

## The Effect of Rheumatoid Arthritis Disease Education on Adherence to Medications and Followup in Kerala, India

To the Editor:

We read with interest the study by Harrold, *et al* exploring cost-related medication nonadherence (CRN) in elderly American patients with rheumatoid arthritis (RA)<sup>1</sup>. In their study of a population covered by insurance, Harrold, *et al* have identified cost as the reason for medication nonadherence. However, nonadherence to medication and followup in RA is a complex issue, with several patient-specific and disease-specific domains. Factors such as beliefs about medication, which have social and psychological roots, have an important influence on adherence<sup>2</sup>. The traditional paternalistic view that the patient is a passive party who should take their prescribed medications and adhere to the recommended followup is also a major barrier<sup>3</sup>. In contrast to industrialized nations, in a developing and populous country such as India an additional barrier could be the lack of awareness regarding RA and the benefits of managing it, which go beyond mere symptom alleviation. It is noteworthy that healthcare in India is by and large self-funded, with inadequate public and private health insurance.

We sought to assess the effect of disease-related and management-related education on adherence to recommended followup and to the medications (primary outcomes) in a prospective 24-week controlled study in Kerala state, India. At 2 tertiary care centers, 122 consecutive consenting adult patients with early RA (recruited at diagnosis, disease duration < 1 year) were randomized into 2 groups (using a computer-generated randomization list, single-blinded allocation). Educated group A (n = 64), in a dedicated 10-minute session, received education regarding RA at the first consultation, and this was followed by another 10-minute "reinforcement" session at the first followup visit at 4 weeks. The sessions used audiovisual aids. Our approach in these sessions was that of "concordance," i.e., the process of enlightened communication between the patient and their healthcare professional, leading to an agreed treatment and ongoing assessment of this treatment as the optimal course<sup>4</sup>. Control group B (n = 58) was given only standard information during the first consultation. Opportunities were available for both groups to ask more questions about

Table 1. Demographics and disease-related characteristics.

Characteristics	Educated Group A, n = 64	Control Group B, n = 58	p
Age, yrs, mean ± SD	52.9 ± 10.5	54.6 ± 9.8	0.20
Female, n (%)	49 (76)	43 (74)	0.74
Marital status, n (%)			
Married	62 (97)	55 (95)	
Single	2 (3)	3 (5)	
Widow/divorced	0	0	
Education, n (%)			
Primary	10 (16)	12 (21)	
Secondary	46 (72)	40 (69)	
Higher	8 (12)	6 (10)	
Employment, n (%)			
Fulltime	20 (31)	22 (38)	
Unemployed	4 (6)	4 (7)	
Homemaker	40 (63)	32 (55)	
Disease duration, mo, median (range)	11 (3–12)	10 (3–12)	0.76
DAS28, mean ± SD	4.32 ± 0.36	4.76 ± 0.31	0.44
HAQ, mean ± SD	1.26 ± 0.81	1.24 ± 0.67	0.36

DAS28: 28-joint Disease Activity Score; HAQ: Health Assessment Questionnaire.

Table 2. Adherence to medication and recommended followup appointments at the end of the study.

Adherence Type	Educated Group A, n = 64	Control Group B, n = 58	p
All medications, %	98	83	0.0003
Followup appointments, %	88	72	0.0047

their management through a telephone helpline throughout the study period. Both groups received leaflets in the local language (Malayalam) and English regarding RA. Standard triple therapy for RA including a tapering regimen of glucocorticoids was used, and the recommended followup appointments were 4 weeks apart, aimed at achieving a European League Against Rheumatism good response<sup>5</sup> by medication optimization. Noncompliance to followup including RA-related clinical assessments was recorded by the rheumatologist, and adherence to medications was ascertained by a self-administered questionnaire<sup>6</sup> with an additional item to assess CRN: "was the cost of medication a factor in your stopping medication?". Medication adherence > 80% was considered high, while between 20% and 80% was partial, and < 20% was considered poor<sup>7</sup>. The study was adequately powered for primary outcomes (55 per group to provide 80% power at 5% significance level).

The 2 groups were well matched (Table 1). The majority of patients in both groups had secondary education (10 years of schooling) or more. In group B, at each timepoint a higher proportion of patients did not adhere to the medications and the followup. At the end of the study, the proportion of patients adhering to the followup and all medications was significantly higher in group A (Table 2). The items "When you feel better, do you sometimes stop taking your medicine?" and "Sometimes, if you feel worse when you take your medicine, do you stop taking it?" scored highest as the reasons for nonadherence (80% and 65% among nonadherents, with no intergroup difference); medication cost was not chosen as a reason by any participants. Among the total 12 nonadherents to medications, 67% were partial adherers and the rest, poor. At the end of the study the 28-joint Disease Activity Score 28 was lower in group A (2.93 ± 1.23 vs 3.26 ± 1.47; p = 0.22).

To allow for use in routine clinical care, the educational interventions were not elaborate and time-consuming and were not primarily directed at behavioral change. They were nevertheless successful at bringing about clinically relevant differences in adherence to medications and recommended followup.

Though educational input has been recognized as one of the keys to improving medication adherence in RA<sup>8,9</sup>, constraints on time remain a barrier. It would be very interesting to know whether the patients in the study by Harrold, *et al* had received any RA disease education and whether the authors consider lack of such education (if applicable) a potential confounder. It would also be worth speculating whether education might have altered the perception of hierarchy among comorbidities (such as diabetes and hypertension), with RA ranking low, a situation that could also result in nonadherence to RA medication in connection with these comorbidities.

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## Dr. Harrold, *et al* reply

*To the Editor:*

We thank Drs. Ravindran and Jadhav for their interest<sup>1</sup> in our article describing cost-related medication nonadherence in older patients with rheumatoid arthritis cared for in the United States<sup>2</sup>. We agree with their comments that adherence to medications is a complex behavior that is influenced by patient factors<sup>3,4</sup>. Those authors wondered whether patient education may have influenced the adherence rates we observed in our study rather than costs, similar to what they found in their prospective cohort study in which patients receiving education had higher adherence than the control group (98% vs 83%). This is certainly possible, although we have no data in our study for examining the role of patient education on medication adherence. Of note, the study populations were quite different between the 2 studies. Ours focused on a national sample of US older patients with a variety of drug payment coverage arrangements, and the majority of the patients were not working. In contrast, the sample in the study by Drs. Ravindran and Jadhav was younger, with most being homemakers or workers with self-funded healthcare, and living in India<sup>3</sup>.

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