was sourced from physician interviews, a review of the literature, and publicly available data.
- Due to a lack of FM-related real-world data published in China, a series of physician interviews were carried out to gain an understanding of the current treatment patterns of FM patients. The survey was administered in-person to six Chinese rheumatologists and neurology physicians. All participating physicians currently had FM patients under their care.
- The physicians estimated that all diagnosed FM patients would receive treatment, regardless of severity.
- The results of the physician survey pertaining to the utilization of FM medication and medications for FM-related comorbid conditions are shown in Table 1.
- Physicians estimated patients would on average have 9.33 and 0.23 outpatient and hospitalized days per year, respectively. Blood tests and radiologic testing fees were estimated to be ¥508.33 and ¥808.33 per year, respectively.
- Unit costs for medications were sourced from the literature[11] and publicly[12-15] available data and applied to the utilization rate provided by the physicians in the survey to calculate medication costs per year.
- Indirect costs due to lost wages were calculated using a previously conducted survey in Saudi Arabia [16], which estimated the percentage of FM patients losing their job due to FM. The 2018 employment rate (males = 75.87% [17]; females = 61.26% [18]) in China and 2018 average salaries for males (¥99,571) and females [19] (¥77,964) were used to calculate potential lost wages due to FM.
- All costs are reported in 2019 Chinese Yuan (CNY).

Table 1. Medication Use

Medication	Estimate
FM Medication	
NSAIDs	25.42%
Celecoxib	84.67%
Etoricoxib	6.67%
Meloxicam	6.67%
Loxoprofen	2.00%
Chinese Medicine	18.33%
Pregabalin	67.08%
Duloxetine	43.33%
Tramadol	16.67%
Amitriptyline	13.50%
Comorbid Medications	
Anxiety Medicine	33.33%
Alprazolam	1.25%
Lorazepam	73.75%
Clonazepam	25.00%
Depression Medicine	8.75%
Venlafaxine	41.67%
Citalopram	25.00%
Flupentixol/Melitracen	30.00%
Sertraline	3.33%
Sleeping Disturbances Med.	36.67%
Lorazepam	23.75%
Olanzapine	76.25%
Source: Physician Interviews	

RESULTS

Figure 1. Per Patient Direct Costs, by Type

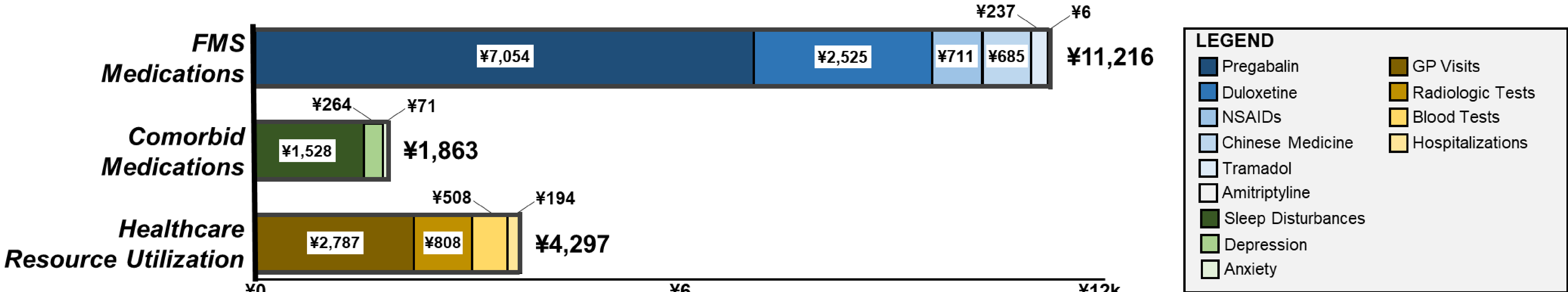


Table 2. Per Patient Direct & Indirect Costs, by Type

Cost Type	Cost (¥)
Overall total per patient cost	35,190
Total direct cost	17,377
FM-meds & treatment	11,216
pregabalin	7,054
duloxetine	2,525
NSAIDs	711
Chinese medicine	685
tramadol	237
amitriptyline	6
Comorbid Medications	1,863
sleeping disturbances	1,528
depression	264
anxiety	71
Healthcare resource use	4,297
physician visits	2,787
radiographic tests	808
blood tests	508
hospitalization	194
Total indirect cost *	17,813
* Estimated from the lost wages due to 32.7% of previously employed FM patients losing their jobs	

CONCLUSION

- Patients with fibromyalgia have a significant economic burden on the Chinese health care system.
- Medications to better control FM could potentially reduce both direct and indirect costs.

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