



## ORIGINAL ARTICLE

# The effect of an educational intervention to improve patient antibiotic adherence during dispensing in a community pharmacy



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### KEYWORDS

Educational intervention;  
Health perception;  
Adherence;  
Compliance;  
Antibiotics

### Abstract

**Objective:** To assess the effectiveness of an educational intervention on antibiotic adherence and patient-reported resolution of symptoms.

**Design:** A controlled experimental study with systematic assignment to groups.

**Setting:** A pharmacy in Murcia. Participants were patients who came to the pharmacy with a prescription for antibiotics. Intervention provided information on treatment characteristics (duration, dose and method of use) and correct compliance. A control group received routine care. Main variables "treatment adherence" and "perceived health" were evaluated one week after dispensation by telephone interview.

**Results:** A total of 126 patients completed the study, 62 in the Control Group (CG) and 64 in the Intervention Group (IG). There were no differences between the groups in baseline characteristics, including the level of knowledge before the intervention. At the end of the study, treatment adherence in the CG was 48.4% (CI: 36.4–60.6), compared with 67.2% (CI: 55.0–77.4) in the IG. The difference of 18.8% was statistically significant ( $p=0.033$ ; 95% CI = 15.8–34.6). Non-compliance through missing more than one dose was 81.2% in the CG versus 38.1% in the IG, which is a statistically significant difference of 43.1% ( $p=0.001$ ; 95% CI = 16.4–63.1%). No significant differences were found in patient-perceived health. Logistic regression showed as predictor of adherence, the medication knowledge and the coincidence between duration of treatment indicated by physician and duration of treatment written in the prescription.

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**PALABRAS CLAVE**

Intervención educativa;  
Percepción de salud;  
Adherencia;  
Cumplimiento;  
Antibióticos

*Conclusions:* An educational intervention during antibiotic dispensation improves treatment adherence versus routine care.

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## Efecto de una intervención educativa para mejorar la adherencia de los pacientes al tratamiento antibiótico durante la dispensación en una farmacia comunitaria

### Resumen

*Objetivo:* Evaluar la efectividad de la intervención educativa en la adherencia al tratamiento con antibióticos y en la evolución de los síntomas referidos por el paciente.

*Diseño:* Estudio experimental controlado con asignación sistemática. Emplazamiento: farmacia comunitaria en Murcia. Participantes: pacientes que acudieron a la farmacia con una receta de antibiótico.

*Intervención:* Aportar información sobre las características del tratamiento (duración, pauta y forma de utilización) y la correcta adherencia. En el grupo Control se procedió a una venta habitual. Mediciones principales: se evaluaron la «adherencia al tratamiento» y la «percepción de salud» a la semana de la dispensación mediante entrevista telefónica.

*Resultados:* Finalizaron el estudio 126 pacientes: 62 en el Grupo Control (GC) y 64 en el Grupo Intervención (GI). No hubo diferencias entre grupos en las características basales, incluido el nivel de conocimientos previo a la intervención. Tras la intervención, la adherencia al tratamiento en el GC fue del 48,4% (IC 95%: 36,4-60,6) frente al 67,2% (IC 95%: 55,0-77,4) del GI, siendo esta diferencia del 18,8% ( $p=0,033$ ; IC 95%: 15,8-34,6;). La falta de adherencia fue de más de una toma en el 81,2% GC vs el 38,1% GI, diferencia del 43,1% ( $p=0,001$ ; IC 95%: 16,4-63,1%). En la percepción de salud del paciente no se encontraron diferencias. La regresión logística mostró como predictor de adherencia el conocimiento de la medicación y la coincidencia entre la duración del tratamiento indicado por el médico y la duración del envase prescrito en la receta.

*Conclusiones:* Una intervención educativa durante la dispensación del antibiótico mejora la adherencia al tratamiento frente a una atención habitual.

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## Introduction

Lack of treatment adherence and self-medication are two of the biggest problems in antibiotic misuse among patients.<sup>1-3</sup> Adherence has been specially studied in chronic but not in acute diseases such as infectious diseases.<sup>4</sup> A meta-analysis found that 37.8% of patients forget to take a dose of antibiotic.<sup>5</sup> The rate of adherence in this therapy in our country is not well known. Few studies have examined the compliance with antibiotic regimens, with figures between 40 and 60%.<sup>6,7</sup> The 42% found in the Pan European Survey of Patients was higher than values found in Italy (34%), Belgium (18%), France (16%) and Britain (9%).<sup>8</sup>

Unlike drugs that only affect individual patients, misused antibiotics add the global risk of bacterial resistance, which jeopardizes their effectiveness.<sup>9</sup> In Spain resistance rates are particularly high and their consequences are serious: resistant bacterial infections are associated with increased morbidity, mortality, health demands, hospitalization, medical expense and impairment of the effectiveness of treatment of future patients.<sup>10,11</sup>

The WHO Strategy for Containment of Antimicrobial Resistance encourages prescribers and dispensers to educate patients on the proper use of antibiotics and the importance of completing the prescribed treatment.<sup>12</sup>

Results of intervention studies in community pharmacy about improving treatment adherence are variable. A systematic revision conducted in 2005 concluded that it is impossible to identify an overall successful adherence-improving strategy performed by pharmacists and that more well-designed and well-conducted studies need to be performed.<sup>13</sup>

In our country there are few studies that address this question from the sphere of pharmacy; they are of local scope or with design problems, they provide written information and their results are non-significant.<sup>14,15</sup> For this reason, we considered it important to conduct a study to evaluate the benefit of an oral educational intervention, in terms of increased treatment adherence and symptom improvement or resolution, vs. "routine pharmaceutical care".

## Methods

### Study population

Our study, the ICAB (*Intervención in Compliance of AntiBiotics*), is a community pharmacy-based, open-label, controlled trial to improve medication adherence in

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