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Research Article

**FACTORS INFLUENCING THE MEDICATION ADHERENCE  
AMONG PATIENTS OF IRON DEFICIENCY ANEMIA WHO  
ARE USING ORAL IRON THERAPY**<sup>1</sup>Dr Ijaz Khalid, <sup>1</sup>Dr Rameen Fatima, <sup>2</sup>Dr. Maria Elahi<sup>1</sup>House Officer, Lahore General Hospital Lahore<sup>2</sup>Woman Medical Officer at Basic Health Unit 48/3R Okara

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**Abstract:**

**Objective:** This main aim of this research work was to investigate the various factors influencing the medication adherence to oral iron treatment among patients suffering from IDA (Iron Deficiency Anemia).

**Methodology:** A sum of total ninety six female patients in their fertile age with an average age of  $30.0 \pm 10.10$  years who got admission in Lahore General Hospital Lahore from March 2016 to July 2019 were the participants of this current research work. All these patients received oral iron therapy in the duration of this research work. Collection of the data carried out on a well-organized questionnaire Performa.

**Results:** Out of total patients, 40.60% (n: 39) patients were identified with not using their medication on regular basis or in the recommended duration. There was discovery of strong association between non-adherence to treatment and weight gain & gastro-intestinal side effects with P value of less than 0.050.

**Conclusion:** There was deficiency of medication adherence among patients suffering from IDA. The most vital causes were gastro-intestinal side effects and gain of weight under impact of this treatment.

**KEY WORDS:** IDA, gastro-intestinal, questionnaire, average, Performa, association, adherence, weight gain, medication, side effects.

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**INTRODUCTION:**

There is evidence of the iron deficiency in higher than 1.50 billion population of the world. This is very serious issue of health in the countries which are under development present in Asia, South America and Africa and it is also common reason of anemia even in the countries of Western Europe [1, 2]. In the countries of Europe, there are many factors of IDA but menstruation is the most common reason. Decreased dietary iron intake, bleeding from gastro-intestinal tract, pregnancy, mal-absorption and donation of blood are some most common causes of this complication [3]. IDA has association with the adverse QoL (Quality of Life), abnormal physical & mental performance [4, 5].

Effective therapy of the patients suffering from IDA is very worthwhile. Oral iron salts are the best available solution for the replacement of the iron. Obtained one time or two times a day in form of tablet, they are the initial treatment for most of the signs [6]. Patients normally discontinue the utilization of the oral iron treatment due to its adverse side effects and non-adherence to the procedure of proper medication in IDA [7]. The main rationale of this research work was to examine the various factors influencing the medication adherence in the patients suffering from iron deficiency anemia.

**METHODOLOGY:**

This research work carried out in a single center and it is a transverse research work. We gathered the records of the patients from the data management system of the hospital who were suffering from IDA. The ethical committee of the Lahore General Hospital Lahore gave the permission to conduct this research work. We defined the standard medication as utilization of the total of 200.0 milligrams ferrous sulfate preparations in two doses daily via oral way when the patient was in condition of fast. We used the well-organized questionnaire for the testing of the medication adherence in the case of iron deficiency. Questionnaire contained the questions assessing whether patients were using medications regularly and patients were informed by the professionals about the total treatment duration.

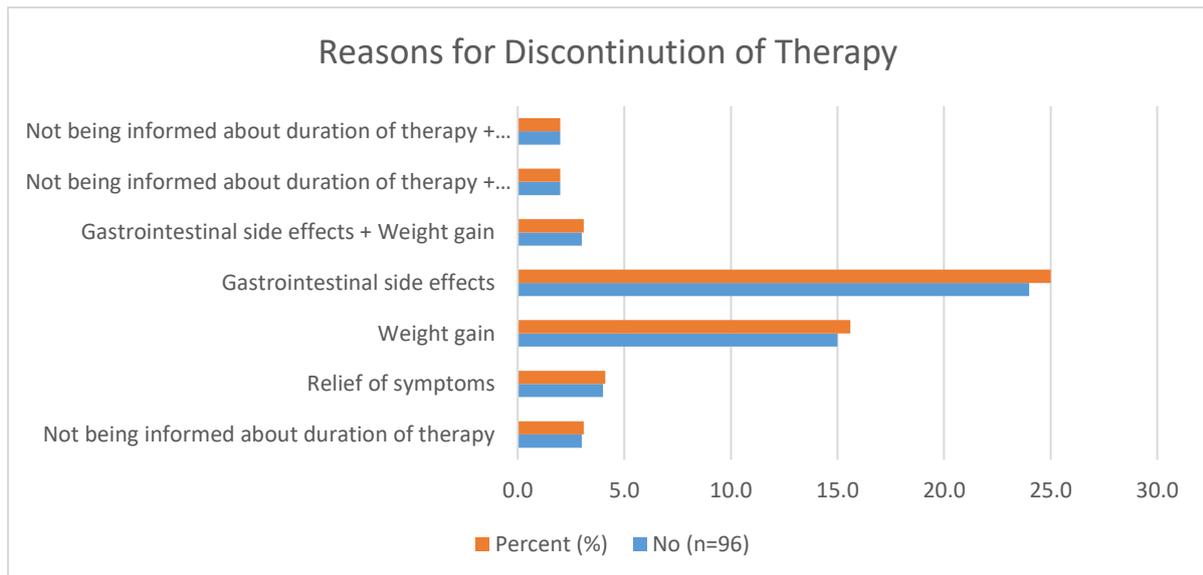
The questions related about the discontinuation of medication because of the relief of different symptoms, not being informed about treatment's duration, gastro-intestinal side effects as vomiting, distention, nausea, pain in abdomen cavity, diarrhea and constipation, gain of weight were asked for evaluation of therapy-associated side effects and impacts of these side effects on the adherence to medication. We filled the forms of questionnaire with complete face to face interviews. Family physician conducted all the interviews. All the patients who were present with no clear IDA diagnosis, who were not aware about their utilization medicines or patients suffering from some malignant diseases were not the participants of this research work. The patients who were under the impact of other medication, were also excluded from this research work. SPSS V.20 was in use for the statistical analysis of the collected information. We presented the categorical variables in percentages. We used the fisher exact test for the comparison of these categorical variables.

**RESULTS:**

A sum of total ninety six females with an average age of  $30.0 \pm 10.10$  years with a range of age from 18 to 53 years who got admission in Lahore General Hospital Lahore from March 2016 to July 2019 were the participants of this research work. All these patients received oral iron treatment in the duration of this research work because of iron deficiency anemia were the participants of this research work. Out of total ninety six patients, 40.60% (n: 39) patients were identified with not utilizing medication on regular basis or in the period of recommended duration. Of these patients, 3.1% (n: 3) patients said that that they had not informed properly about the whole procedure of the therapy, 4.1% (n: 4) patients stated that they left their treatment because of the relief of symptoms, 37.50% (n: 36) patients stated that medication of iron caused gastro-intestinal side effects and total 66.6% (n: 24) patients among them said that they were not able to continue the medications due to its side effects. Total 37.50% (n: 36) patients said that medication was the cause of gain of weight and among them, 41.6% (n: 15) patients said that they left the medication because of this very cause as mentioned in Table-1 & Table-2.

**Table-I: Reasons for discontinuation therapy.**

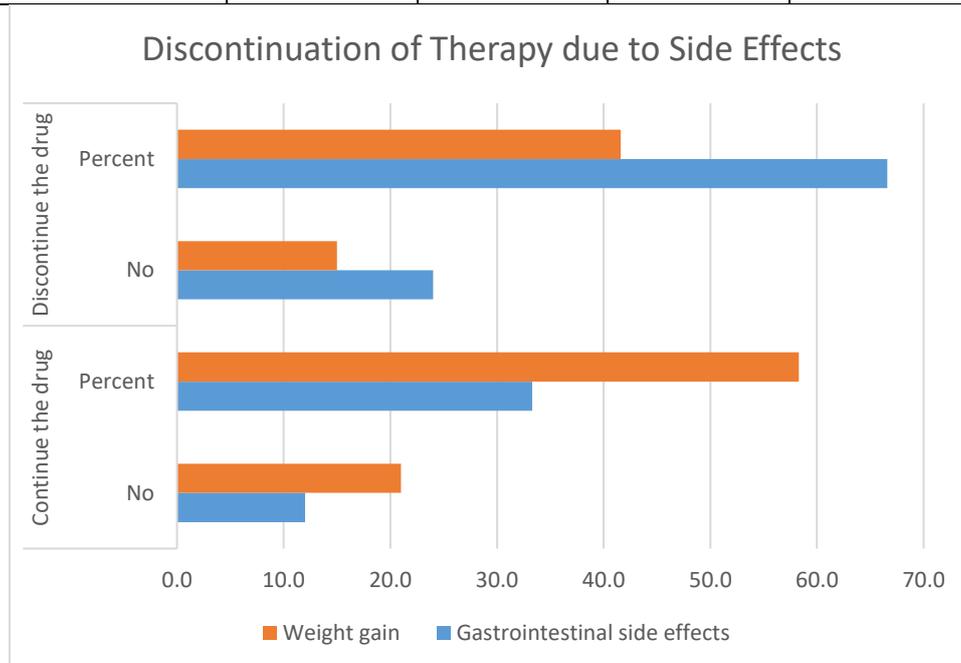
Reason	No (n=96)	Percent (%)
Not being informed about duration of therapy	3.0	3.1
Relief of symptoms	4.0	4.10
Weight gain	15.0	15.60
Gastrointestinal side effects	24.0	25.00
Gastrointestinal side effects + Weight gain	3.0	3.10
Not being informed about duration of therapy + Relieving symptoms	2.0	2.00
Not being informed about duration of therapy + Gastrointestinal side effects	2.0	2.00



A few number of patients stated higher than one cause for the treatment’s discontinuation. There were total 3 patients in the group of gastro-intestinal side effects plus gain of weight, two patients were not informed about the treatment’s duration and relief in their symptoms, 2 patients were not informed about the treatment’s duration and gastro-intestinal side effects. We identified a statistically significant association between non-compliance to the treatment and gain of weight & gastrointestinal side effects ( $P < 0.050$ ).

**Table-II: Distribution of patients according to discontinuation therapy due to side effects.**

Side effect	Continue the drug		Discontinue the drug		P-Value
	No	Percent	No	Percent	
Gastrointestinal side effects	12.0	33.30	24.0	66.60	0.0001
Weight gain	21.0	58.30	15.0	41.60	0.0001



**DISCUSSION:**

IDA is the most common cause of anemia in the whole world especially in females. The occurrence of iron deficiency happens when iron losses exceed its absorption in the intestines. This situation occurs

among the patients with reduced intake of iron, iron’s mal-absorption, enhanced iron demand or ongoing loss of iron [8]. Patients with iron deficiency normally prescribed with the oral iron medication due to convenience and less expense.

Oral iron salts are most common accessible way for the replacement of iron. Obtained one time or 2 times in a day in form of tablet, they are the initial treatment for most of the indications [9]. Dose of oral iron for iron deficiency anemia should be from 30 to 80 milligrams elemental iron on daily basis, given for three to six months and for longer duration if there is ongoing cause of the iron deficiency [10]. Iron treatment is being used to replenish the stores of iron and restore the concentrations of hemoglobin to normal levels, thereby treating and prevention of the symptoms arising from iron deficiency anemia. While majority of the patients respond well to the oral iron medication but some patients have adverse side effects which make them of non-adherence to the process of treatment.

There is occurrence of gastrointestinal symptoms in up to 30.0% patients using oral iron as vomiting, nausea, pain in abdomen cavity, flatulence, diarrhea and constipation. A recent meta-analysis was unable to confirm that these side effects have association with dose [9]. In this current research work, 37.10% patients were identified with having gastro-intestinal side effects and discontinuation ratio of the treatment because of this very reason was present in 21.30% patients. Regardless of the deficiency of the supportive meta-analysis information, a decrease in the amount of dose is very effective and can be equally effectual in the replenishment of the stores of iron [9, 11-13].

In opposition of some research works, some research works states that they are no better tolerated than the formulations of standard methods [9, 14]. Majority of new formulations of oral doses of iron are focus of medical research and display promise in association to effectiveness and tolerability but these formulation not yet available routinely [15, 16]. In spite of the non-availability of the data about the treatment associated gain in weight, most of the patients worries about the gain of their body weight. In this research work, 38.20% patients stated that iron treatment lead them to gain of body weight and 12.40% patients were identified to comply with treatment for this very reason.

### CONCLUSION:

There was deficiency of awareness and application of medication adherence among patients suffering from iron deficiency anemia. The most important reasons seems gastro-intestinal side effects followed by tension of gain of weight and improper data about the treatment's duration. There can be reduction in the gastro-intestinal side effects by the decrease in the dose or use of the pills after meals. The patients with worry of gain weight may be advised that they could enhance their physical activities and they should be advised not to use food with high amount of calories.

### REFERENCES:

1. Reinisch W, Staun M, Bhandari S, Munoz M. State of the iron: how to diagnose and efficiently treat iron deficiency anemia in inflammatory bowel disease. *J Crohn's Colitis*. 2013;7:429-440. doi: 10.1016/j.crohns.2012.07.031.
2. Cook JD. Diagnosis and management of iron deficiency anemia. *Best Pract Res Clin Haematol*. 2005;18:319-332.
3. Schaefer RM, Huch R, Kraff A. The iron letter--an update on the treatment of iron deficiency anemia. *Praxis (Bern 1994)*. 2006;95(10):357-364.
4. Shander A, Goodnough LT, Javidroozi M, Auerbach M, Carson J, Ersler WB, et al. Iron deficiency anemia – bridging the knowledge and practice gap. *Transfus Med Rev*. 2014; 28:156-166. doi: 10.1016/j.tmr.2014.05.001.
5. Tolkien Z, Stecher L, Mender AP, Pereira DI, Powell JJ. Ferrous sulphate supplementation causes significant gastrointestinal side-effects in adults: a systematic review and meta analysis. *PLoS ONE*. 2014;10 e0117383. doi: 10.1371/journal.pone.0117383
6. Frewin R, Henson A, Provan D. ABC of clinical haematology: iron deficiency anaemia. *BMJ*. 1997;314:360-363.
7. Rimon E, Kagansky N, Kagansky M, Mechnick L, Mashiah T, Namir M, et al. Are we giving too much iron? Lowdose iron therapy is effective in octogenarians. *Am J Med*. 2005;118:1142-1147.
8. Makrides M, Crowther CA, Gibson RA, Gibson RS, Skeaff CM. Efficacy and tolerability of low-dose iron supplements during pregnancy: a randomised controlled trial. *Am J Clin Nutr*. 2003;78:145-153.
9. Zlotkin S, Arthur P, Antwi KY, Yeung G. Randomized, controlled trial of single versus 3-times-daily ferrous sulfate drops for treatment of anemia. *Paediatrics*. 2001;108:613- 616.
10. Cancelo-Hidalgo MJ, Castelo-Branco C, Palacios S, Haya- Palazuelos J, Ciria-Recasens M, Manasanch J, et al. Tolerability of different oral iron supplements: a systematic review. *Curr Med Res Opin*. 2013;29:291-303. doi: 10.1185/03007995.2012.761599.
11. Gasche C, Ahmad T, Tulassay Z, Baumgart DC, Bokemeyer B, Büning C, et al. Ferric maltol is effective in correcting iron deficiency anemia in patients with inflammatory bowel disease: results from a phase-3 clinical trial program. *Inflammatory Bowel Dis*. 2015;21:579-588. doi: 10.1097/MIB.0000000000000314.
12. Pisani A, Riccio E, Sabbatini M, Andreucci M, Del Rio A, Visciano B. Effect of oral liposomal iron versus intravenous iron for treatment of iron deficiency anemia in CKD patients: a

- randomized trial. *Nephrol Dial Transplant.* 2014;0:1–8. doi:10.1093/ndt/gfu357.
13. Grosbois B, Decaux O, Cador B, Cazalets C, Jego P. Human iron deficiency. *Bull Acad Natl Med.* 2005;189(8):1649-1663; discussion 1663-1664.
  14. Hercberg S, Preziosi P, Galan P. Iron deficiency in Europe. *Public Health Nutr.* 2001;4(2B):537-545.
  15. Goddard AF, James MW, McIntyre AS, Scott BB; British Society of Gastroenterology. Guidelines for the management of iron deficiency anemia. *Gut.* 2011;60:1309- 1316. doi: 10.1136/gut.2010.228874.
  16. WHO, UNICEF, UNU. Iron deficiency anemia: assessment, prevention, and control. A guide for programme managers. Geneva, World Health Organization, 2001. WHO/ NHD/01.3. Available from: [http://www.who.int/nutrition/publications/en/ida\\_assessment\\_prevention\\_control.pdf](http://www.who.int/nutrition/publications/en/ida_assessment_prevention_control.pdf)