

# Arthritis Management and Rehabilitation Opportunities in the Metropolitan and Rural Areas of Puerto Rico

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## ABSTRACT

Approximately 3.1 million Hispanics in the United States are affected by arthritis. In Puerto Rico approximately 1 in every 4 adults reports symptoms of arthritis. Currently, there is limited information around the critical factors that play a part in the progression and management of this disease in the Puerto Rican community. The purpose of this study was to establish and identify the factors that interfered with rehabilitation center usage as treatment management and to shed insight into the main management tools used by such patients comparing the conditions between the rural and metropolitan areas in Puerto Rico. During this study, an arthritis questionnaire was developed by the authors and administered during primary care health clinics in order to evaluate contributing factors such as social support, financial status, education about treatment options, and access to rehabilitation centers. Additionally, the questionnaire was used to establish the population diagnosed with arthritis in Puerto Rico taking into consideration age, gender, treatments used and occupation. Results show that contrary to our hypothesis, inadequate education provided about treatment options and financial burden were the main reasons for non-usage of rehabilitation centers in both the metropolitan and rural zones; these findings are independent of patients reported mild to much improvement of symptoms after using rehabilitation services. Physiatrists must understand these factors so that their leadership and advocacy skills are better focused in educating the Hispanic population, health care workers, and the medical community. These efforts should lead to the truly wanted outcomes of timely interventions, symptoms improvement, and a partnered interdisciplinary approach to arthritis treatments.

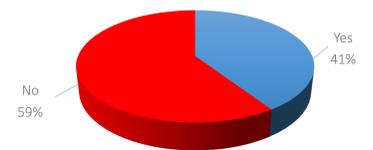
## INTRODUCTION

- Arthritis is considered one of the leading causes of disability in the U.S with approximately 91.2 million adults presenting with symptoms resembling arthritis or are diagnosed. Around 64% being younger than 65 years old<sup>1</sup>.
- In 2011, the CDC reported that approximately 3.1 million Hispanics in the United States were affected by arthritis. The following year, the amount increased to 4 million.
- Due to the prevalence of arthritis in Hispanics, an analysis of data recollected during 2018-2019 with Medicina Urbana was done. In a total of 1288 patients, 352 were diagnosed with arthritis.
- In general, there was approximately a 30% prevalence rate of arthritis from the data analyzed. When divided between the metropolitan area and the rural area, it was determined that in comparison to the metropolitan area, the rural cities had a higher prevalence of arthritis by a 62% margin, specifically in women with 73% in comparison to men with a 26% prevalence rate.
- In Puerto Rico, a study by *Medicina y Salud Pública* showed that Puerto Rican arthritis patients require Spanish educational material about arthritis, instruments to monitor symptoms, and investigation<sup>2</sup>

## METHODS

- A cross-sectional study was done with 226 Puerto Rican patients in total with 167 females and 59 males participating in the study. Metropolitan area had 85 females and 27 males. In the Rural area, we had 82 females and 32 males.
- Participants were chosen based on; doctor-diagnosed arthritis/ reported joint symptoms, patients 21 years and older capable of consenting or accompanied by a proxy when attending Medicina Urbana health fairs.
- Due to the COVID-19 effect on clinical health fairs provided by Medicina Urbana, the patient acquisition and interviews were conducted through the phone/facetime/zoom in order to maintain social distancing protocols and limit student-patient interaction.
- The Arthritis Questionnaire developed focused on establishing the population of arthritis in Puerto Rico considering age, gender, management, rehabilitation accessibility, and rehabilitation status considering factors such as economy, education, and location.

### Overall Use of Rehabilitation Centers



### Metropolitan vs. Rural Use of Rehabilitation Therapy Center

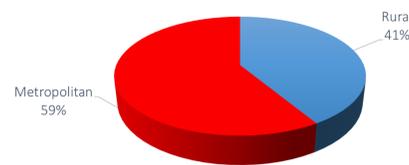
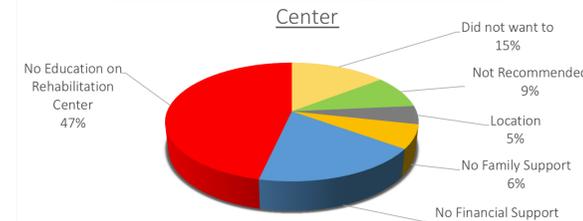
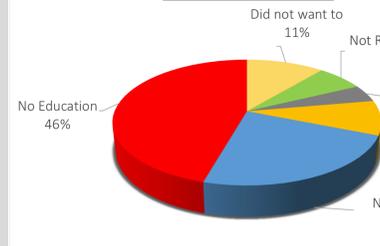


Fig.1 A. Patient Use of Rehabilitation Therapy Center. A. Overall use of rehabilitation centers B. Metropolitan vs Rural Use of Rehabilitation Centers.

### Overall reasons for not using Rehabilitation Center



### Metropolitan Area



### Rural Area

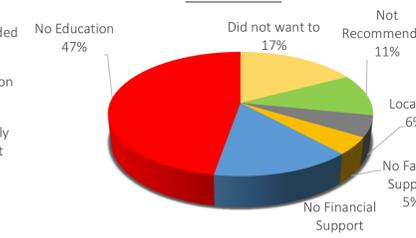


Fig. 2 A. Overall Reason for Not Using Therapy or Rehabilitation Center. B. Metropolitan Area Reason for Not Using Therapy or Rehabilitation Center. C. Rural Area Reason for Not Using Therapy or Rehabilitation Center.

### Rehabilitation Therapy Associated Symptomatic Improvement

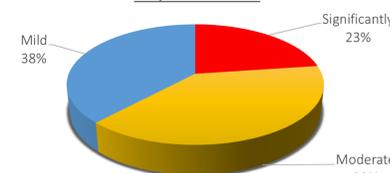


Fig.3 Overall Rehabilitation Therapy Associated Symptomatic Improvement

## RESULTS

- Overall females dominated with 75.7% (metropolitan area) and 71.3% (rural area) respectively.
- The most common age group associated with arthritis was 60-69 years old in the overall population, followed by the 70-79 years and 50-59 years age group.
- Among the Puerto Rican population osteoarthritis was the most common manifestation of arthritis found with 55.7% in both females and males. Results state the hands, knees and hip were commonly affected body parts with a moderate severity in 43.5%.
- The focus of the study was to understand the number of patients using rehabilitation centers as a treatment option for arthritis. The overall population stated that 59.3% did not use rehabilitation centers. In the metropolitan area 51.4% indicated not using a rehabilitation center which was less in comparison to 67.0% of patients in the rural zone. (Figure 1 A,B).
- We found the main reasons overall were lack of education with 46.5% and financial reasons 18.5%, also seen in both the metropolitan and rural areas. (Figure 2A).
- Overall, most of the patients that used rehabilitation therapy centers reported a moderate- significant improvement of symptoms (Figure 3A).

## DISCUSSION

- Our findings show an underwhelming number of patients using rehabilitation centers for Arthritis treatment despite previous evidence where it has shown to provide mild to moderate pain relief, decreasing pain levels and improving quality of life.
- 46.5% of patients expressed a lack of education from their physicians, followed by a 18.5% expressing financial difficulties contrary to our original hypothesis, where location and financial support would be the primary influential factors.
- Based on our results, the main problem in both the rural and metropolitan area was a gap in the education of patients in terms of treatment options, in terms of rehabilitation center usage and disease progression.
- Studies show that patient education can help them understand their disease, treatment options, and can contribute actively to their progression by promoting treatment adherence and decrease progression.
- An increase in physician-patient education would provide more treatment options for the patient, a better understanding of their condition, and an improvement in their quality of life. The education provided to patients can come from students at all academic levels such as medical school, residency programs such as Internal Medicine, Orthopedic, Rheumatology, and PM&R, as well as from graduated physicians.

## ACKNOWLEDGMENTS

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## REFERENCES

- Arthritis Foundation. (2018) "Arthritis by the numbers: Book of trusted facts and figures". Vol 2
- Medicina y Salud Publica. Artritis en Puerto Rico (2019). Agencia Latina de Noticias, Medicina y Salud Publica. Revista Medicina y Salud Publica. Grupo Editorial Mundo
- Martinuzzi S, Gould W, Ramos Gonzalez O, Quinones M. (2008) Uso de Terreno Urbano y Rural en Puerto Rico. Research Map. Departamento de agricultura de los Estados Unidos. <https://www.fs.usda.gov/treesearch/pubs/47819>
- Szewczyk, D., Sadura-Sieklucka, T., Sokolowska, B. et al. (2020) Improving the quality of life of patients with rheumatoid arthritis after rehabilitation irrespective of the level of disease activity. *Rheumatol Int* <https://doi.org/10.1007/s00296-020-04711-4>