

# Evaluation of Therapeutic Adherence in Patients Suffering from Chronic Inflammatory Rheumatism in the Rheumatology Wards of Lomé (Togo)

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## Abstract

**Objectives:** Therapeutic compliance can be defined as the degree of adequacy between a patient's behaviour and his doctor's recommendations. Non-adherence to treatment has serious consequences in terms of morbidity and mortality. Our aim was to assess adherence among patients treated for chronic inflammatory rheumatism in Lomé. **Patients and Methods:** This was a multicentre cross-sectional study conducted from January 2015 to December 2021. Patients aged 18 years or older, treated in the rheumatology departments of the Sylvanus Olympio University Hospital or the Bè Hospital during the study period, were included if they were diagnosed with chronic inflammatory rheumatism and started on disease-modifying therapy. Adherence was assessed using the Compliance Questionnaire Rheumatology 19 questionnaire, with a threshold for good compliance set at 80%. **Results:** Out of 13,214 patients received, 159 suffered from chronic inflammatory rheumatism (hospital frequency 1.5%), and 60 met the inclusion criteria for our study. There were 55 women (91.7%) and 5 men (8.3%), giving a sex-ratio of 1/11. The mean age was  $49.5 \pm 13.5$  years (extremes: 19 and 78 years). Rheumatoid arthritis (68.3%) was the most common rheumatic disease, followed by undefined rheumatic diseases (16.6%) and spondyloarthritis (8.3%). Average compliance with treatment was  $76.9\% \pm 12.4\%$  (extremes 29.8 and 91.2). There was no statistically significant difference according to the type of rheumatism. **Conclusion:** Overall compliance was poor, with a Compliance Questionnaire Rheumatology 19 of less than 80%. It was non-significantly influenced by so-

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socioeconomic status, disease severity and duration of progression.

## Keywords

Therapeutic Adherence, Non-Adherence, Chronic Inflammatory Rheumatism, Black Africa

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## 1. Introduction

Therapeutic adherence can be defined as the degree of adequacy between the patient's behavior and the recommendations of his doctor [1]. In rheumatology, compliance with basic treatments for chronic inflammatory rheumatism (CIR) is on average between 40% and 80% [2] [3]. Numerous factors can influence compliance, including patient characteristics, the specific features of the disease, treatment methods, the attitudes of the doctor and the specific features of the healthcare system [4]. Non-adherence to treatment has serious consequences in terms of morbidity and mortality. Indeed, non-adherence with a treatment can lead to the conclusion that it is ineffective, lead to an increase in the latter and thereby risk adverse effects, thus increasing morbidity and mortality. From a financial point of view, the suspicion of ineffective treatment can lead to unnecessary additional investigations or even hospitalizations, which are costly to society [5]. The World Health Organization (WHO) concluded in a report that improving patient adherence to chronic treatment should prove more beneficial than any biomedical discovery [6]. Our study, the first of its kind in rheumatology in Togo, aimed to assess the therapeutic compliance of patients treated for chronic inflammatory rheumatism in Lomé (Togo).

## 2. Patients and Method

This was a multicenter cross-sectional study conducted from January 2015 to December 2021, in the rheumatology departments of the CHU Sylvanus Olympio (the largest health facility in Togo), and the Bè hospital (reference hospital of the commune of the Gulf prefectural health district). Included were patients, aged 18 or over, cared for in one of the two rheumatology departments during the study period, put on disease-modifying treatment for a CIR, and who agreed to participate in the study. The following were not included in our study: patients who refused to participate in our study, patients whose telephone numbers were not in their records or did not work. The following were excluded from our study: patients who were not on disease-modifying therapy, patients suffering from other rheumatic conditions. Data collection was carried out using a questionnaire which included:

- sociodemographic data (age, sex, marital status, level of education);
- socio-economic level (salary, housing, available water and electricity, health coverage);
- clinical data (type of CIR, duration of progression, treatment, comorbidities);

- data on compliance (reason for changing or stopping treatment, cost of treatment, doctor's explanations, perceived severity of the disease, CQR19 questionnaire).

Sociodemographic and clinical data were obtained by consulting patient records. We collected data on socio-economic level and compliance through a telephone interview with patients.

The Guaranteed Interprofessional Minimum Wage (GIMW) in Togo during the study was US\$57.45 and we considered three different income groups. The first group (low level patients) consisted of patients who earned less than the GMW. The second group (average level) consisted of patients who were earning between one to five times the GMW. The third group (high level) consisted of patients that were earning more than five times the GMW. Disease severity was assessed on the basis of a subjective self-rating by the patient on a scale of zero to ten (zero: mild disease, ten: very severe disease). The disease was considered mild for a value less than 3, moderately severe for a value greater than or equal to 3 and less than 7, very severe for a value greater than or equal to 7. The spondyloarthritis met the Amor criteria [7]. Patients with RA met the ACR/EULAR 2010 criteria [8]. Patients with systemic lupus erythematosus (SLE) met the ACR criteria of 1982 modified in 1997 [9]. The ACR/EULAR criteria for systemic sclerosis (SSc) were used as diagnostic criteria for SSc [10]. Juvenile idiopathic arthritis (JIA) met the ILAR criteria [11]. There are no international criteria for the diagnosis of sarcoidosis. The diagnosis was based on three elements: suggestive clinical and radiological signs, the presence of tuberculoid granulomas without caseous necrosis, and the elimination of other granulomatoses [12]. Patients who did not meet these different criteria were classified as unclassified chronic inflammatory rheumatism (UCIR). Clinical data was collected based on patient records. Therapeutic compliance was assessed using the Compliance Questionnaire Rheumatology CQR 19 [13], administered during a telephone interview, with a threshold for good compliance set at 80%. Data were entered using Epidata 3.1 software. The database thus formed was analyzed with Microsoft Excel 2019 software and R 4.0.4 software in the RStudio 1.4 environment. Quantitative variables were described as means  $\pm$  standard deviation, and were compared using the Student or Anova test. Qualitative variables were described in numbers and percentages, and were compared using Chi2 or Fisher tests. The significance threshold was set at a p value strictly less than 0.05. The agreement of the Bioethics Committee for Health Research has been obtained.

### 3. Results

#### 3.1. Socio-Demographic Data

During the study period, 13,214 patients were admitted to the two rheumatology departments, of which 159 suffered from CIR, *i.e.* a hospital frequency of 1.5%. Of the 159 patients, 60 met the inclusion criteria for our study. There were 55 women (91.7%) and five men (8.3%), *i.e.* a sex ratio of 0.09. The mean age was  $49.5 \pm 13.5$  years (extremes: 19 and 78 years). The socio-demographic data are

summarized in **Table 1**. Forty-one patients (68.3%) had health insurance.

### 3.2. Clinical and Therapeutic Data

Rheumatoid arthritis (RA) accounted for 68.3% of CIR (**Table 2**). The average duration of disease progression was  $67.02 \pm 47.4$  months with extremes of 08 and 264 months. Twelve patients (20.0%) found the disease mild, 35 (58.3%) found it moderate in severity, and 13 patients (21.7%) found the disease severe. Twenty-one patients (35%) had a comorbidity. It was high blood pressure in 52.4% of cases, sickle cell disease in 23.8% of cases, and diabetes in 23.8% of cases. As disease-modifying drugs, methotrexate represented 57 patients (95.0%), sulfasalazine one patient (1.7%). Symptomatic treatment was represented by prednisone in 55 patients (91.7%) and non-steroidal anti-inflammatory drugs in five patients (8.3%).

**Table 1.** Distribution of patients according to marital status, level of education and socioeconomic level.

	Number (percentage)
Married	35 (58.3)
Single	14 (23.3)
Widowed	9 (15.0)
Divorced	2 (3.3)
No Education	11 (18.3)
Primary	5 (8.3)
Secondary	34 (56.7)
Academic	10 (16.7)
Socio-economic level	
- Low	32 (53.3)
- Medium	21 (35.0)
- High	7 (11.7)

**Table 2.** Distribution of patients according to the type of chronic inflammatory rheumatism.

	Number (percentage)
Rheumatoid arthritis	41 (68.3)
Inflammatory arthritis unclassified	10 (16.6)
Spondyloarthritis	5 (8.3)
Systemic Lupus Erythematosus	1 (1.7)
Scléroderma	1(1.7)
Juvenile Idiopathic Arthritis	1(1.7)
Sarcoïdosis	1(1.7)

### 3.3. Data Concerning Therapeutic Adherence

Twenty-seven patients (45%) stopped their treatment. These were all drugs in 19 patients (70.4%) and some drugs (methotrexate or prednisone) in eight patients (29.6%). Twenty-one patients (77.8%) stopped the drugs on their own initiative, and in six patients (22.2%) the decision came from the doctor. Poverty (six cases, 22.2%) and the improvement of the clinical state (six cases, 22.2%) were the main reasons for stopping the treatment (Table 3). The monthly cost of treatment for CIR represented on average 38.8% of the GIMW, and that of comorbidities 59.2% of the GIMW. Fifty-five patients (91.7%) claimed to have received information about their treatment from the doctor. But only 19 patients (31.7%) knew about possible side effects and how to manage them (Table 4). Fifty-four patients (90%) say they had an appointment control. According to the CQR, the mean therapeutic compliance was  $76.9\% \pm 12.4\%$  (range 29.8 and 91.2). It was good in 32 patients (53.3%) with a CQR score greater than 80% ( $p = 0.4751$ ). Adherence was not influenced by the perceived severity of the disease ( $p = 0.064$ ). However, it was better when the perceived severity was average. Therapeutic compliance was better in patients with a high socioeconomic level. But the result was not significant ( $p = 0.438$ ) (Table 5). Adherence was good in Juvenile Idiopathic Arthritis and Scléroderma. This result was not significant (Table 6). Compliance was good the first three years, then the CQR decreased over time. There was no statistical link between the duration of evolution and compliance ( $p = 0.366$ ).

**Table 3.** Distribution of patients according to reasons for stopping treatment.

	Number	Percentage
Lack of money	6	22.2
Improvement in clinical condition	6	22.2
Lack of availability	4	14.8
Tired of taking medication	4	14.8
Desire for pregnancy	3	11.1
Adverse effects	1	3.7
Surgery	1	3.7
Inefficiency	1	3.7
Bleeding	1	3.7

**Table 4.** Explanations of the doctor in relation to the treatment.

Did the doctor tell you	Number	Percentage
<b>To read the prescription?</b>		
Yes	38	63.3
No	22	36.7
<b>Explain the medication that would heal really your disease?</b>		
Yes	32	53.3
No	28	46.7

## Continued

Explain how this medication should be taken?		
Yes	55	91.7
No	5	8.3
Explain the side effects possible and how to manage them?		
No	41	68.3
Yes	19	31.7
Explain how to recognize that the treatment was effective?		
No	47	78.3
Yes	13	21.7
Explain the duration before the effectiveness of the drug would be felt?		
No	47	78.3
Yes	13	21.7
Explain after how many times to return for a check?		
Yes	54	90
No	6	10

**Table 5.** Adherence according to socio-economic level.

CQR	Socio-economic level				p
	Low	Medium	High	Total	
Average	77.0	78.9	80.7	78.1	0.438
Standard deviation	11.8	9.3	7.3	10.5	

**Table 6.** Adherence according to the type of chronic inflammatory rheumatism.

	CQR	
	Mean $\pm$ SD*	p
Juvenile Idiopathic Arthritis	82.5	0.436
Systemic lupus erythematosus	77.2	
Rheumatoid arthritis	77.8 $\pm$ 13	
Unclassified chronic inflammatory rheumatism	73.7 $\pm$ 13.9	
Sarcoïdosis	61.4	
Sclérodéma	80.7	
Spondylarthrititis	77.2 $\pm$ 5.4	

SD\*: standard deviation.

## 4. Discussion

### 4.1. Main Results

Our study focused on therapeutic adherence during CIR. Sixty patients were included. It was a majority of women (91.7%) with an average age of  $49.5 \pm 13.5$

years. Rheumatoid arthritis (68.3%), unclassified inflammatory rheumatism (16.6%), and spondyloarthritis (8.3%) were the most represented rheumatisms. Mean therapeutic compliance was  $76.9\% \pm 12.4\%$  (range 29.8 and 91.2). It was good in 32 patients (53.3%) with a CQR score greater than 80%. There was no statistically significant difference according to the type of rheumatism. This study shows that therapeutic compliance is better in patients with a high socio-economic level and in patients with an average perceived severity of the disease. Therapeutic compliance decreases over time.

## 4.2. Results Limitations

The rigorous interpretation of our results requires taking into account the shortcomings related to recruitment bias and the narrowness of the technical platform. This is a hospital study conducted in an urban setting, which only took into account consultants from two rheumatology departments, which makes it difficult to generalize the results. The narrowness of the technical platform (unavailability of the autoimmune assessment) explains the high proportion of unclassified inflammatory rheumatism. The low number of patients explains the lack of power of the study, which did not make it possible to identify the determinants of compliance.

## 4.3. Socio-Demographic Data

The female population was the most represented in our study at 91.7% with a sex ratio of 1/11. The clear female predominance of our sample is explained by the predominance of RA.

In our study, the mean age was  $49.5 \pm 13.5$  years. These results are similar to those of Kakpovi *et al.* in Togo in 2021 [14] and Kamissoko *et al.* in Guinea in 2020 [15] with respective mean ages of  $42.79 \pm 15.18$  years and  $43.05 \pm 18.04$  years

## 4.4. Therapeutic Adherence

RA was the most common CIR in our study (68.3%). RA is the most common CIR in the Western World, and also seems very common in Black Africa [14] [16] [17]. Methotrexate, which is the reference treatment for RA, was the most commonly used disease-modifying treatment in 95% of cases. Salazopyrine, which is also effective on joint deformities, was used in one patient. Its cost (43% of the GIMW) makes it less financially accessible than methotrexate (14% of the GIMW). The large proportion of patients on corticosteroid therapy illustrates the difficulties in achieving remission in patients seen late with deformities in 45% of cases [18]. Breaks in pharmacies, financial problems, lack of education, and the absence of therapeutic education programs make long-term follow-up difficult in our context because patients tend to resort to self-medication or traditional healers [19].

We used the CQR 19 questionnaire which is a validated questionnaire in Eng-

lish and translated into French. The average CQR in our study was  $76.9\% \pm 12.4\%$  with good compliance in 53.3% of patients. Arturi *et al.* in 2013 in Spain on medication compliance in ankylosing spondylitis found an average CQR of 68.42 [20].

The CQR during RA was 77.8% and 77.2% during spondyloarthritis in our study. In the United States, Waimann *et al.* in 2013, using the MEMS (medication event monitoring system, a system integrating an electronic chip in the lid of the bottle) showed that 58% to 71% of patients with rheumatoid arthritis adhered to their oral treatment per day [21]. Van Den Bemt *et al.* in 2009 in the Netherlands reported that disease duration, number of side effects, and beliefs about the need for treatment were associated with adherence [22].

Adherence was better in patients with a high socioeconomic level (CQR = 80.7%) in our study. Of the patients who stopped treatment, 77.8% had done so on their own. Poverty and the improvement of the clinical state were the main reasons for this discontinuation. The monthly cost of treatment represented nearly 40% of the GIMW. These results highlight the need for universal health coverage for chronic diseases, particularly CIR. Only 53% of patients knew the drug that treated their disease, and 68% did not know what the side effects were and how to manage them. Caregivers need to be trained in therapeutic education.

Our study reveals poor therapeutic compliance in patients suffering from CIR with high and low perceived severity, while compliance seems better in patients suffering from CIR of medium perceived severity. One could say that remission is a factor of non-adherence to disease-modifying therapy. Indeed, patients in remission become asymptomatic and in particular not painful and relax their attention in the face of disease-modifying therapy.

## 5. Conclusion

This study on therapeutic adherence during CIR showed that compliance was generally poor with a CQR 19 of less than 80%. Caregivers need to be trained in therapeutic education. Our results suggest that good compliance can be influenced by: the socioeconomic level, the severity of the disease, the duration of evolution. A study on a larger sample of patients would confirm these results.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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