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Treatment Adherence and Associated Factors in Adults with Familial Mediterranean Fever: A Cross-Sectional Study in Türkiye

Lara Alabsi [1] and Arzu Erkoç [2,3,*]

[1] Medical Nursing, Institute of Graduate Studies, Istanbul University—Cerrahpasa, Istanbul 34320, Türkiye; laraalabsi46@gmail.com
[2] Department of Internal Medicine Nursing, Faculty of Nursing, Istanbul University, Istanbul 34116, Türkiye
[3] Department of Medical Genetics, Faculty of Medicine, Afyonkarahisar Health Sciences University, Afyonkarahisar 03030, Türkiye
* Correspondence: arzu.erkoc@istanbul.edu.tr

Highlights

What are the main findings?

- The mean MASIF total score was 63.38 ± 7.77, suggesting generally good medication adherence based on the proposed scale cutoff.
- It has been demonstrated that there are differences in total MASIF scores based on age, marital status, living arrangements, duration of FMF, duration of colchicine use, and adherence to regular follow-up visits.

What are the implications of the main findings?

- Routine follow-up visits provide opportunities to assess colchicine adherence and identify patients who may need additional support.
- Individualized adherence counseling and patient education should consider household circumstances and FMF attack frequency as part of long-term nursing care.

Abstract

Background/Objectives: Long-term adherence to colchicine therapy is essential for effective management of familial Mediterranean fever (FMF). This study aimed to assess colchicine adherence and examine associated sociodemographic and clinical factors among adults with FMF in Türkiye. **Methods**: This descriptive, cross-sectional, and correlational study was conducted online between May and September 2025 and reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. A total of 312 adults with FMF who had received colchicine treatment for at least one year were recruited across Türkiye using non-probability convenience sampling through the social media accounts of a patient association. Data were collected using a Participant Information Form and the adult version of the Medication Adherence Scale in FMF Patients (MASIF). Descriptive statistics and exploratory group comparisons were performed. **Results**: The mean MASIF total score was 63.38 ± 7.77, and 67.3% of participants were classified as having good medication adherence, whereas 32.7% demonstrated poor adherence. MASIF total scores differed significantly according to age, marital status, duration of FMF, duration of colchicine use, living arrangements, and regular follow-up attendance. **Conclusions**: Approximately one-third of participants demonstrated poor adherence to colchicine treatment, highlighting the importance of routine adherence assessment, individualized patient education, and continuity of follow-up care. Further longitudinal and multicenter studies are needed to clarify factors associated with colchicine adherence and inform targeted nursing interventions.

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1. Introduction

Familial Mediterranean Fever (FMF) is a monogenic autoinflammatory disease that is typically inherited in an autosomal recessive pattern and is characterized by recurrent episodes of fever and serosal inflammation. The disease is primarily associated with pathogenic variants in the MEFV gene, located on the short arm of chromosome 16. Altered regulation of pyrin, the protein encoded by MEFV, leads to inappropriate activation of the pyrin inflammasome and increased release of proinflammatory cytokines, particularly interleukin-1β [1,2]. In addition to clinical attacks, inflammation may persist at a subclinical level during attack-free periods [3].

Uncontrolled inflammation can adversely affect the long-term prognosis of FMF. One of its most serious complications is AA amyloidosis, which develops in association with persistently elevated serum amyloid A levels. Renal amyloid deposition may lead to progressive proteinuria, impaired kidney function, and end-stage kidney disease [4]. Accordingly, the EULAR/PReS recommendations emphasize that treatment goals extend beyond controlling clinical attacks to include suppressing subclinical inflammation, preventing organ damage and AA amyloidosis, and maintaining quality of life [3]. Colchicine remains the first-line treatment for FMF. Initiating treatment as soon as a clinical diagnosis is established helps reduce the frequency and severity of attacks, suppress persistent inflammation, and lower the risk of AA amyloidosis. Maintaining these protective benefits generally requires consistent, long-term adherence to the prescribed colchicine regimen [2,3].

Despite its established efficacy, non-adherence to colchicine remains an important challenge in FMF management. Forgetfulness, adverse effects, and misconceptions about medication may contribute to non-adherence [4]. Inadequate adherence may result in continued attacks and persistent inflammation and may complicate the assessment of treatment response. Tekgöz et al. reported discrepancies between patients' self-reported regular colchicine use and adherence assessed using a standardized instrument, highlighting the importance of systematically evaluating adherence before interpreting an inadequate treatment response [5]. Adherence assessment is therefore particularly important when evaluating possible colchicine resistance.

Medication adherence is a multidimensional construct that may be associated with sociodemographic characteristics, clinical features, and patients' understanding and perceptions of their disease and treatment. A comprehensive assessment should therefore consider medication-taking behavior alongside patients' knowledge, beliefs, and potential barriers to regular medication use. Disease-specific instruments can facilitate this assessment. The Medication Adherence Scale in FMF Patients (MASIF) is an 18-item instrument that evaluates four domains: medication knowledge, medication-taking behavior, barriers to medication use, and factors facilitating adherence [6]. Initially developed for children with FMF, the scale subsequently underwent preliminary validity and reliability assessment in adults [6,7]. Its multidimensional structure allows adherence to be examined alongside factors that may hinder or support regular medication use. In a recent study involving 304 adults with FMF in Türkiye, greater illness comprehensibility and more positive beliefs about disease and treatment control were associated with better medication adherence [8]. These findings further support the importance of considering patients' understanding and beliefs when assessing adherence.

FMF represents an important health concern in Türkiye and other populations of Eastern Mediterranean origin [9]. Given the need for lifelong colchicine treatment and the

potential consequences of inadequate adherence, identifying factors associated with treatment adherence among adults with FMF remains clinically relevant. Examining adherence in relation to a broader range of sociodemographic and clinical characteristics may help identify patient groups at greater risk of inadequate adherence and clarify factors that may be addressed through clinical follow-up. From a nursing perspective, such information may support individualized patient education, adherence counseling, and follow-up strategies aimed at promoting sustained treatment adherence.

Therefore, this study aimed to assess adherence to colchicine treatment and examine associated sociodemographic and clinical factors among adults with FMF living in Türkiye. The following research questions were addressed:

1. What is the level of adherence to colchicine treatment among adults with FMF?
2. Are sociodemographic and clinical characteristics associated with adherence to colchicine treatment among adults with FMF?

2. Materials and Methods

2.1. Study Design and Data Collection

This descriptive, cross-sectional, and correlational study was conducted online between May and September 2025 and was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. Based on previously reported population-based data, 160,897 individuals with FMF were identified in Türkiye [7]. As a separate national estimate for the adult FMF population was unavailable, this figure, which included both pediatric and adult patients, was used as the available population estimate for sample size calculation. The sample size was estimated using the finite population formula, assuming a 95% confidence level ($Z = 1.96$), a 5% margin of error ($d = 0.05$), and an expected proportion of 50% ($p = 0.50$), selected as the most conservative assumption in the absence of a known expected proportion. The minimum required sample size was calculated as 384 participants. Given that the available population estimate was not specific to adults and that a non-probability sampling method was used, this calculation was considered a recruitment target rather than an estimate of population representativeness.

The online questionnaire was developed using Google Forms and distributed through the official Instagram and Facebook accounts of the Behçet and Familial Mediterranean Fever Patients Association, following approval from the association. Adults diagnosed with FMF who met the study inclusion criteria were invited to participate voluntarily. Participants were recruited through these social media platforms and completed the questionnaire online. A non-probability convenience sampling method was employed. Eligibility criteria included being aged 18 years or older, having a diagnosis of FMF, having used colchicine for at least one year, being able to communicate, and agreeing to participate voluntarily. Eligibility was determined based on participants' self-reported FMF diagnosis and their reported use of colchicine for at least one year. Due to the online nature of the study, FMF diagnoses were not independently verified through medical records or clinical assessment. The study was originally planned as part of a master's thesis, with a predefined data collection period. Although the initial sample size calculation indicated a recruitment target of 384 participants, recruitment was concluded at the end of the planned data collection period before this target could be reached. A total of 323 individuals responded to the online survey, of whom 11 were excluded because of incomplete or invalid responses. Consequently, the final analytical sample comprised 312 participants, representing 81.3% of the initially calculated recruitment target.

2.2. Study Instruments

Data were collected using the Participant Information Form and the adult version of the Medication Adherence Scale in FMF Patients (MASIF). Participant Information Form: The researchers developed this 17-item form based on the literature [5,8,10]. The form comprised two sections: (1) sociodemographic characteristics, including age, gender, marital status, educational attainment, employment status, income status, and living arrangements, and (2) FMF-related clinical characteristics, including disease duration, frequency of FMF attacks, duration of colchicine use, daily colchicine dose, regular attendance at follow-up visits, history of FMF-related hospitalization, and family history of FMF. FMF attack frequency was assessed using three predefined response categories intended to represent an attack-free period, infrequent attacks, and frequent attacks. The options were "No attacks during the past year", "Once during the past year", and "At least once every month". Although these categories were intended to reflect different clinical patterns, the questionnaire did not explicitly include intermediate attack frequencies, such as two to eleven attacks per year. Regular attendance at follow-up visits was assessed using the following question: "During the past 12 months, have you regularly attended your FMF-related medical follow-up appointments as scheduled by your treating physician?" The reference period was the preceding 12 months. Regular attendance was defined as self-reported attendance at FMF-related follow-up appointments according to the schedule established by the participant's treating physician. No uniform follow-up interval was imposed because appointment schedules could vary according to individual clinical needs. Attendance was assessed through participants' self-reports and was not independently verified using medical records or appointment systems. MASIF: The MASIF was originally developed to assess medication adherence in children with FMF. Preliminary validity and reliability assessments of its adult version were subsequently reported by Fidanci et al. [5,11].The scale comprises 18 items across four subscales: medication knowledge (items 1, 10, 13, and 16), medication adherence (items 2, 5, 6, 8, 15, and 17), barriers to medication use (items 4, 7, 12, 14, and 18), and factors facilitating adherence (items 3, 9, and 11). Items are rated on a five-point Likert scale ranging from 1 (never) to 5 (always), with intermediate responses of rarely (2), sometimes (3), and often (4). Items 1, 3, 10, 11, 14, 16, and 17 are reverse-scored before calculating the total score. Total scores range from 18 to 90, with higher scores indicating greater medication adherence. The adult validation report described scores of 60 or higher as indicating good medication adherence and scores below 60 as indicating poor medication adherence [8]. The reported Cronbach's alpha coefficient for the adult version was 0.764 [5,11]. In the present study, Cronbach's alpha for the total scale was 0.706. The internal consistency of the MASIF subscales was assessed using Cronbach's alpha coefficients. The coefficients were 0.106 for Knowledge about the Medication, 0.599 for Adherence to the Treatment, 0.527 for Barriers to Drug Use, and 0.353 for Factors Facilitating Adherence. Given the low internal consistency of the subscales, the primary analyses and interpretation of findings focused on the MASIF total score. MASIF total score analyses were retained for exploratory purposes and interpreted with caution.

2.3. Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 21.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize participants' sociodemographic and clinical characteristics. Continuous variables were summarized using means and standard deviations or medians and interquartile ranges (Q1–Q3), as appropriate, and categorical variables were presented as frequencies and percentages. The distributional characteristics of continuous variables were assessed before inferential analyses. For comparisons between two independent groups, the independent-samples *t*-test was used when para-

metric assumptions were met, whereas the Mann–Whitney U test was used when these assumptions were not met. For comparisons involving three or more independent groups, one-way analysis of variance (ANOVA) was used when parametric assumptions were met, whereas the Kruskal–Wallis test was used for non-normally distributed data. When an overall Kruskal–Wallis test indicated a statistically significant difference, post hoc pairwise comparisons with Bonferroni adjustment were performed to identify the groups between which the differences occurred. Appropriate post hoc pairwise comparisons were also performed following statistically significant ANOVA results. The internal consistency of the MASIF was assessed using Cronbach's alpha coefficient.

Age, FMF duration, and duration of colchicine treatment were dichotomized to obtain groups with approximately balanced sample sizes for group comparisons. The cut-off values were selected for analytical convenience and were not based on established clinical thresholds. The bivariate comparisons involving the MASIF total score were conducted as exploratory analyses to identify potential associations with sociodemographic and clinical characteristics. Although multiplicity adjustments were applied to relevant post hoc pairwise comparisons, no overall adjustment was performed across the initial bivariate tests. Therefore, these findings were considered hypothesis-generating, and unadjusted p-values were interpreted cautiously. A two-sided p-value < 0.05 was considered statistically significant.

3. Results

The study sample consisted of 312 participants with FMF. The mean MASIF total score was 63.38 ± 7.77 (Table 1).

Table 1. MASIF total scores of participants ($n = 312$).

Scale	Score Range	Min.–Max.	Median (Q1–Q3)	Mean (SD)
MASIF total	18–90	41–82	64 (58–69)	63.38 (7.77)

MASIF: Medication Adherence Scale in FMF Patients; Max: maximum; Min: minimum; SD: standard deviation; Q1: 25th percentile; Q3: 75th percentile.

Based on the proposed MASIF total cutoff for the adult version of the scale, 210 participants (67.3%) were classified as having good medication adherence, while 102 participants (32.7%) were classified as having poor medication adherence. The mean age of the participants was 35.95 ± 9.75 years (range: 18–65), with a median of 35 years (IQR: 13). Of the participants, 65.1% were female, 66.3% were married, and 58.3% had a university-level education. Most participants were employed 63.8%, and 46.5% reported an income equal to their expenses. Nearly half lived with their spouse and children. The mean duration of FMF was 14.30 ± 10.19 years, with a median of 12 years (IQR: 15). Abdominal pain was the most frequently reported main complaint (52.6%), followed by joint pain (20.2%) and chest pain (13.5%). Regarding FMF attack frequency, 149 participants (47.8%) reported experiencing attacks at least once every month, 128 (41%) reported one attack during the past year, and 35 (11.2%) reported no attacks during the past year. The mean duration of colchicine use was 13.06 ± 9.48 years, with a median of 11 years (IQR: 15). The duration of colchicine use was 11 years or less in 157 participants (50.3%) and 12 years or longer in 155 (49.7%). The most frequently reported daily colchicine doses were 1 mg (31.7%) and 2 mg (31.1%). Furthermore, 217 participants (69.6%) reported regularly attending follow-up visits, 134 (42.9%) had a history of FMF-related hospitalization, and 209 (67%) reported a family history of FMF (Table 2).

Table 2. Sociodemographic and clinical characteristics of participants ($n = 312$).

Sociodemographic Characteristics	*n* (%)	Clinical Characteristics	*n* (%)
Gender		Main complaint	
Female	203 (65.1)	Fever	7 (2.2)
Male	109 (34.9)	Abdominal pain	164 (52.6)
Marital status		Chest pain	42 (13.5)
Single	105 (33.7)	Joint pain	63 (20.2)
Married	207 (66.3)	Leg pain	19 (6.1)
Educational level		Fatigue	17 (5.4)
Primary school	32 (10.3)	Frequency of FMF attacks	
High school	98 (31.4)	No attacks in the past year	35 (11.2)
University	182 (58.3)	At least once every month	149 (47.8)
Employment status		Once in the last year	128 (41)
Employed	199 (63.8)	Colchicine dose (mg/day)	
Unemployed	113 (36.2)	1	99 (31.7)
Income status		1.5	66 (21.2)
Income < Expenses	109 (34.9)	2	97 (31.1)
Income = Expenses	145 (46.5)	>2	50 (16)
Income > Expenses	58 (18.6)	Regular attendance at follow-up visits	
Living arrangement		Yes	217 (69.6)
Living alone	21 (6.7)	No	95 (30.4)
Living with spouse	50 (16)	History of hospitalization due to FMF	
Living with spouse and children	149 (47.8)	Yes	134 (42.9)
Other	92 (29.5)	No	178 (57.1)
		Family history of FMF	
		Yes	209 (67)
		No	103 (33)

FMF: Familial Mediterranean Fever.

MASIF total scores differed significantly according to several sociodemographic characteristics. Married participants had significantly higher MASIF total scores than single participants ($Z = -2.715$, $p = 0.007$). Bonferroni-adjusted pairwise comparisons indicated a significant difference between participants whose income was lower than their expenses and those whose income was equal to their expenses (adjusted $p = 0.028$). MASIF total scores also differed significantly according to living arrangement ($KW = 11.475$, $p = 0.009$). Bonferroni-adjusted pairwise comparisons showed that participants living with a spouse and those living with a spouse and children had significantly higher MASIF total scores than those in the "other" living-arrangement category (adjusted $p = 0.040$ and adjusted $p = 0.039$, respectively) (Table 3).

Table 3. MASIF total scores according to participants' sociodemographic characteristics ($n = 312$).

Variables	MASIF Mean (SD)	Test	*p*-Values
Gender			
Female	63.60 (7.73)	0.805 ^{t}	0.419
Male	62.85 (7.85)		
Marital status	Median (Q1–Q3)		
Single	62 (56–67.5)	−2.715 ^{Z}	0.007
Married	65 (59–70)		
Educational level	Mean (SD)		
Primary school [a]	64.25 (7.88)	0.683 ^{F}	0.506

Table 3. *Cont.*

Variables	MASIF Mean (SD)	Test	*p*-Values
High school [b]	63.42 (7.63)		
University [c]	63.20 (7.87)		
Employment status			
Employed	62.93 (7.87)	1.344 [t]	0.180
Unemployed	64.16 (7.58)		
Income status			
Income < Expenses [a]	62.22 (7.71)	2.701 [F]	
Income = Expenses [b]	63.55 (7.84)		0.069
Income > Expenses [c]	65.10 (7.48)		
Living arrangement			
Living alone [a]	63 (56.5–67)	11.475 [KW]	0.009
Living with spouse [b]	65 (61–70)		b vs. d: $p = 0.040$
Living with spouse and children [c]	65 (58–71)		c vs. d: $p = 0.039$
Other [d]	60.5 (56–67.75)		

MASIF, Medication Adherence Scale in FMF Patients; SD, standard deviation; Q1, first quartile; Q3, third quartile; Z, Mann–Whitney U test statistic; KW, Kruskal–Wallis test statistic; *t*, independent-samples *t*-test; *F*, one-way analysis of variance (ANOVA). Pairwise comparisons following significant Kruskal–Wallis tests were performed with Bonferroni adjustment. Superscript letters indicate the groups used in post hoc pairwise comparisons.

Participants who regularly attended follow-up visits had significantly higher MASIF total scores than those who did not ($t = 3.706$, $p < 0.001$). No statistically significant differences in the MASIF total score were observed according to hospitalization history due to FMF and family history of FMF (all $p > 0.05$) (Table 4).

Table 4. MASIF total scores according to participants' clinical characteristics ($n = 312$).

Variables	MASIF Mean (SD)	Test	*p*-Values
Colchicine dose (mg/day)			
1	64.11 (8.01)	0.723 [F]	0.539
1.5	62.32 (7.91)		
2	63.47 (7.47)		
>2	63.12 (7.76)		
Regular attendance at follow-up visits			
Yes	64.43 (7.27)	3.706 [t]	<0.001
No	60.96 (8.37)		
History of hospitalization due to FMF			
Yes	62.43 (7.45)	1.879 [t]	0.061
No	64.09 (7.96)		
Family history of FMF			
Yes	63.89 (7.61)	1.671 [t]	0.096
No	62.33 (8.03)		

MASIF, Medication Adherence Scale in FMF Patients; SD, standard deviation; Q1, first quartile; Q3, third quartile; *t*, independent-samples *t*-test; *F*, one-way analysis of variance (ANOVA).

Spearman's rank correlation analysis demonstrated statistically significant, weak positive correlations between MASIF total scores and age ($r_S = 0.242$, 95% CI: 0.133–0.342, $p < 0.001$), duration of FMF ($r_S = 0.222$, 95% CI: 0.117–0.325, $p < 0.001$), and duration of colchicine use ($r_S = 0.236$, 95% CI: 0.124–0.339, $p < 0.001$). These findings indicate that increasing age, longer FMF duration, and longer colchicine use were associated with higher MASIF total scores (Table 5).

Table 5. Correlations between age, duration of FMF, duration of colchicine use, and MASIF total scores ($n = 312$).

Variable	MASIF		
	r_S	95% CI (Lower–Upper)	*p*-Value
Age (years)	0.242	0.133–0.342	<0.001
Duration of FMF (years)	0.222	0.117–0.325	<0.001
Duration of colchicine use (years)	0.236	0.124–0.339	<0.001

FMF, Familial Mediterranean Fever; MASIF, Medication Adherence Scale in FMF Patients; r_S, Spearman's rank correlation coefficient; CI, confidence interval. Values in brackets represent 95% bootstrap confidence intervals for Spearman's correlation coefficients. All correlations are unadjusted.

4. Discussion

Medication adherence is a fundamental element in the effective management of chronic diseases. This is particularly significant in Familial Mediterranean Fever (FMF), where long-term colchicine treatment is essential to control inflammatory attacks and reduce the risk of complications such as amyloidosis. Previous studies have shown that adherence to colchicine treatment among FMF patients varies and that this variation may be linked to demographic, clinical, treatment-related, and healthcare-related factors [4,7,9]. This study provides additional descriptive evidence regarding adherence to colchicine treatment among adult FMF patients in Türkiye, focusing specifically on the total MASIF score and conducting exploratory comparisons across the sociodemographic and clinical characteristics of this population.

In our study, the mean total MASIF score was found to be 63.38 ± 7.77. Based on the recommended threshold for the adult version of the scale, 210 participants (67.3%) were classified as having a good level of medication adherence, while 102 participants (32.7%) were classified as having a low level of adherence. Although the majority of participants met the criteria for good medication adherence, approximately one-third did not, highlighting the importance of ongoing adherence assessment and support in FMF management. Previous research in the literature has also indicated that suboptimal adherence to colchicine treatment poses a significant challenge in the management of FMF. Levinsky et al. [12] highlighted the difficulties associated with treatment adherence and emphasized the importance of education for patients and their families. Our findings contribute to the existing literature by characterizing medication adherence in a sample of adult patients with FMF using the MASIF total scale [5].

An association was identified between age and medication adherence. Exploratory pairwise comparisons revealed that participants aged 36 and older had higher MASIF total scores than those aged 35 or younger. This difference may reflect variations in disease experience, treatment routines, or perceptions regarding long-term medication use. Greater experience in managing a chronic illness and an increased awareness of the importance of continuous treatment may contribute to this disparity [12]. Furthermore, the age categories were established for the purpose of analysis rather than based on clinically validated thresholds. Consequently, the observed difference should be considered exploratory and not interpreted as evidence that advanced age independently predicts better adherence to pharmacological treatment.

Exploratory comparisons also indicated that marital status and living arrangements are associated with differences in MASIF total scores. Married participants scored higher than single participants, and those living with a spouse or with a spouse and children achieved higher scores compared to individuals in the reference category for living arrangements. The conditions within an individual's home environment may play a role; living with a spouse

can provide practical support, medication reminders, and emotional encouragement, though these forms of support were not directly measured. Additionally, it should be noted that marital status and living arrangements are overlapping sociodemographic characteristics. Therefore, these observed differences should not be interpreted as evidence that living with a spouse has an independent effect on adherence to medication treatment. To clarify these relationships, future studies incorporating validated measures of social support are needed.

In exploratory group comparisons, neither education level nor employment status was found to be statistically associated with the MASIF total score. Education level may not fully reflect patients' disease-specific knowledge, their understanding of treatment recommendations, or their beliefs regarding medication use. Previous research has highlighted the importance of patients' perceptions and beliefs concerning colchicine treatment [4]. These findings suggest that personalized patient education and the assessment of concerns regarding medication use could be clinically valuable.

Exploratory comparisons indicated that participants with an FMF duration of ≥13 years, who also reported using colchicine for ≥12 years, had higher MASIF total scores. Greater familiarity with managing a chronic illness and the presence of established treatment routines may be potential explanations for these differences. Nevertheless, these interpretations remain speculative. The duration categories are not based on established clinical thresholds; furthermore, the cross-sectional study design precludes drawing conclusions regarding temporal or causal relationships. Therefore, it should not be assumed that a longer disease duration or a longer period of treatment exposure guarantees better medication adherence.

The frequency of FMF attacks is clinically significant for the long-term management of the disease. However, the questionnaire used in this study did not provide a specific response category for participants experiencing between two and eleven attacks per year. This limitation may have resulted in misclassification that cannot be reliably corrected retrospectively. Therefore, the observed differences in medication adherence across attack-frequency categories cannot be interpreted with sufficient certainty to establish a reliable association. Previous studies in the literature have also yielded inconsistent findings regarding the relationship between colchicine adherence and attack frequency [13]. Future research should assess attack frequency using comprehensive and clearly defined response categories; whenever possible, such data should be supplemented with clinical records.

In exploratory group comparisons, regular attendance at follow-up visits scheduled by a physician was associated with higher MASIF total scores. These encounters may offer opportunities to assess medication adherence, reinforce patient education, identify side effects, and address the practical challenges associated with long-term colchicine treatment. From a nursing perspective, such consultations can be particularly valuable for providing personalized adherence counseling and supporting continuity of care. However, attendance at follow-up visits was assessed based on participants' self-reports rather than objective appointment records. Furthermore, the cross-sectional study design does not clarify whether regular follow-up contributes to better medication adherence or whether patients who are more engaged in managing their disease are simply more likely to attend scheduled visits.

Beliefs regarding the necessity and benefits of treatment, concerns about side effects, psychological well-being, perceived social support, forgetfulness, treatment burden, access to medication, and difficulties in maintaining a daily medication routine are among other factors that may be associated with an individual's adherence to colchicine [8,14]. Health literacy, communication with healthcare professionals, and characteristics of the healthcare system may also be significant [15,16]. These factors were not comprehensively evaluated in the current study. Future research incorporating validated scales to measure psychosocial,

behavioral, and treatment-related beliefs could provide a more holistic understanding of medication adherence among adults with FMF.

Overall, these findings underscore the importance of assessing adherence to colchicine treatment in adults with FMF and identifying patients who may require additional support. Routine adherence assessments, personalized patient education, addressing concerns regarding medication use, and the continuity of clinical follow-up can be beneficial components of comprehensive FMF care. Nurses involved in chronic disease management processes can contribute to these activities through patient education, counseling, and the ongoing assessment of challenges related to treatment.

Finally, the number of studies examining medication adherence in adults with FMF using the MASIF total scale is quite limited [17,18]. The present study provides descriptive evidence derived from an adult sample in Türkiye. Longitudinal and multicenter studies are needed to clarify the factors associated with continued colchicine use.

Limitations

This study has several methodological limitations that should be considered when interpreting the findings. First, the use of non-probability convenience sampling through the social media accounts of a patient association may have introduced selection bias and limited the representativeness of the sample. The online questionnaire was distributed through the official Instagram and Facebook accounts of the Behçet and FMF Patients Association after obtaining the association's approval. This recruitment approach may have disproportionately reached individuals with greater digital literacy, higher educational attainment, better internet access, and stronger engagement with healthcare services or online patient communities. Conversely, older adults, individuals with limited digital access, and patients less actively involved in disease management may have been underrepresented. This potential bias is particularly relevant to the assessment of colchicine adherence, as individuals who are more engaged in managing their condition may also be more likely to report favorable adherence behaviors. Furthermore, participants may have reviewed information about FMF and colchicine treatment before completing the questionnaire, potentially influencing their self-reported responses. However, such pre-survey information exposure was not measured, and its influence remains uncertain. The observed adherence levels and their associations with sociodemographic and clinical characteristics may have been influenced by the recruitment strategy. The predominance of women in the study sample should also be considered when interpreting the findings. Because a comparable population-based sex distribution for adults with FMF in Türkiye was not established in the present study, it is unclear whether this proportion reflects the underlying patient population. The higher proportion of female participants may partly reflect gender-related differences in engagement with patient association social media accounts or willingness to participate in online health surveys. The possibility of gender-related participation bias cannot be excluded, and the findings should be generalized cautiously to the broader adult FMF population. Second, because the study did not employ a defined sampling frame, a conventional response rate could not be calculated. These limitations may restrict the external validity and generalizability of the findings. Therefore, the results should be interpreted in the context of the study and should not be assumed to represent the entire adult FMF population in Türkiye. Future studies using probability-based sampling or multicenter recruitment strategies, including patients with varying levels of healthcare engagement and digital access, are needed to improve representativeness and assess the generalizability of these findings. Third, the final analytical sample of 312 participants was smaller than the initially calculated recruitment target of 384 participants. As the study was conducted within the predefined data collection period of a master's thesis, recruitment was concluded before the target sample size could

be achieved. The smaller-than-planned sample may have reduced statistical precision and the ability to detect modest associations, particularly in multivariable analyses and comparisons involving smaller subgroups. Fourth, FMF diagnoses were based on participants' self-reports and could not be independently confirmed through medical records or clinical assessment. The possibility of diagnostic misclassification cannot be excluded, which may have affected the accuracy of participant eligibility and the interpretation of the findings. Future studies should consider verifying FMF diagnoses using documented clinical criteria or medical records. Fifth, the assessment of FMF attack frequency. The predefined response categories did not explicitly accommodate intermediate attack frequencies, such as two to eleven attacks per year. Participants experiencing these frequencies could not be reliably distinguished, potentially introducing misclassification and limiting the interpretation of associations between attack frequency and medication adherence. Therefore, inferential analyses involving FMF attack frequency were excluded from the Section 3 to avoid drawing potentially misleading conclusions based on a variable subject to misclassification. Furthermore, exploratory bivariate analyses involved multiple comparisons across the MASIF total score without an overall multiplicity adjustment. Consequently, the possibility of inflated Type I error and false-positive findings cannot be excluded. Associations identified in these analyses should therefore be interpreted cautiously and require confirmation in future studies. The MASIF subscales demonstrated low internal consistency in the present sample. This limits the reliability and interpretability of subscale-level findings. For this reason, the findings have been discussed based on the MASIF total score.

5. Conclusions

This study showed that approximately one-third of adults with FMF in Türkiye had poor adherence to colchicine treatment, with differences in medication adherence observed according to age, marital status, living arrangements, duration of FMF, duration of colchicine use, and regular attendance at follow-up visits. Routine assessment of medication adherence, individualized patient education, and continuity of follow-up care are important components of long-term FMF management. Further longitudinal and multicenter studies incorporating comprehensive clinical and psychosocial assessments are needed to clarify the factors associated with colchicine adherence and guide the development of targeted nursing interventions.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Written informed consent has been obtained from the participants.

Data Availability Statement: The data presented in this study are available upon reasonable request from the corresponding author. The data are not publicly available due to ethical and privacy restrictions involving human participants.

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Abbreviations

The following abbreviations are used in this manuscript:

FMF	Familial Mediterranean Fever
MASIF	Medication Adherence Scale in FMF Patients

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