



# Non-adherence to treatment in inflammatory bowel disease in Czech Republic<sup>☆</sup>

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## KEYWORDS

Adherence;  
Ulcerative colitis;  
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Patient compliance

## Abstract

**Objective:** To assess overall non-adherence to the treatment among patients with Crohn's disease (CD) and ulcerative colitis (UC).

**Patients and methods:** 396 inflammatory bowel disease (IBD) patients were enrolled in the study (200 males, 196 females, 210 CD, 186 UC) and fulfilled the questionnaire to assess their non-adherent behaviour during the treatment. The data was analysed using factor analysis.

**Results:** Overall intentional non-adherence was reported by 32% of patients. A 12% of patients reported they at least once discontinued the treatment. Voluntary dose reducing was reported by 19% of patients. An 11% of patients occasionally non-refill the medication in time. There were no differences in intentional adherence between males and females, disease type, previous bowel surgery, marital, smoking and non-smoking statuses. A 42% of patients reported unintentional non-adherence. Factor analysis proved non-adherent patients are more likely to have a higher activity of the disease ( $\tau=0.109$ ,  $p=0.008$ ).

**Conclusions:** The overall intentional non-adherence is relatively high among IBD patients and a gastroenterologist's attention should be focused on it. Our results stimulate discussion how to improve education of the patients with inflammatory bowel disease and accent importance of the maintenance therapy to them.

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## 1. Introduction

Pharmacotherapy of inflammatory bowel disease (IBD) targets symptomatic as well as asymptomatic phases of the disease and may be effective in remission induction and maintenance.<sup>1</sup> A few published papers documented a poor adherence rate outside the clinical trial settings.<sup>1–8</sup>

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Patient's adherence to treatment is defined as the rate of cooperation in following the physician's prescriptions and recommendations.<sup>9</sup> A sufficient adherence is one of the key factors of treatment success, the published papers documented an increased risk of flare-up among non-adherent patients.<sup>3,6</sup>

Non-adherence logically means a lack of cooperation in following the physician's prescriptions and recommendations.<sup>9</sup> In spite of progress in the pharmacotherapy in IBD, many patients still flare and non-adherence to the treatment may be the reason of this.<sup>4</sup>

Non-adherence to pharmacotherapy is nowadays taken for one of the most serious problems for modern medicine to face.<sup>9,10</sup>

The doctor-patient relationship, treatment regimen and other disease-related factors play a key role in the adherence process. The treatment duration, several adverse effects of the medications, or symptom reduction, or even disappearance, during the remission phase play also its specific role.<sup>10-12</sup> Besides this adherence rapidly decreases with the increasing number of prescribed medicines and is also inversely related to the number of doses per day.<sup>12,13</sup>

In our study we assessed rate and most frequent reasons of non-adherence to the pharmacotherapy of IBD. We used a

**Table 1** Demographic characteristics of the examined cohort (N=396)

Characteristics	N (%)
Male	200(50.5)
Female	196 (49.5)
Average age	39.3 years
Min.	18
Max.	79
Education	
Elementary	29 (7.3)
Trained	125 (31.6)
High school	187 (47.2)
University	55 (13.9)
Status	
Student	38 (9.6)
Working	271 (68.4)
Pensioner	87 (22.0)
Condition	
Single	139 (35.2)
Married	200 (50.5)
Widow/widower	11 (2.8)
Divorced	45(11.5)
Smokers	78 (19.7)
Average age of IBD diagnostics	31.5 years
Min.	9
Max.	79
Average length of IBD treatment	7.4 years
Min.	1
Max.	41
Familiar occurrence of IBD	63 cases (15.9)

IBD, inflammatory bowel disease.

**Table 2** Clinical data of the examined cohort (N=396)

Disease characteristics	N (%)
<b>Crohn's disease</b>	<b>210 (53.1)</b>
Activity	
Remission	148 (70.5)
Chronically active	50 (23.8)
Flare up	12 (5.7)
Localization	
Terminal ileum	69 (32.8)
Colon	58 (27.7)
Ileo-colitic	80 (38.1)
Upper GIT	3 (1.4)
Disease behaviour	
Non-stenosing/non-perforating	113 (53.8)
Stenosing	54 (25.7)
Perforating	43 (20.5)
Medications	
Aminosalicylates	188
Immunosuppressants	81
Topical corticosteroids	65
Systemic corticosteroids	34
Medication free	9
<b>Ulcerative colitis</b>	<b>186 (46.9)</b>
Activity	
Remission	131 (70.4)
Chronically active	39 (21.0)
Flare up	16 (8.6)
Localization	
Proctitis	16 (8.6)
Proctosigmoiditis	18 (9.6)
Left-sided	94 (50.5)
Extensive	58 (31.3)
Medications	
Aminosalicylates	169
Immunosuppressants	25
Topical corticosteroids	12
Systemic corticosteroids	28
Medication free	12

GIT, gastrointestinal tract.

questionnaire survey among patients with IBD, followed up in 10 gastroenterological centers in the Czech Republic.

## 2. Patients and methods

Patients with the diagnosis of IBD (Crohn's disease and ulcerative colitis), followed up in the gastroenterological ambulances, were enrolled in the study between August 2005 and February 2006. The examined cohort comprised of 396 patients from 10 gastroenterological units from all over the Czech Republic. A detailed characteristics of the examined cohort is displayed in Tables 1 and 2. During one ambulatory visit of a gastroenterologist, patient was asked for participation in the questionnaire survey. The patients were briefly informed about adherence problems and the study's character. They were presented an anonymous questionnaire, where they could express their own experience with following their gastroenterologist's recommendations and orders. They were clearly guaranteed that no personal data are

to be stated and that the responses in no way will influence their further treatment options. Those who agreed with participation were enrolled. Patients were not given advanced notice about the study before visiting the IBD Unit.

After agreement attending gastroenterologist provided information about the disease type (CD or UC), activity, and localization to the special protocol which was a part of the questionnaire. The disease activity was simplified for the purpose of statistical analysis to a three-grade scale (remission, chronically active, flare). Subsequently patient was given the questionnaire to complete it. After that, he sealed the questionnaire in the envelope and when leaving the ambulance, he left it at the designated place at the reception. After termination of the study the questionnaires were collected from the gastrocenters and jointly unsealed at the Department of Social and Clinical Pharmacy at the Faculty of Pharmacy. This ensured full anonymity to the patient.

Key questions focused on adherence, adapted from a previously published paper,<sup>1</sup> were included with additional questions to complete a 30-item questionnaire. The key questions on adherence targeted at treatment discontinuation, dose reduction, regularity in using medicines and refilling medicines. Additional data was of demographic character, knowledge on disease and medicines and registered adverse drug effects (data not shown).

In our study, patients were considered to be non-adherent if they stated to have at least one of the possible non-adherent behaviours in the questionnaire: a) not using the prescribed medications at all; b) using the prescribed medications only prior to visiting a gastroenterologist; c) using the prescribed medications only when their feeling of well-being deteriorates; d) treatment discontinuation without their gastroenterologist's consent; e) dose reduction without their gastroenterologist's consent; f) not refilling their medications on time.

Prior to the study launch the questionnaire was validated in the pilot group of IBD patients, followed up in the Gastroenterological Centre of the University Hospital in Prague.<sup>8</sup>

### 3. Statistical analysis

The data was processed by the statistical software SPSS®, version 11.5. For the characteristics of the tested cohort, descriptive statistics were used.

The  $\chi^2$  (Chi square) testing was performed to compare frequencies of demographic variables and disease characteristics between adherent and non-adherent groups. The interview data were processed by the factor analysis, a method that enables the reduction of a large body of data into a few independent factors. The factor analysis allows the researcher to keep the maximum amount of information, while finding relationships between derived factors and additional variables.<sup>14</sup> To correlate individual adherence factors with other clinical and demographic variables, the Kendall's Tau coefficient values were used.

A *p* value of <0.05 was considered statistically significant. All tests were two-tailed.

### 4. Results

A total of 396 IBD patients participated in the questionnaire survey. At least one period of treatment discontinuation

during the treatment was admitted by 50 patients (12.6%). The most frequent reasons were: feeling well and therefore supposing there is no need to continue with pharmacological treatment (54%) and adverse drug effects occurrence (16%). In women pregnancy or breast feeding were also reasons for intentional treatment discontinuation (10%).

At least one intentional dose reduction without gastroenterologist's consent was in the questionnaire stated by 78 respondents (19.7%). The most frequent reasons were: feeling well (64.1%) and running out of the medication and therefore a necessity to reduce doses in order to save it till the next visit of a gastroenterologist (17.9%). Adverse drug effects occurrence was again one of the frequent reasons of dose reducing (11.5%), just as pregnancy and breast feeding in women (3.8%).

Forty five respondents (11.3%) admitted they minimally once did not refill their medications on time. The mean time of being without the medications in these patients was 7 days.

Only 9 patients (2.2%) stated they use their medications only when well feeling deteriorates and only 2 patients (0.5%) use it just prior to visiting the IBD Unit. No one reported complete disregard to the prescribed treatment.

Generally, at least one form of intentional non-adherence was stated by 129 respondents (32.5%).

Unintentional non-adherence (occasionally forgotten prescribed daily doses) was reported by 169 patients (42.6%).

As for additional questions, 88 patients (22.2%) stated they detected at least once an adverse effect of the prescribed IBD therapy drugs.

In patients with CD receiving aminosalicylates the non-adherence rate at any timepoint was 34% vs. 40% in patients on immunosuppressants vs. 38% in patients on systemic corticosteroids vs. 31% in patients on topical corticosteroids. The differences were statistically insignificant.

The non-adherence tended to increase in CD with disease activity (30% in remission vs. 42% in chronically active vs. 42% in flare), however did not reach statistical significance.

Similar statistically not significant differences were found in patients with UC. The overall non-adherence at any time was 32% in patients on aminosalicylates vs. 40% in those on immunosuppressants vs. 39% on systemic corticosteroids vs. 42% on topical corticosteroids.

The differences in activity in CD was not of statistical significance (33% in remission vs. 31% in chronically active vs. 25% in flare).

293 patients (73.9%) rate their treatment as quite effective, 44 (11.1%) take it for mildly effective, 57 patients (14.5%) were not able to score it and only 2 respondents (0.5%) evaluated their treatment as completely ineffective. 25.7% of the patients seek additional information about the prescribed drugs. As for disease, 40.1% of the patients seek additional information.

By means of  $\chi^2$  testing no statistically significant relationships in adherence between the two diseases, genders, smokers and non-smokers, marital status and other demographic variables were found.

#### 4.1. Factor analysis

The 11 questions, crucial for adherence, were proceeded using the factor analysis. The four independent factors were