

The Impact Of Psychosocial Factors On Medication Adherence Among Ulcerative Colitis Patients In Lahore, Pakistan

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Abstract

Objective. To examine the factors that influence medication adherence among ulcerative colitis (UC) patients, living in Lahore, Pakistan.

Method. Using correlational research design, 160 UC patients, visiting outpatient department of a public hospital, suffering from UC for at least six months to more than five years were selected through purposive sampling strategy. Patients, belonged to the age group 25-50 years, either married or unmarried, and suffering from mild to severe form of UC, were selected. We excluded those who were having colorectal cancer, or with different co-morbidities like diabetes, arthritis, kidney or renal malfunctioning. A self-developed structured questionnaire to ask about demographics and reasons for non-adherences was used. Also, Morisky Medication Adherence Questionnaire and Ways of Coping Questionnaire was filled out. After data collection, results analyzed via SPSS V 26.0.

Results. ANOVA showed that participants with low socio-economic status, younger, unmarried, less educated, ignorant about illness, and with severe medication side effects, were having poor medication adherence. Interestingly, disease intensity, like bowel surgery, moderate or severe UC, even along with longer span of diagnosis, and medication in take thrice and fourfold a day, was associated with good medication adherence. Multiple regression revealed poor medication adherence among patients using emotion focused coping than adopting active coping strategies.

Conclusion. UC patients are reluctant to take medicines unless disease appear in worst form, or underwent for surgery. To reduce symptom recurrence, practitioners should focus on individual patient factors and educate them about the chronic and sensitive nature of disease for proper drug management.

Keywords: Medication adherence, ulcerative colitis, psychosocial factors, coping styles

Introduction

Ulcerative Colitis (UC) is a chronic autoimmune disorder with a high prevalence in developing countries (>3%) while its prevalence is rapidly

increasing in developed countries (14% per year) (NG et al., 2018; Jones et al., 2019). Worldwide, it is estimated that UC can affect around 30 million people by 2025 (Kaplan, 2015). Since, Samuel Wilks discovered this morbidity in 1859

in the intestine of Ms Bankes (Mulder et al., 2014). The clinical structures include, tenderness in the rectum (the lowest part of the colon) as the first site where inflammation starts in majority of patients and idiosyncratically severe inflammation that leads to an abrupt demarcation with a healthy colonic sheath (Farrell et al., 2019). This chronic illness is divided into mild, moderate, and severe forms accompanied by bloody diarrhea, weight loss, high fever, and intestine tenderness. In mild stage, (usually known as proctitis), patients experience four episodes once a day, moderate stage (proctosigmoiditis) includes more than four episodes of bloody diarrhea once a day while severe form (pancolitis) depends on more than 6 episodes of active symptoms per day (He et al., 2021). Actual reasons behind UC are still unknown however, researchers found that toxic environment, weak immune system, genetics, and gut microbiota, can develop this disease. Ulcerative Colitis is usually treated through oral and injectable medicines like corticosteroids, immunosuppressive agents, and aminosalicylates (Kobayashi et al., 2020).

World Health Organization, defined “adherence” as an individual’s propensity to take medicines, adopt healthy lifestyles and corresponds to advices or recommendations from a clinician or physician (Osterberg & Blaschke, 2020). Indeed, medication adherence is a vital challenge for the treatment of chronic diseases, for instance, ulcerative colitis requires a continuing or long term-management to escape hospitalization and further complications. In fact, UC is marked by symptomatic relapses and flares which occasionally required hospitalization (Li et al., 2016). According to World Health Organization, adherence in chronic diseases is one of the key elements, necessary for the use of therapies efficiently. Successful therapy does not only depend on accurate diagnosis and treatment choices by the health care provider but also ensures patient’s adherence to therapy as well as

the capability to understand and follow the instructions given during the therapy. Non-compliant behavior to take medicines effect the successfulness of medical cure and even lead to worst health conditions, abrupt need of complex examinations or implementation of drugs, and an increase in morbidity and even mortality (Kim et al., 2016).

In clinical practice, medication adherence plays a vital role in managing UC; therefore, the decision-makers and health practitioners should educate the patients regarding negative consequences of non-adherence, and try to change patients’ concerns and beliefs. Clinicians should comprehend patients’ judgment of their personal need for therapy and their worries and fears about treatment can be a substantial barrier to medication adherence. Under these conditions, clinicians should ease adherence to medical treatment among UC patients to minimize such perceptual barriers (Costa et al., 2015).

The treatment nonadherence rate for chronic diseases in developed countries is an average of 50% and even lower in developing countries, and only 20% to 30% among IBD patients in Asia (Li, Gao, & Liu, 2019). In Pakistan, no studies have been carried out to investigate why UC patients show non-compliance with medications use. However, in Punjab, a qualitative study was carried out to ask from patients (who were suffering from different types of chronic illnesses) in detail about why they skip or do not take medicines regularly. Researchers found that mostly patients were illiterate, and they did not have enough knowledge regarding their chronic illnesses and its harmful consequences if left untreated. Another important factor was, lack of doctor patient communication or good doctor-patient relationships. Patients were also suspicious about the prescribed medicines that they might have certain side effects and should not be used for a

long time period. There were also financial barriers in medication adherence (Saqib et al., 2018).

While looking at foreign researches, Hirko and Edessa (2017) in Ethiopia revealed certain factors that resulted in non-adherence such as younger age, heavy pills, negative perceptions i.e., there is less advantage to take medicines and lack of knowledge about effectiveness of medicines. Further, Manitoba Inflammatory Bowel Disease Cohort Study found that gender played a role like men with UC were less likely to show adherence (see also Lachaine et al., 2013) and age was also a predictor for medication adherence like younger women showed poor adherences than those in old age (Ediger et al., 2007).

Studies in Latvia and Chicago found that IBD and hypertension patients are usually reluctant to take medicines due to symptomatic remission, recent diagnosis, poor doctor-patient relationship, and forgetfulness due to long working hours (Gavrilova et al., 2019; Trivedi & Keefer, 2015). In India, 167 patients who were receiving counseling services for the treatment of different forms chronic illnesses (arthritis, heart problems, IBD etc.) were studied regarding their beliefs about medication adherence. 67% of patients were ready to stop medicines if they get recovered without following medical advice while 58% patients just identified pills by their color, shape or size without knowing the names. they even did not know that information about medicines is necessary for health betterment (Umira et al., 2015).

Theoretical framework

During 1950s two social scientists, Hochbaum and Rosenstock worked in US Public health services and they found that most of the people failed to participate in disease detection program, designed for the detection of tuberculosis. To answer this question, why people do not go for

health promotion and early screening test, they introduced Health Belief Model, later, this model also focused on why people do not show compliance with medical regimens. First of all, this model assumes that people usually do not ponder over their symptoms unless when symptoms get adverse and disturb them to a greater extent. At asymptomatic phase, individuals deny to get screening and to follow the medical advice as they think they are absolutely fine. Also, the model highlighted that patients perceived barriers might dominate them rather than the perceived benefits. For instance, side effects of medicine, financial issues, duration of medicine intake, especially knowledge regarding illness and doctor patient relationships and to escape painful medical procedures. Moreover, model also postulated that at times there are no cues in environment like patients do not get enough information from their surroundings which assist them to take medicines regularly in order to manage illness and the most important, self-efficacy, as people develop confidence in their abilities to perform desired health behaviors. mostly people who lack in self-confidence, are more likely to use emotion focused coping strategies (Asmundson, 2022; Becker, 1974; Jones et al., 2015). Especially, in Pakistan, Turkey, Iran, Iraq, Liberia, Mali, and Tanzania where people find out other ways for instance, wear amulet and visit fake healers for the treatment. People might believe that supernatural forces can cure them instead of getting treatment and following medical prescriptions of doctors (Sahin & Durak, 1995; Pret, 2010; Rytter, 2010).

Statement of the Problem: What are the psychosocial factors which effect medication adherence in UC patients?

Significance of the Study

Ulcerative Colitis is a life-threatening chronic illness accompanied with adverse symptoms i.e., bloody and mucus contained diarrhea, vomiting,

weight loss, headaches, fever, and lesions. though this disease has high prevalence rate in developed countries, USA, Europe, UK, but people are more likely to adopt sedentary lifestyles, use of caffeine, nicotine, lack alcohol and lack of exercise has increased the risk of developing Inflammatory Bowel Disease, (which ultimately converts in UC) in Asian countries (Desai et al., 2020). Though, in Pakistan, exact statistics are unknown but it is estimated that 2 out of 1,00000 people experience ulcerative colitis, and it is ranged from 0.24 to 7.5/1,00000 individuals in Pakistan (Saleem, et al., 2022). based on the severity and chronic nature of illness, the present study holds significance to examine the psychosocial factors of medication adherence, prevalent in Pakistan because poor medication adherence is linked to worsening of illness, higher medical expenditures, and even mortality (Tariq et al., 2021). Moreover, there are few factors that exist in Asian countries specially Pakistan where patients are unaware about chronic nature of illness, have financial constraints and illogical beliefs so, all these features are considered in the present study.

Method

The present study was approved by IRB committee of researchers affiliated university (IRB# 27-7-22/354), situated in Lahore, Pakistan. After taking consent, researchers visited a public hospital and with the help of gastroenteritis, they found out the patients, suffering from Ulcerative Colitis. To make sure of their diagnosis, blood tests, colonoscopy reports and prescription diagnosis were studied. First of all, patients' consent was obtained and they were assured that all the collected data will be kept confidential. 200 UC patients, visiting outpatient department who were suffering from UC for at least six months to more than five years were selected through purposive sampling strategy. Sample size was calculated by G power, with α error = .05, suggested at least 150-200 participants. So, 200

patients were taken but 19 patients left the survey during the study while the remaining questionnaires were incomplete so, the final sample comprised of 160 patients. Patients, belonged to the age group 25-50 years, either married or unmarried, and suffering from mild to severe form of UC, were selected. We excluded those who were having colorectal cancer, or with different co-morbidities like diabetes, arthritis, kidney or renal malfunctioning. Also, patients above 50 years were excluded as they were having many co-morbidities which could bias the data.

Participants filled out consent form, demographic information form which inquired about gender, age, marital status, SES, and education level. Researchers also developed a form measuring relevant aspects of medication adherence like knowledge about illness, bowel surgery, stage of UC, time span for taking medicines, medication frequency, doctor patient relationship etc. Such factors were included after studying relevant literature. Further, coping styles were also studied by filling out WCQ.

Ways of Coping Questionnaire: Folkman and Lazarus (1980) developed this scale and later it was also revised by Folkman and Lazarus (1985) to measure coping styles, specifically the problem-focused and the emotion focused types of coping. The revised scale comprised of 66 with score format ranged from, 0 (not used) to 3 (used a great deal). This scale can be applied on patients suffering from chronic ailments (Johnston & Johnston, 1998). In Turkey, Siva adapted this scale (1991). The Turkish form consisted of 74 questions with new concepts like superstitions and fatalism. In the current study Siva form has been used. Siva's adapted scale was used in a variety of researches (Gençoz, Gençoz, & Bozo, 2006; Karancı et al., 1999; Sahin & Durak, 1995). In 2011, Durak et al. examined the psychometric properties of this scale on Turkish students and community samples and established significant

alpha .68. In the present study, the scale was translated in Urdu with significant alpha reliability $\alpha = .84$.

For medication adherence, **Morisky Medication Adherence Scale (MMAS)**: Morisky (2008) developed this instrument, which was based on the original 4-entry Morisky questionnaire. In Chinese, the reliability of MMAS was 0.65–0.81, which was significantly high (Wang et al. 2013). The MMAS consists of 8 items, 7 out of 8 items

are closed-ended. Items 1–7 are scored 0 for “yes” and 1 for “no”. Item five has reverse coding and item 8 is scored on a 5-point Likert scale. A total score of less than 6 shows poor adherence, 6–7 moderate while 8 designates good adherence. For current study, the scale was translated in Urdu and we found Cronbach alpha reliability of the scale, that was highly significant $\alpha = .88$.

Results

Table 1. Socio-Clinical Characteristics of Participants

Variables	n(%)	Variables	n(%)
Gender		Doctor patient relation	
Men	62(38.75)	Fine	23(14.37)
Women	98(61.25)	Good	90(56.25)
Age		Very Good	47(29.37)
25-35 years	69(43.12)	Frequency of medicine intake	
36-50 years	91(56.87)	Once a day	10(6.25)
Socio economic status		Twice a day	36(22.5)
Low	34(21.25)	Thrice a day	87(54.37)
Middle	90(56.25)	Fourfold a day	27(16.87)
Upper class	36(22.5)	Medicines side effects	
Education		Mild	70(43.75)
Matric	26(16.25)	Moderate	65(40.62)
Intermediate	40(25.00)	Severe	25(15.62)
Graduate	67(41.87)	Stages of UC	
Post graduate	27(16.87)	Mild	45(28.12)
Knowledge about illness		Moderate	78(48.75)
Unaware	30(18.75)	Severe	38(23.75)
General	45(28.12)	Time span of taking medicines	
Good	66(41.25)	Six months-One Year	41(25.62)
Excellent	9(5.62)	Two years	41(25.62)
Bowel Surgery		Three years	39(24.37)
Yes	36(22.5)	Four years	26(16.25)
No	124(77.5)	Five years or above	13(8.12)

Note. n= frequency; % = percentages

Table 1 represented that there were 62 men (38.75%) and 98 women (61.25%), with age range 25-50 years of age, belonged to low (21.25%), middle (56.25%), and upper social class (22.5%). Patients qualified from matric to

post graduate level. 30(18.75%) out of 160 patients were unaware, 45(28.12%), had general, 66(41.25%) possessed better while 9(5.62%) had excellent knowledge about illness. There were 36(22.5%) patients with bowel surgery and

124(77.5%) did not required surgery yet. The rest of the clinical characteristics of patients have also given in the table.

Table 2. Multiple regression for psychosocial factors predicting medicine adherence

Variables	b	SE	p	95% CI	
				LL	UL
Gender	2.38	.00	.56	-.89	5.56
Marital Status	.34	.01	.00	.03	10.13
Age	.42	.00	.00	.04	2.26
SES	.30	.02	.01	.10	1.11
Education	.28	.00	.00	.14	4.52
Knowledge	.35	.05	.00	.30	.50
Bowel surgery status	.54	.04	.00	.10	.90
Doctor patient relation	.43	.10	.00	.11	3.12
Frequency of medicines	.44	.00	.00	.20	.91
Medicines side effects	.38	.02	.00	.00	.49
Stages of UC	.55	.01	.00	.06	1.00
Time span of diagnosis	.56	.00	.00	.13	2.56
Active planning	.45	.13	.01	-.04	-1.12
Refuge in supernatural forces	-.36	.01	.00	-.09	-2.21
Refuge in fate	-.29	.03	.00	-.10	-1.19
Escape/avoidance	-.56	.02	.02	-.02	-2.23
Keep to self	-.53	.00	.00	-.04	-4.30
Seeking social support	.34	.04	.01	-.03	-1.05
Accepting responsibility	.44	.00	.01	-.02	-1.14
R	.89				
R ²	.79				
ΔR ²	.77				
F	560.17				

Note. **p<.001

Regression analysis indicated that socio factors like gender (b=2.23, p>.01) did predict medication adherence however, marital status (b=.34, p<.001), age (b = .42, p<.001), SES (b = .30, p<.001), and education (b = .28, p<.001) were predictors of medication adherence. For clinical characteristics, knowledge about illness, bowel surgery, doctor- patient relationships, frequency of medicine intake, medicines side

effects, stages of UC, and time span of diagnosis were predictors of medication adherence. In case of coping, active planning, b = .45, p<.001 seeking social support, b = .34, p <.001, and accepting responsibility, b= .44, p<.001 found to be significant positive predictor of medication adherence, but refuge in supernatural forces, refuge in fate, escape/avoidance, and keep to self were negatively predicting medication

adherence, for instance, an increase in refuge in supernatural forces was associated with poor medication adherence. The overall model

explained 77% of variance in dependent variable, with significant ANOVA, $F=560.17, p<.001$.

Figure 1. ANOVA; Gender, Education, and Marital Status

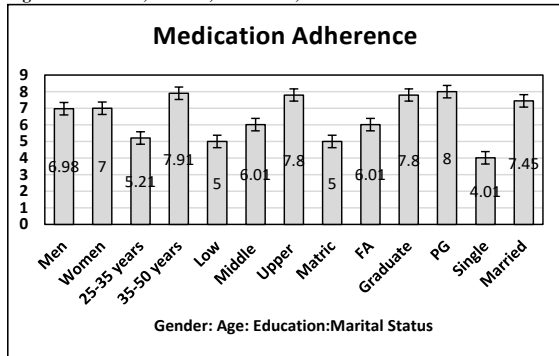


Figure 2: ANOVA; Bowel Surgery, Doctor-Patient Relationship, medication intake and effects

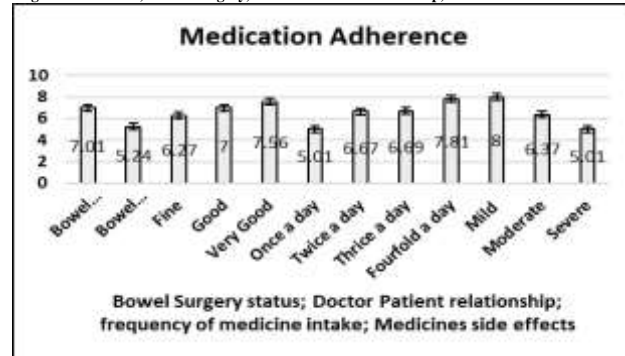


Figure 3: ANOVA; Stages of UC and Time Span

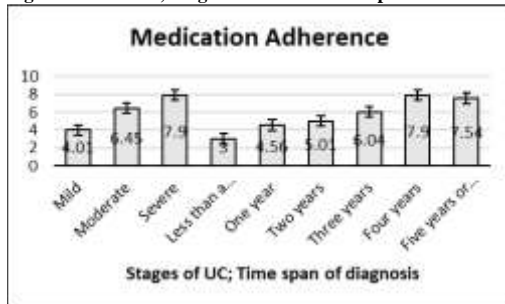


Figure 1 represented men ($M=6.98, SD=.02$) and women ($M=7.00, SD=.01$), did not differ in showing medication adherence, in other words, they had moderate levels of medication adherence. Patients in Younger age ($M=5.01, SD=.00$) had poor medication adherence while those in middle adulthood ($M=7.91, SD=.01$) had moderate medication adherence further, middle and upper class, and unmarried participants had poor medication adherence. Figure 2 exhibited participants with bowel surgery ($M=7.01, SD=.00$) were better adhere with medicines. Also, doctor patient relationship found to be related to medication adherence and those who were taking medicines four or three times a day were having moderate medication adherence but patients reported severe medication side effects were having poor medication adherence. However, Figure 3 demonstrated patients suffering from moderate to severe from UC along

longer durations showed good medication adherence.

Discussion

Medication adherence is a serious issue for the management of chronic illness like UC, patients who fail to adhere medications often experience worst clinical outcomes, for instance, disease in physical activity, recurrent relapses, severe morbidity, high financial burden, disability and even mortality (Spekhorst et al., 2013). So, the present research examined the factors that create obstacles for UC patients to adhere medication plan prescribed by physicians or gastroenterologists. The study investigated that both men and women did not vary in medication adherence and on Morisky scale they had moderate level of medication adherence. So, it meant that medication adherence does not contingent on the gender of a person but many studies revealed that men are less likely to show

medication adherence than women because men usually indulge in outside activities and forget about taking medicines (Ediger et al., 2007; Lachaine et al., 2013). However, the current study showed a different perspective, one possible explanation might be that in our sample, 116 patients (out of 160 patients), were having moderate to severe UC, and in this sample, patients were showing moderate to high medication adherence to reduce the symptoms and disease severity. This was also showed by our results that patients with bowel surgery, and with longer duration of diagnosis (as disease gets adverse with the passage of time) were more likely to adhere with medical regimens. Even increased quantity of medicines, (as doctors prescribe medicines thrice or fourfold medicines a day, depending on the severity of disease) were associated with high medication adherence. Moreover, people in 30s and 40s were showing better medication adherence than those in early 20s. So, basically medication adherence was associated with the complexity of disease not gender based. A recent study conducted in Kuwait among patients with hypercholesterolemia showed that less severely ill younger patients were less adherent to their medicines as compared to older patients with several comorbid conditions (Al-Foraih & Somerset, 2017). The authors suggested that more severely ill older patients were more attentive to their treatment regimen because they were more aware of their own mortality compared to younger patients (Al-Foraih & Somerest, 2017; Latry et al., 2011)

However, in Australia, Chan et al. (2017) gave a different finding by stating that severely ill patients often do not adhere with medications as they believe that medicines are not working and also worried about the harmful side effects of medicines. In our study, it was also seen that patients who felt that medicines have severe side effects reported poor medication adherence.

Study also showed that middle- and upper-class patients, and those with high qualification, and with better doctor-patient communication, and who were aware about their illness were having moderate and high medication adherence. The results are aligned with Gavrilova et al. (2019) and Trivedi and Keefer (2015) researches which identified that patients having poor communication patterns with doctors are less likely to adhere with medical compliance but SES and qualification level of patients was not having an impact on medication adherence as disease severity was an important factor.

Another aspect of the present study was to see that coping styles are also likely to predict medication adherence. In Pakistani culture, patients are more prone to believe in supernatural forces for cure and refuge in fate. Ali et al. (2021) conducted a qualitative study to explore the supernatural beliefs of people in rural, Punjab where respondents even relied on dum and Peer Fageer to cure fever. Tahir, Qureshi, and Safi (2018) also stated that superstitious beliefs are used as controlling health related behaviors as people who believe in that they will have a bad day occasionally, so they restrict themselves in homes and do not go for medical appointments. Also, people who consider Safar month as a misfortune and evil often have irrational beliefs that diseases are happening due to this month and visit fake healers for cure. Such beliefs also signal escape or avoidant behaviors because people are usually afraid to go for medical check-ups and want to avoid inconvenience (Vinten et al., 2017; Ishaq & Sultan, 2020). However, active coping was a significant positive predictor of medication adherence.

Conclusion

The study came to the conclusion that the complexity of the condition, as well as elements like age, a history of gastrointestinal surgery, active coping mechanisms, and the length of time

after diagnosis, are more important determinants of medication adherence in UC patients than gender. Patients who felt their medications had serious negative effects reported having trouble staying on their prescription regimens. Additionally, the study discovered that patients from middle- and upper-class backgrounds, as well as those with high qualifications and positive doctor-patient interactions, had higher rates of moderate to high medication adherence. The severity of the patient's ailment, rather than socioeconomic class or educational level, had the greatest influence on medication adherence. The study suggested that healthcare providers should concentrate on enhancing communication with their patients, teaching them about the advantages of medications, and controlling their expectations regarding side effects in order to enhance medication adherence.

Limitations

The study did not use any path analysis model which made sure in which order, a particular factor, could influence medication adherence. No valid and reliable tool to measure clinical characteristics like knowledge about illness, bowel surgery, frequency of medicines intake, medicines side effects etc. was used which might biased the results. patients were not asked about which types of medicines they were taking like oral or injectable as medication adherence depends on nature of medicines intake.

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