



# Health services utilization by fibromyalgia patients from two ethnic groups

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## Abstract

**Aim:** The cost to the healthcare system of management and treatment for fibromyalgia patients is high. The aims of the study were to identify and compare factors associated with the use of healthcare services among fibromyalgia patients in southern Israel from two ethnic groups.

**Methods:** A cross-sectional study of patients insured in the southern district of the Clalit Healthcare Services in Israel in 2019–2020. The data were collected from the central computerized system. Multivariable regression models were developed for healthcare services utilization.

**Results:** During the study period, 7686 members were diagnosed with fibromyalgia. The median for specialist consultations was 47 and for imaging tests was eight. About 47% made emergency room visits and 25% were hospitalized. The median of imaging tests was significantly higher in Jewish patients than in Arab patients (8 vs. 6;  $p = .000$ ). In contrast, a significantly higher rate of Arab patients visited the Emergency Room at least once (51.6% vs. 46.75%;  $p = .000$ ) and they had a higher median number or Emergency Room visits (2 vs. 1;  $p = .003$ ), compared with Jewish patients. In the Arab group there was a strong effect coefficient for another localized pain syndrome with specialist consultations (odds ratio [OR] 1.699; 95% confidence interval [CI] 1.266–2.241) and imaging tests (OR 2.511; 95% CI 1.496–4.146).

**Conclusions:** The utilization rate of healthcare services is high among fibromyalgia patients. The factors associated with high healthcare utilization are different in the two ethnic groups. Future studies could show if interventions designed to address modifiable factors could reduce the overutilization of healthcare services.

## KEYWORDS

associated factors, ethnic differences, fibromyalgia, use of healthcare services

## 1 | INTRODUCTION

Fibromyalgia (FM) is a common disorder with a prevalence of 2%–6% in the general population. It has a severely negative effect on daily function, quality of life, and productivity, thus engendering

high healthcare costs. A study from the USA reported that the direct costs for treatment for patients with FM are threefold that of people without FM, and the indirect costs such as loss of work days and decreased productivity are double.<sup>1</sup> The high cost of direct and indirect treatment has also been reported from other countries.<sup>2</sup> A

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study from Israel on a sample of female FM patients from one clinic showed that they used healthcare services to the same degree as patients with chronic diseases such as diabetes mellitus and hypertension.<sup>3</sup> In the medical literature, there are reports that physical and emotional comorbidity and the severity of pain are associated with the use of healthcare services in FM patients.<sup>4–8</sup>

There could be differences in the use of healthcare services and factors associated with that use among people from varying ethnic origins. In some health problems, members of ethnic minorities have less help-seeking behavior.<sup>9</sup> In contrast, minority FM patients have been reported to have more severe symptoms<sup>10</sup> and different coping strategies.<sup>11</sup> Studies have shown that ethnic minority is associated with greater use of healthcare services.<sup>6,12</sup>

Two different ethnic groups live in southern Israel. They can be distinguished in terms of genetics, culture, lifestyle, and socioeconomic status. The Jewish population, comprising 75% of the total population, follows a western lifestyle for the most part. The Arab population is a traditional Muslim community in a transitional state from nomadic lifestyle to life in permanent settlements. It is characterized by low educational and socioeconomic levels.<sup>13</sup> Despite a significant reduction in illiteracy rates and increased rates of high school graduates and higher education students among the southern Bedouins over the last 50 years, there is still a large gap in educational level between them and the Jewish population.<sup>14</sup>

In light of the high prevalence of FM and reports on high healthcare costs, with insufficient information on the factors involved, we decided to focus on this issue in the present study. The main aim was to evaluate the use of healthcare services among FM patients in southern Israel. The secondary aim was to compare the use of healthcare services and associated factors between the Jewish and Arab populations in the region.

## 2 | MATERIALS AND METHODS

The cross-sectional study was based on the database of the central computerized system of the southern district of the Clalit Healthcare Services (CHS), the largest health fund, covering over 52% of the population. The CHS provides subsidized healthcare services to its insured individuals through broad networks of primary care clinics, laboratories, imaging centers, consultancy services, and others, as required by the National Health Insurance Law.<sup>15</sup> The CHS has a validated, centralized computerized database system that contains clinical, economic, and administrative data for its entire roster of insured individuals.<sup>16</sup>

The study population comprised FM patients aged 18–90 years whose diagnosis was confirmed by a rheumatologist (International Classification of Diseases 9<sup>th</sup> revision, code 7291) before entry into the study (January 1, 2019). Patients whose diagnosis was not confirmed by a rheumatologist were not entered into the study. The study period was January 1, 2019 to December 31, 2020.

## 2.1 | Data collected

- Sociodemographic data—age, sex, ethnic group, country of birth, year of immigration to Israel, socioeconomic status (based on site of residence as listed in the database).
- Relevant chronic comorbidity—typical, localized pain syndromes including low back pain and temporomandibular pain, systemic rheumatic diseases, including rheumatoid arthritis, spondyloarthropathies, and diffuse connective tissue diseases, comorbid psychiatric conditions including depression, anxiety, and post-traumatic stress disorder, and the Charlson Comorbidity Index (CCI) score, which is used to predict annual mortality based on adjusted significant chronic comorbidity.<sup>17</sup>
- Use of recommended drugs—determined by actual purchase in the pharmacy of at least two doctor's prescriptions for one of the following drugs recommended by the Israeli Rheumatology Society and approved for use: amitriptyline, duloxetine, pregabalin, gabapentin, and milnacipran.
- Length of time, in years, since FM was diagnosed based on the amount of time that passed between the first record of the diagnosis up to January 1, 2019, the date of entry into the study.
- Use of healthcare services—specialist consultations, imaging tests, emergency room (ER) visits, and hospitalizations.
- Body mass index (BMI).

## 2.2 | Statistical analyses

Statistical analyses were conducted with the R software (version 4.0.5). Qualitative variables are presented as frequency and percentages. Continuous variables are presented as mean with standard deviation, or median with range, as appropriate. Differences in continuous variables were assessed with the *t* test or the Mann–Whitney *U* test. Differences in nominal variables were assessed with the  $\chi^2$  test or the Fisher exact test. Multivariable regression models were built for use of healthcare services for each ethnic group separately. Negative binomial models were built for the dependent variables “specialist consultations” and “use of imaging tests”, both discrete quantitative variables with variance greater than the mean. Logistic regression models were constructed for dichotomous variables (ER visits and hospitalizations) for each ethnic group.

The Ethics Committee of Clalit Health Services approved the study (approval # 0213-20-COM2), and exempted it from the requirement to obtain informed consents.

## 3 | RESULTS

### 3.1 | Background characteristics of FM patients

The patients' background characteristics are presented in [Table 1](#). During the study period the number of insured individuals in the southern district of CHS between the ages of 18 and 90 years was 513889. Of these, 7686 (1.5%) were diagnosed with FM. The mean



TABLE 1 Basic characteristics of the study population (N=7686).

Variable	Total
Age (years), mean ± SD	54.71 ± 13.80
Sex (Female), n (%)	6901 (89.79)
Ethnicity, n (%)	
Jewish	6814 (88.65)
Arab	872 (11.35)
Immigrants, n (%)	3101 (40.35)
Years since immigration to Israel, n (%)	
<5 years	17 (0.55)
5–10 years	40 (1.29)
>10 years	3044 (98.16)
Socioeconomic level, n (%)	
Low	2828 (36.79)
Middle	2486 (32.34)
High	2372 (30.86)
Disease duration (years)	
Median	7.84
IQR <sup>a</sup>	3.23–12.03
BMI (kg/m <sup>2</sup> )	
Median	28.23
IQR	(24.56–32.59)
Missing values, n (%)	562 (7.31)
Another localized pain syndrome <sup>b</sup> , n (%)	7306 (95.06)
Another rheumatic disease, n (%)	1244 (16.19)
Psychiatric comorbidity <sup>b</sup> , n (%)	4704 (61.20)
Charlson comorbidity score	
Median (IQR)	2 (1–4)
Treatment with recommended drug <sup>c</sup> (N [%])	2433 (31.6)

Abbreviations: BMI, body mass index; IQR, interquartile range; SD, standard deviation.

<sup>a</sup>Low back pain or temporomandibular pain.

<sup>b</sup>Anxiety, depression or posttraumatic stress disorder.

<sup>c</sup>At least two purchases of amitriptyline/duloxetine/pregabalin/gabapentin/milnacipran.

age of the patients was 54.7 years and close to 90% were women. The socioeconomic status of 36.8% of the patients was low, while 32.3% and 30.1% of them belonged to the middle or high socioeconomic classes, respectively. The median for duration of illness was 7.8 years and over half of the patients had a BMI  $\geq$ 28.2. In all, 95.1%, 61.2%, and 16.2% of the patients suffered from an additional pain syndrome, psychiatric comorbidity, or a rheumatic disease, respectively. The median CCI score was 2. At least one recommended drug was used by 31.65% of the patients over the course of the study.

### 3.2 | Use of healthcare services

Data on the use of healthcare services by FM patients are shown in Figure 1. Over 99% of the study population saw a specialist

consultant at least once with a median number of 47 visits among those who went to a consultant, without a significant difference between ethnic groups. Over 90% underwent at least one imaging test with a median number of eight imaging tests among those who used them. Of note, the median of imaging tests was significantly higher in Jewish patients than Arab patients (8 vs. 6;  $p = .000$ ). In contrast, a significantly higher rate of Arab patients visited the ER at least once (51.6% vs. 46.75%;  $p = .000$ ) and they had a higher median number or ER visits (2 vs. 1;  $p = .003$ ), compared with Jewish patients. Finally, the percentage of patients with at least one hospitalization was 25%, and the median number of hospitalizations among those who were hospitalized was 1, without a significant difference between the ethnic groups.

### 3.3 | Factors associated with specialist consultations

The univariate and multivariate analyses on the association between socioeconomic and clinical factors and specialist consultations are depicted in Appendix 1 and Table 2, respectively. Most of the factors showed similar associations with specialist consultations in the different ethnic groups, with male sex being a protective factor, while another localized pain syndrome, a comorbid psychiatric disorder, CCI score, and treatment with a recommended drug were estimators of risk factors. In the Jewish ethnic group alone, age (odds ratio [OR] 0.997; 95% confidence interval [CI] 0.995–0.998), duration of illness (OR 1.004; 95% CI 1.001–1.007), and a low socioeconomic status (OR 0.960; 95% CI 0.928–0.994) were associated with specialist consultations. In the Arab sector there was strong effect coefficient for another localized pain syndrome (OR=1.699; 95% CI 1.266–2.241) with specialist consultations.

### 3.4 | Factors associated with the use of imaging tests

Appendix 1 and Table 3 show the results of univariate and multivariable analyses on the association between independent variables and the use of imaging tests.

In the multivariable negative binomial models another localized pain syndrome, a psychiatric disease, CCI score, and treatment with a recommended drug were associated with the use of imaging tests among both ethnicities. In contrast, male sex and another rheumatic disease were negatively associated, and age was positively associated only in the Jewish group (OR 0.849; 95% CI 0.788–0.917, OR 0.920; 95% CI 0.866–0.977, and OR 1.003; 95% CI 1.000–1.005, respectively). BMI was positively associated with imaging test performance only in the Arab group (OR 1.013; 95% CI 1.002–1.024). Again, in the Arab sector, there was strong effect coefficient for another localized pain syndrome (OR 2.511; 95% CI 1.496–4.146) with the use of imaging tests.

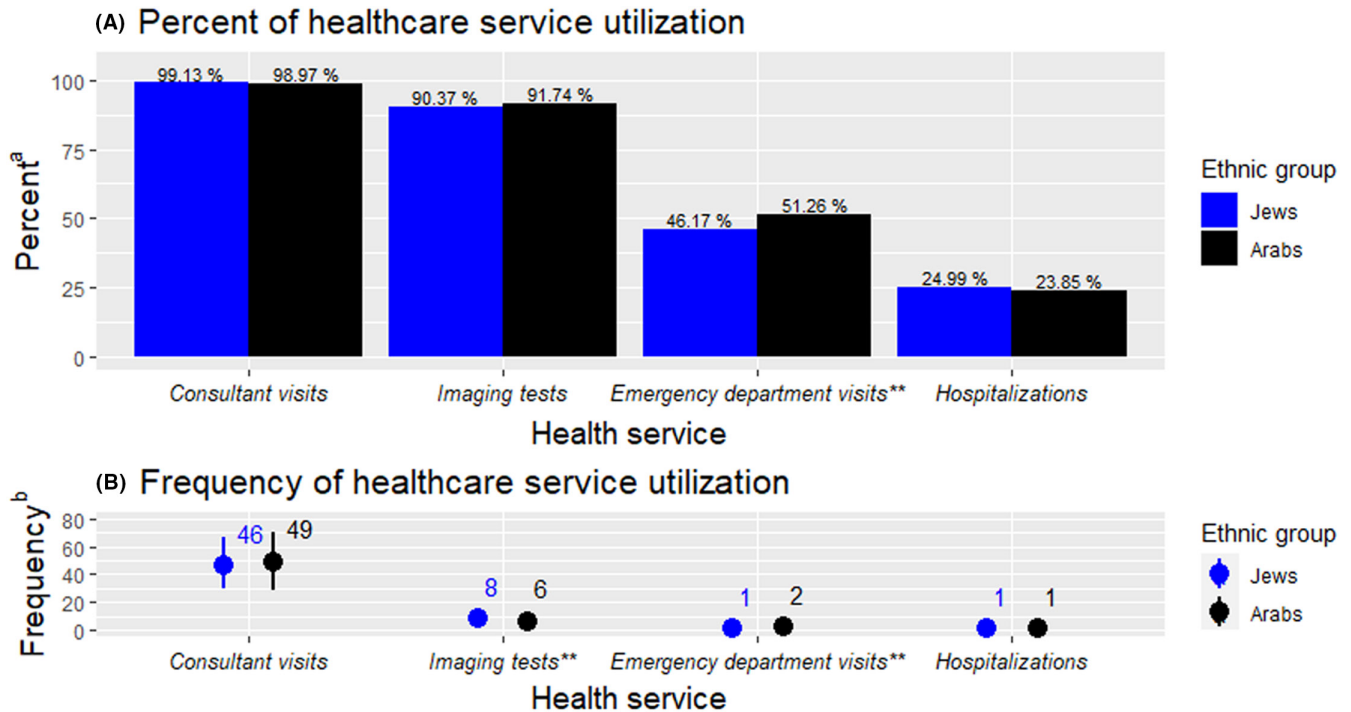


FIGURE 1 Healthcare services utilization by fibromyalgia patients. <sup>a</sup>Used at least once during study period; <sup>b</sup>median (interquartile range) among those who used the service. \*\*\* $p = .000$ ; \*\* $p < .01$ ; \* $p < 0.05$ ;  $\chi^2$  test used in (A), Mann-Whitney test used in (B).

Variable	Jewish ethnicity		Arab ethnicity	
	OR	95% CI	OR	95% CI
Age	0.997***	0.995–0.998	0.997	0.992–1.002
Sex (male)	0.912***	0.870–0.957	0.783***	0.691–0.891
Socioeconomic level				
High (reference)				
Middle	0.991	0.959–1.025	0.887	0.722–1.100
Low	0.960*	0.928–0.994	1.049	0.959–1.146
Disease duration	1.004*	1.001–1.007	1.002	0.994–1.010
Another localized pain syndrome	1.293***	1.211–1.380	1.699***	1.266–2.241
Psychiatric comorbidity	1.138***	1.106–1.171	1.232***	1.135–1.335
Charlson score	1.091***	1.082–1.101	1.113***	1.081–1.147
Treatment with a recommended drug	1.217***	1.182–1.254	1.294***	1.195–1.401

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>Negative binomial regression.

<sup>b</sup>Adjusted for body mass index and another rheumatic disease, both insignificant in multivariable models for both ethnicities.

\*\*\* $< 0.001$ ; \* $< 0.05$ .

TABLE 2 Factors associated with specialist consultations among fibromyalgia patients from two ethnic groups.<sup>a,b</sup>

### 3.5 | Univariate analyses and multivariate analyses for ER visits and hospitalizations

Appendix 1 shows the results of univariate analyses for ER visits and hospitalizations. Table 4 shows the results of multivariable logistic models for ER visits in each ethnic group separately.

Psychiatric disease and CCI score were risk factors for ER visits in both ethnic groups. In contrast, age (OR 0.968; 95% CI 0.962–0.973) was negatively associated with ER visits only in the Jewish ethnic group, and middle compared with high socioeconomic status (OR 0.342; 95% CI 0.148–0.753) only in Arabs. Another localized pain syndrome (OR 1.813; 95% CI 1.413–2.339), and

**TABLE 3** Factors associated with the use of imaging tests among fibromyalgia patients from two ethnic groups.<sup>a,b</sup>

Variable	Jewish ethnicity		Arab ethnicity	
	OR	95% CI	OR	95% CI
Age	1.003*	1.000–1.005	0.997	0.989–1.005
Sex (male)	0.849***	0.788–0.917	0.848	0.694–1.043
Body mass index	0.999	0.995–1.002	1.013*	1.002–1.024
Another localized pain syndrome	1.346***	1.209–1.496	2.511***	1.496–4.146
Another rheumatic disease	0.920**	0.866–0.977	0.928	0.778–1.111
Psychiatric comorbidity	1.075**	1.027–1.125	1.333***	1.172–1.515
Charlson score	1.075***	1.027–1.125	1.169***	1.117–1.225
Treatment with a recommended drug	1.248***	1.191–1.308	1.205**	1.064–1.368

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>Negative binomial regression.

<sup>b</sup>Adjusted for socioeconomic level and disease duration, both insignificant in multivariable models for both ethnicities.

\*\*\*<0.001.; \*\*<0.01.; \*<0.05.

**TABLE 4** Factors associated with emergency room visits among fibromyalgia patients from two ethnic groups.<sup>a,b</sup>

Variable	Jewish ethnicity		Arab ethnicity	
	OR	95% CI	OR	95% CI
Age	0.968***	0.962–0.973	0.983	0.964–1.002
Socioeconomic level				
High (reference)				
Middle	1.111	0.981–1.257	0.342**	0.148–0.753
Low	1.009	0.889–1.146	0.784	0.563–1.090
Another localized pain syndrome	1.813***	1.413–2.339	2.302	0.818–7.482
Psychiatric comorbidity	1.474***	1.326–1.640	1.678***	1.249–2.259
Charlson score	1.207***	1.168–1.249	1.207**	1.079–1.355
Treatment with a recommended drug	1.151*	1.031–1.286	0.934	0.695–1.255

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>Logistic regression.

<sup>b</sup>Adjusted for sex, disease duration, another rheumatic disease, and body mass index, all insignificant in multivariable models for both ethnicities.

\*\*\*<0.001.; \*\*<0.01.; \*<0.05.

treatment with a recommended drug (OR 1.151; 95% CI 1.031–1.286) were associated with an increased number of ER visits in the Jewish group alone.

Table 5 shows the results of multivariable analyses for hospitalizations. For both ethnicities a psychiatric disease, and CCI score were associated with hospitalizations. Male sex was associated with an increased use (OR 2.430; 95% CI 1.456–4.019) in the Arab group alone. Age was an estimated protective factor (OR 0.986; 95% CI 0.980–0.993), and a middle, compared with a high, socioeconomic status, and treatment with a recommended drug was an estimated risk factor for hospital admissions in the Jewish group only (OR 1.173; 95% CI 1.015–1.358, and OR 1.175; 95% CI 1.036–1.332, respectively).

## 4 | DISCUSSION

The Arab population comprised about 11% of our sample, but it represents 25% of the population of southern Israel. This underrepresentation of the Arab population in our sample points to the underdiagnosis of FM. A possible explanation could be a lower degree of understanding of patients' complaints by the medical team. Lower educational and socioeconomic levels can lead to lower help-seeking behavior, which can also contribute to underdiagnosis.

The findings of this study demonstrate a substantial use of health-care services among FM patients. This is particularly striking for specialist consultations with over 99% having seen a specialist at least once during the study period (median 47 visits). Similar rates were



TABLE 5 Factors associated with hospital admissions among fibromyalgia patients from two ethnic groups.<sup>a,b</sup>

Variable	Jewish ethnicity		Arab ethnicity	
	OR	95% CI	OR	95% CI
Age	0.986***	0.980–0.993	0.990	0.968–1.013
Sex (male)	1.187	0.973–1.444	2.430***	1.456–4.019
Socioeconomic level				
High (reference)				
Middle	1.173*	1.015–1.358	0.994	0.396–2.327
Low	1.115	0.961–1.295	0.929	0.637–1.365
Body mass index	1.011*	1.001–1.021	1.023	0.994–1.053
Psychiatric comorbidity	1.286***	1.134–1.460	1.498*	1.054–2.143
Charlson score	1.341***	1.293–1.391	1.334***	1.184–1.509
Treatment with a recommended drug	1.175*	1.036–1.332	0.979	0.693–1.379

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>a</sup>Logistic regression.

<sup>b</sup>Adjusted for disease duration, another localized pain syndrome, and another rheumatic disease, all insignificant in multivariable models for both ethnicities.

\*\*\*<0.001.; \*<0.05.

reported in studies from the USA with about 88% going to a community physicians over a year with a mean of 14–40 visits.<sup>6,18–21</sup> Several studies found that the rate is even higher after the patients were diagnosed with FM than before.<sup>19,22</sup> A single study, that evaluated imaging tests among FM patients reported a rate of about 13% over a year.<sup>6</sup> The rate was much higher in our study at 90% with a median of eight tests over a period of 2 years. In terms of hospitalization, the published rates range between 12% and 15% over the course of a year,<sup>6,18,19</sup> which is similar to the rate of 25% that we found over a 2-year period. The rate of ER visits in this study is also similar to rates reported in the literature.<sup>6,18,19</sup> This high rate of healthcare utilization explains the high cost of FM patients to the healthcare system, which is much higher than that of individuals in the general population without FM,<sup>23</sup> in patients with chronic pain from other causes,<sup>24,25</sup> and in patients with chronic fatigue syndrome,<sup>25</sup> and similar to that of patients with inflammatory rheumatological diseases.<sup>26</sup> Two main findings on the differences in healthcare services utilization among FM patients are remarkable. The first is that Arab patients with FM used imaging studies less frequently. We could not identify any other study that dealt with ethnic differences in the use of imaging studies among FM patients, but a few studies that looked at differences in the use of imaging studies in general, found decreased or inappropriate use of diagnostic imaging among minority patients across a wide variety of clinical settings.<sup>27,28</sup> The second important finding is that a higher percentage of Arab patients with FM visited the ED, and among those who did, the frequency of visits was higher. Again, no previous studies have examined ethnic/racial differences in ED visits among FM patients, but several studies looked at ethnic differences in ED visits for specific conditions, and in general. They showed that non-Hispanic black patients and Hispanic patients had higher ED use rates than white patients overall and among subgroups by demographics and socioeconomic

status.<sup>29–31</sup> In contrast, we found no statistically significant differences in specialist consultations, either in the proportion of patients who visited consultants, or in the frequency of visits. Previous reports in the literature on the issue of specialist consultations did not reveal a consistent pattern, based on the country of research and/or patient population.<sup>32–34</sup> Thus the differences in healthcare service utilization among fibromyalgia patients does not seem to be unique to the disease, but to follow patterns already reported in other medical conditions. In our study, comorbid psychiatric disease (depression, anxiety, and post-traumatic stress disorder) and suffering from another localized pain syndrome were associated with increased use of all types of healthcare services, besides hospitalizations. Taking recommended drugs did not reduce the use of healthcare services, but actually increased it significantly. One possible explanation for this finding is that FM patients who take recommended medication have more severe symptoms. Indeed, a study<sup>7</sup> showed that symptom severity was associated with the use of healthcare services and the cost of treatment in FM patients.

Many investigators who studied these issues did not distinguish among different types of healthcare services, but lumped them together as one single variable. One study<sup>6</sup> showed that Afro-American origin, low back pain, comorbid psychiatric conditions, and a comorbid rheumatic disease were associated with increased healthcare utilization. The results of other studies<sup>4,8</sup> confirmed that physical and psychological comorbidity predict the extent of use of healthcare services in FM patients. The categorization of healthcare services into separate types in this study enabled us to identify unique factors associated with each type of service and the strength of their associations. For example, suffering from another localized pain syndrome was associated with all the healthcare services except hospitalization, whereas BMI was associated with imaging tests use and hospitalizations only.





This is the first study to identify typical factors that are relevant for each group. Thus, the effect of a comorbid psychiatric condition was stronger in the Arab group than in the Jewish group for all types of healthcare services. Male sex was a significant protective factor for the use of specialist consultations and imaging tests in the Jewish group. In the Arab group, male sex was protective in relation to specialist consultations, but increased the rate of hospitalizations. An association was seen between taking recommended drugs and ED visits and hospitalizations in the Jewish group, but not in the Arab group. This differentiation can help to direct the efforts of medical teams to address the factors that are unique for each type of healthcare service in each ethnic group.

#### 4.1 | Study limitations

The inclusion of FM patients only if the diagnosis was confirmed by a rheumatologist eliminated overdiagnosis, but apparently reduced the size of the study population. It is possible that this selected population may not be representative of all FM patients as some of those not included in the study may not have consulted with a rheumatologist or may make less use of healthcare services. This potential selection bias could lead to a false increase in the measures of association, especially for patients from the Arab ethnicity. Due to the lower availability of rheumatologists in southern Israel, some of the patients may have seen rheumatologists in a private clinic, so were not included in the study population. This could affect the representativeness of the study population in terms of its socioeconomic status over-selecting the low socioeconomic level and influencing the use of healthcare services. The sample of Arab patients who were diagnosed with FM was relatively small. It is possible that only those with high help-seeking behavior or more severe symptoms were diagnosed, which could selectively increase the measures of association in this population.

Another limitation is potential inaccuracies and missing data relating to the recording of diagnoses in the computerized medical records, a typical problem in studies based on medical databases. Data could have been collected using personal interviews or questionnaires on factors that could affect the use of healthcare services such as symptom severity, cognitive and behavioral indices, self-assessment of health, and coping skills, but are not available in a study such as the present one.

## 5 | CONCLUSIONS

The present study is the first to identify factors associated with the use of healthcare services among FM patients in each ethnic group separately. The findings indicate a high rate of healthcare utilization by FM patients. The positive association between the use of recommended drugs and the use of healthcare services in both ethnic groups may point to the lack of effectiveness of these drugs and emphasizes the urgent need to develop and implement more

effective treatment approaches. Some factors that were associated with increased use of healthcare services among FM patients are potentially modifiable. The effect of the different factors was different in the two ethnic groups. The findings of this study can help medical staff to direct their therapeutic efforts to those factors that are unique to each ethnicity. Future studies can show whether addressing modifiable risk factors can reduce the substantial use of healthcare services.

#### AUTHOR CONTRIBUTIONS

YTG took part in conceptualization and data curation of the study. She carried out statistical analysis and wrote the original draft. RP took part in conceptualization and data curation of the study. He approved the final version of the manuscript. IS took part in conceptualization and data curation of the study. He made important improvements in the initial draft and approved the final version of the manuscript. IM took part in the conceptualization and data curation of the study. He supervised the whole process, took part in the statistical analysis and approved the final version of the manuscript.

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None.

#### CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from "Clalit Health Services". Restrictions apply to the availability of these data, which were used under license for this study. Data are available from YTG with the permission of "Clalit Health Services".

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## APPENDIX 1

## Univariate analysis for healthcare services utilization among fibromyalgia patients.

Variable	Test	p
<b>Specialist consultations</b>		
Age	Spearman correlation	.000
Sex (male/female)	Mann-Whitney	.000
Socioeconomic level (low/middle/high)	Kruskal-Wallis	.302
Disease duration	Spearman correlation	.000
Body mass index	Spearman correlation	.000
Another localized pain syndrome (yes/no)	Mann-Whitney	.000
Another rheumatic disease (yes/no)	Mann-Whitney	.000
Psychiatric comorbidity (yes/no)	Mann-Whitney	.000
Charlson score	Spearman correlation	.000
Treatment with a recommended drug (yes/no)	Mann-Whitney	.000
<b>Imaging tests</b>		
Age	Spearman correlation	.000
Sex (male/female)	Mann-Whitney	.000
Socioeconomic level (low/middle/high)	Kruskal-Wallis	.039
Disease duration	Spearman correlation	.000
Body mass index	Spearman correlation	.000
Another localized pain syndrome (yes/no)	Mann-Whitney	.000
Another rheumatic disease (yes/no)	Mann-Whitney	.000
Psychiatric comorbidity (yes/no)	Mann-Whitney	.000
Charlson score	Spearman correlation	.000
Treatment with a recommended drug (yes/no)	Mann-Whitney	.000
<b>Emergency room visits</b>		
Age	t-test	.000
Sex (male/female)	Chi square	.573
Socioeconomic level (low/middle/high)	Chi square	.160
Disease duration	Mann-Whitney	.000
Body mass index	Mann-Whitney	.000
Another localized pain syndrome (yes/no)	Chi square	.000
Another rheumatic disease (yes/no)	Chi square	.002
Psychiatric comorbidity (yes/no)	Chi square	.000
Charlson score	Mann-Whitney	.000
Treatment with a recommended drug (yes/no)	Chi square	.000
<b>Hospital admissions</b>		
Age	t-test	.000
Sex (male/female)	Chi square	.027
Socioeconomic level (low/middle/high)	Chi square	.025
Disease duration	Mann-Whitney	.000
Body mass index	Mann-Whitney	.000
Another localized pain syndrome (yes/no)	Chi square	.000
Rheumatic disease (yes/no)	Chi square	.000
Psychiatric comorbidity (yes/no)	Chi square	.000
Charlson score	Mann-Whitney	.000
Treatment with a recommended drug (yes/no)	Chi square	.000