



# DETERMINE THE EFFECT OF APPROPRIATE POLYPHARMACY ON CONSTIPATION AND ITS USED FOR WEXNER SCALE SCORE METHOD IN A TERTIARY CARE HOSPITAL

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## ABSTRACT:

### BACKGROUND:

Constipation is one of the most common health issues which is prevalent in most of the populations. Irrespective of age it can be observed in any aged person, but is most commonly seen in the Geriatric people. Constipation can be caused due to internal and functional disabilities and there are many other contributing factors for constipation such as the health conditions, Diet, Alcohol, Smoking, Exercise & Usage of more drugs than required which can also be termed as the polypharmacy. Again the polypharmacy can be termed as the Appropriate polypharmacy which evidence based and should be given to the patient based on the risk benefit ratio and the other one is the Inappropriate polypharmacy which is not based on evidence and is not at all encouraged, Mostly in the geriatric patients due to the multiple co morbidities multiple drug therapy should be used this goes the same with the hospitalized patients so taking this factor into consideration and keeping the side effects of drug mainly the laxative therapy an alternative is used instead of drug therapy.

**METHODOLOGY: -**

Taking the study subjects of 100 people of Hospital acquired constipation due to the multiple drug therapy, an interventional study is done by replacing their laxatives with a natural diet and collecting their score of defecation before and after the administration of the natural diet and evaluating them using the appropriate statistical analysis.

**RESULTS: -**

About 100 people are taken into the study and taking the scores into the consideration an appropriate incline in the condition of the study subjects is observed in the 100% of the study 72% of the population and 8% of the population observed negative effect which worsened the condition of the patient, 20% of the population showed no positive and negative effect and their condition remained the same.

**CONCLUSION: -**

Usage of the alternative therapy in the place of the drug can show a positive effect and it can be beneficial to the patient because apart from the required effect many more required minerals and other substances are obtained from the diet and it will not become a burden to the [patient unlike the medicines and compared to the medicines taking diet has less or no side effects which is more beneficiary improving the quality of life of patient.

**INTRODUCTION:****POLYPHARMACY**

Polypharmacy is defined as the usage of five or more drugs by the patient in a day usually accepted as the cut-off. The definition of polypharmacy differs accordingly but the common thing is that intake of more drugs wantedly or unwantedly by the person can be termed as the common definition for the polypharmacy. Polypharmacy is mainly in use mostly the patients with the MULTIMORBIDITY. This condition should definitely treat with the multiple drugs or a complex therapeutic management by the health professionals. There is a chance of risk of ADR's as the drugs increases the ADR'S can be of drug- drug interaction and the drug- food interaction. Apart from the ADR'S there are also chances for the mortality and hepatic and renal impairment, considering the expenditure of the treatment this may increase the cost also. Though polypharmacy has its own negative effects based on the benefit risk ratio usage of polypharmacy is clinically appropriate.

Constipation is an acute or chronic condition in which the bowel movement occurs less often than casual or consist of hard, dry stools that are painful and difficult to pass. Bowel habits may vary but a person who don't have a bowel movement in three days or a child missing their defecation in 4 days can be considered as constipated.

**DATA COLLECTION: -**

- The Prevalence of constipation was estimated by using the WEXNER SCALE and BRISTOL STOOL SCALE scoring system.

**WEXNER SCALE SCORES**

| ITEMS   | Score |
|---|-------|
| <b>Frequency of bowel movements</b>                               |       |
| 1-2 times per 1-2 days  | 0     |
| 2 times per week  | 1     |
| Once per week   | 2     |
| Less than once per week   | 3     |
| Less than once per month  | 4     |
| <b>Difficulty: painful evacuation effort</b>                      |       |
| Never   | 0     |
| Rarely  | 1     |
| Sometimes   | 2     |
| Usually   | 3     |
| Always  | 4     |
| <b>Completeness: feeling incomplete evacuation</b>                |       |
| Never   | 0     |
| Rarely  | 1     |
| Sometimes   | 2     |
| Usually   | 3     |
| Always  | 4     |
| <b>Pain: abdominal pain</b>                                       |       |
| Never   | 0     |
| Rarely  | 1     |
| Sometimes   | 2     |
| Usually   | 3     |
| Always  | 4     |
| <b>Time: minutes in lavatory per attempt</b>                      |       |
| Less than 5   | 0     |
| 5-10  | 1     |
| 10-20   | 2     |
| 20-30   | 3     |
| More than 30  | 4     |
| <b>Assistance: type of assistance</b>                             |       |
| Without assistance  | 0     |
| Stimulative laxatives   | 1     |
| Digital assistance or enema                                       | 2     |
| <b>Failure: unsuccessful attempts for evacuation per 24 hours</b> |       |
| Never   | 0     |
| 1-3   | 1     |
| 3-6   | 2     |
| 6-9   | 3     |
| More than 9   | 4     |

| <b>History: duration of constipation (yr)</b> |   |
|---|---|
| 0   | 0 |
| 1-5   | 1 |
| 5-10  | 2 |
| 10-20   | 3 |
| More than 20                                  | 4 |

| <b>S.NO</b> | <b>TYPE</b> | <b>CHARACTERISTICS</b>                 | <b>PATIENT CONDITION</b> |
|-------------|-------------|--|--------------------------|
| 1           | TYPE-1      | SEPARATE HARD LUMP<br>LIKE NUTS        |                          |
| 2           | TYPE-2      | SAUSAGE SHAPED BUT<br>LUMPY            |                          |
| 3           | TYPE-3      | LIKE A SAUSAGE BUT HAS<br>CRACKS ON IT |                          |
| 4           | TYPE-4      | LIKE A SAUSAGE SMOOTH<br>AND SOFT      |                          |
| 5           | TYPE-5      | SOFT BLOBS [ Easy to pass]             |                          |
| 6           | TYPE-6      | FLUFFY PIECES [Normal<br>stools]       |                          |
| 7           | TYPE-7      | ENTIERLY LIQUID                        |                          |

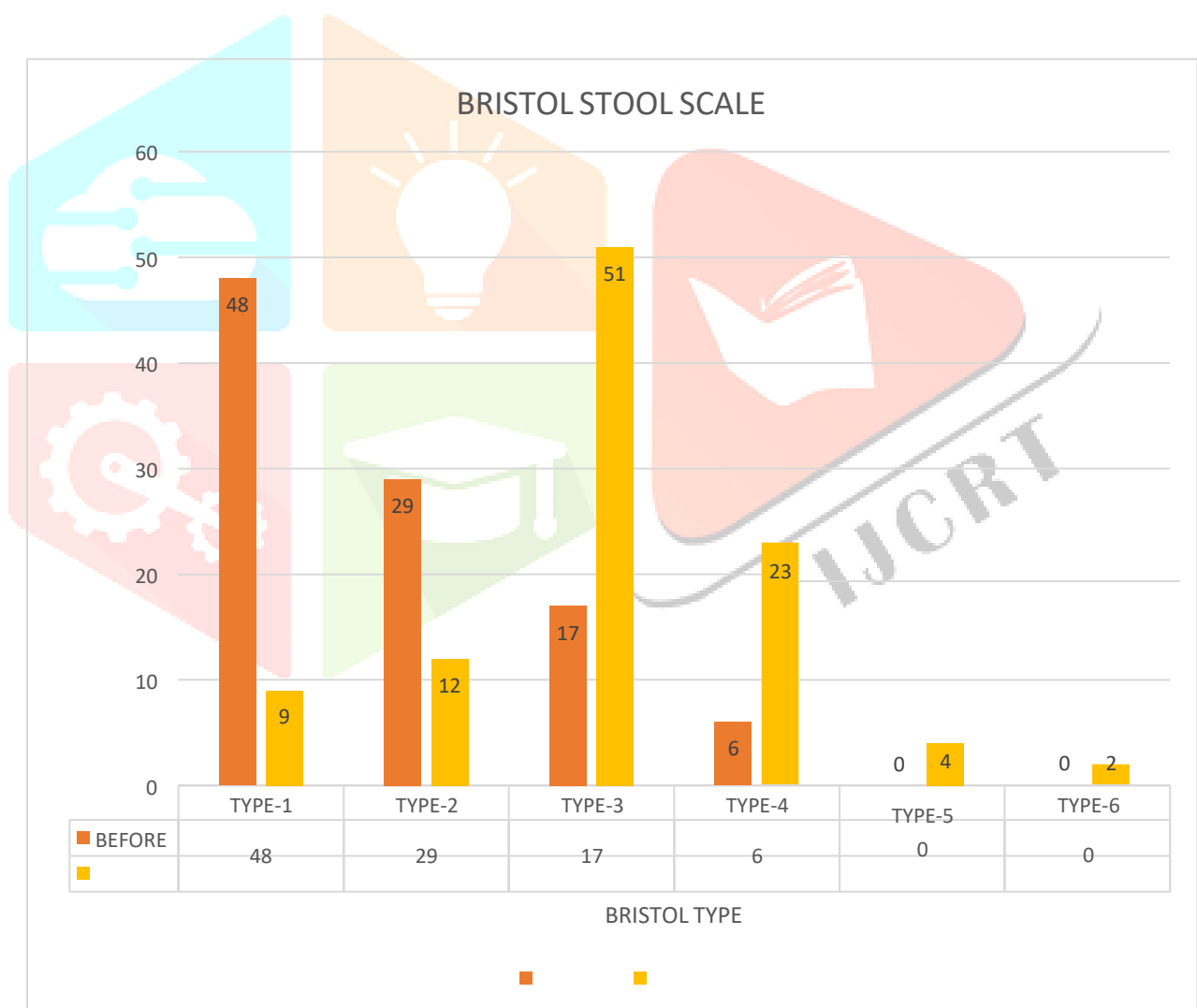
- Patients are included in the study based on the inclusion criteria and exclusion criteria.
- These selected patients are assessed about their condition based on the Bristol stool scale and Wexner scales
- After obtaining the scores the condition of the constipation in the patient is assessed and it was followed by a questionnaire regarding the usage of drugs, their experience after the usage of drugs
- Then the patient was counselled regarding the importance of defecation and side effects of not defecating and then patient was advised to change the diet and pause the medication for 2 days
- Each patient in this study had a tailored diet which is suggested based on his condition and other health conditions, Changes in the diet could be difficult based on their type of diet intake and selection of fibre source for the intake
- After 2 days the patient was again interviewed, and WEXNER STOOL SCALES and BRISTOL STOOL SCORES were obtained
- Based on these scores the progression or regression of the patient is evaluated

**DATA ANALYSIS: -**

The obtained data from the questionnaire is evaluated based on the objectives of the study, various parameters such as the Age, Gender, Social History, Wexner scores and also the Bristol stool scales was evaluated.

**WEXNER SCORES: -**

- During the evaluation of the Wexner scores each factor was taken into the consideration and an average was obtained for each factor in the entire study.
- ALL these analysed scores were then represented in the required formats for easy representation.



**WEXNER SCORE SCALES: -**

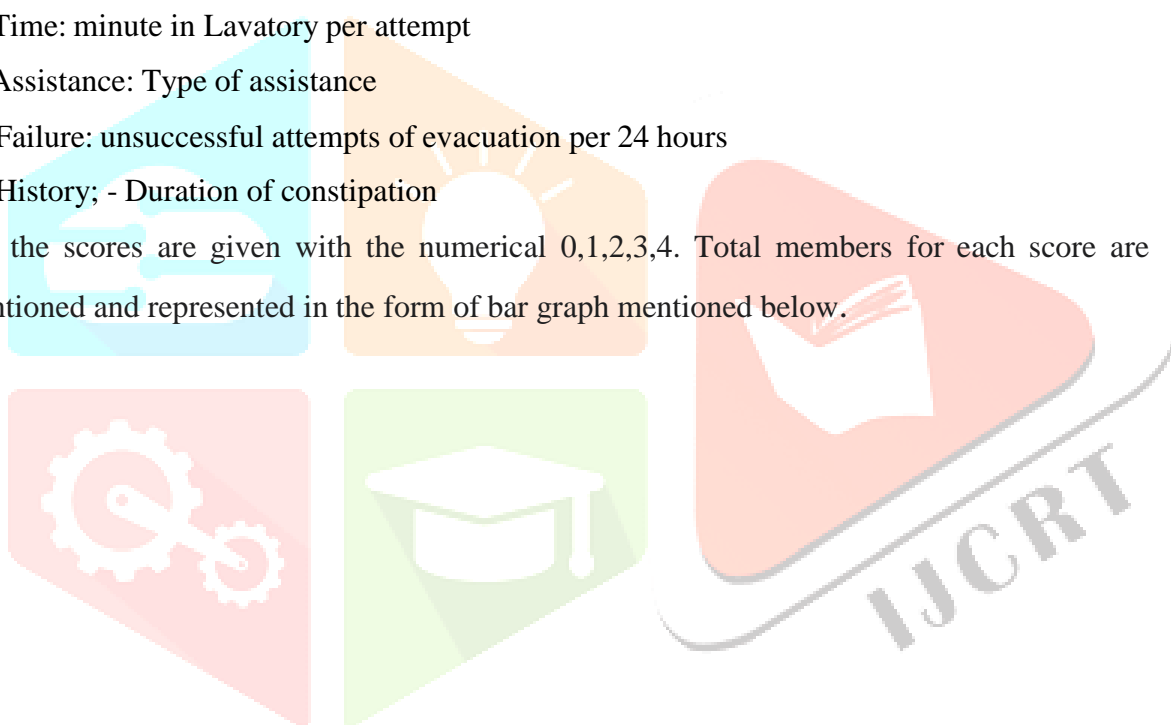
A Scoring system is required to evaluate the constipation and also to evaluate the amount of defecation in the constipated patients, for this a scoring system is used named WEXNER SCORING System named after WEXNER. These scores are based on the questionnaire given to the patient based on their condition they will answer them and scores are given, the more the score the

more serious the constipation and less the score the less serious is the condition. Total scores collected in the study are represented in the form of bar graphs and two separate graphs are provided for representing the before and after effects. In the graphs each condition was taken into the consideration and represented separately for easy understating.

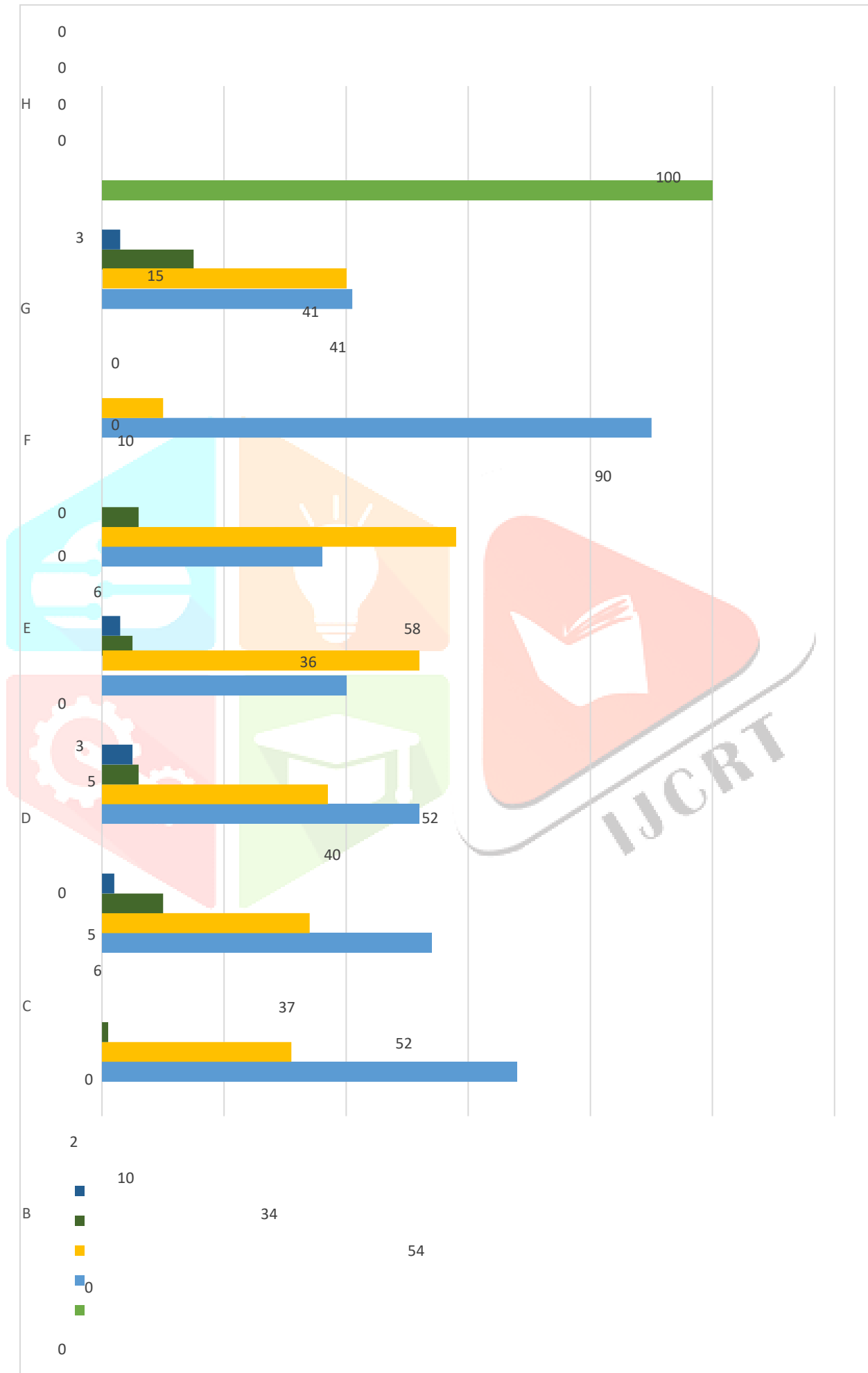
In the chart each factor was taken and represented before and after each factor was represented with alphabets A, B, C, D, E, F, G, H. Each alphabet represents one factor and is mentioned below.

- A) Frequency of bowel movements
- B) Difficulty: Painful evacuation effort
- C) Completeness: feeling incomplete evacuation
- D) Pain: abdomen pain
- E) Time: minute in Lavatory per attempt
- F) Assistance: Type of assistance
- G) Failure: unsuccessful attempts of evacuation per 24 hours
- H) History; - Duration of constipation

and the scores are given with the numerical 0,1,2,3,4. Total members for each score are mentioned and represented in the form of bar graph mentioned below.

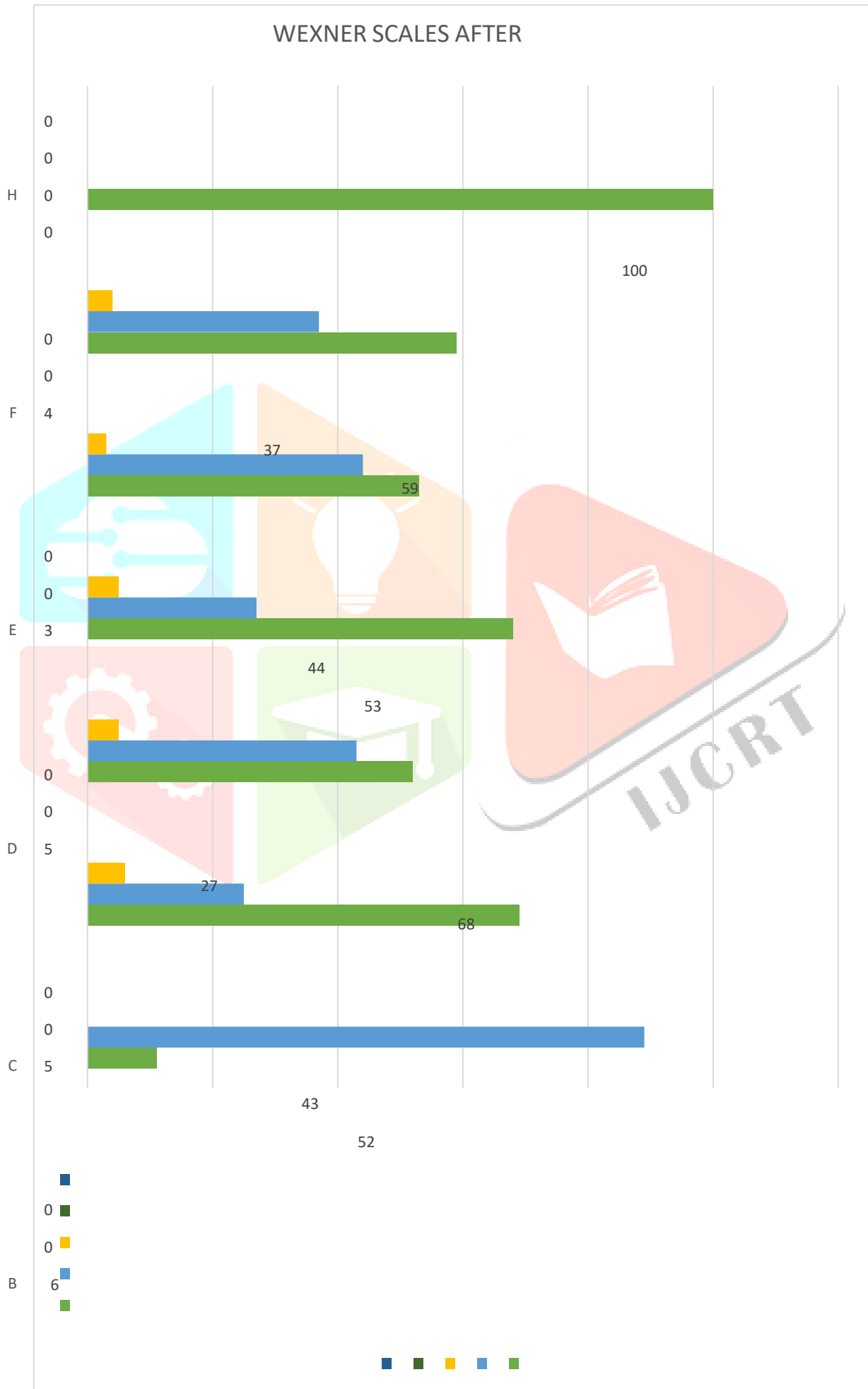


# WEXNER SCALES BEFORE









|   | A  | B  | C  | D  | E  | F  | H   |
|---|----|----|----|----|----|----|-----|
| 4 | 0  | 0  | 0  | 0  | 0  | 0  | 0   |
| 3 | 0  | 0  | 0  | 0  | 0  | 0  | 0   |
| 2 | 0  | 6  | 5  | 5  | 3  | 4  | 0   |
| 1 | 89 | 25 | 43 | 27 | 44 | 37 | 0   |
| 0 | 11 | 69 | 52 | 68 | 53 | 59 | 100 |

[1] McRorie JW, Daggly BP, Morel JG, Diarsing PS, Miner PB, Robinson M. Psyllium is superior to docusate sodium for treatment of chronic constipation. *Aliment Pharmacol Ther.* 1998;12:491–497.]

[2] Cummings JH, Macfarlane GT. The control and consequences of bacterial fermentation in the human colon. *J Appl Bacteriol.* 1991;70:443–459.

[3] <https://www.health.harvard.edu/staying-healthy/what-to-do-when-medication-makes-you-constipated>

[4] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5635569/>

[5] <https://www.slideshare.net/prashantshukla927/polypharmacy-57404596>

[6] <https://medical-dictionary.thefreedictionary.com/constipation>

[7] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3206564/#!po=30.8511>

[8] <https://www.medicalnewstoday.com/articles/150322>

[9] <https://www.karger.com/Article/Abstract/101714>

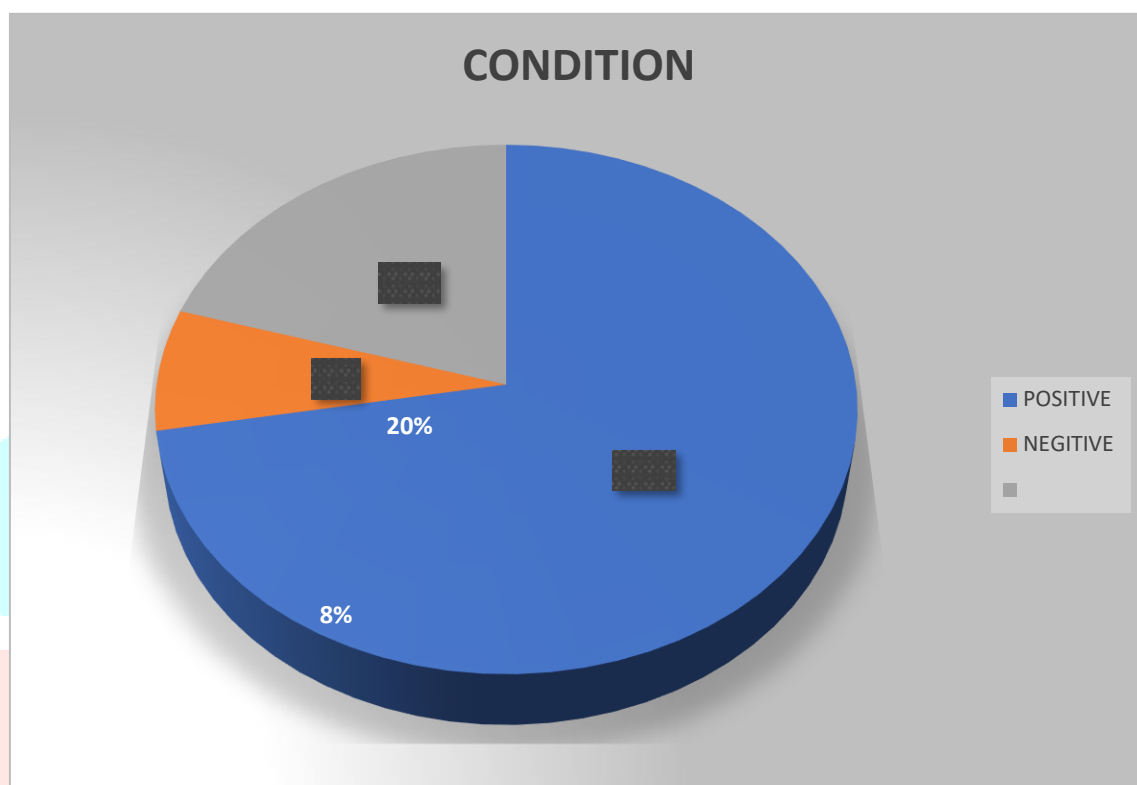
[10] <https://www.researchgate.net/publication/>

[11] 1828140\_The\_Pathophysiology\_of\_Chronic\_Constipation

[12] <https://teachmephysiology.com/gastrointestinal-system/large-intestine/defecation/#:~:text=The%20external%20anal%20sphincter%20is,and%20relaxes%20the%20internal%20sphincter.>

[13] <https://www.rosewoodranch.com/laxative-abuse-treatment/#:~:text=Constipation%3A%20Laxatives%20are%20used%20to,stoof%20out%20of%20the%20body.>

Based on the Bristol stool scales and the Wexner scores we can observe change in majority of the population, though no change is observed in some people and their condition remained the same, and minor amount of the population gained a negative effect, change observed in the population is mentioned using a pie chart and is mentioned below.



Blue area in the chart represents the positive change in the study which accounts of about 72% of population in the study, and 8% of the population in the study experienced a negative effect and their condition worsened it is represented with orange colour area in the chart and 20% of the population experienced no change it is represented with grey colour in the pie chart.

### **STATSTICAL ANALYSIS:**

For the statical analysis of the study paired T-TEST is used the reason for the selection of the paired T-TEST is because this is the analysis of data which is from the same population, it can be called as the before and after studies. Evaluating the condition of population before the change in the diet and evaluating the condition after the change in diet in this population. To analyse the data and to arrange in correct format EXCEL sheets are used and to know if the study is significant and true paired T-TEST is used.

It is a single population two tailed paired T-TEST and the total Wexner scale score before the

change in diet and after the change in diet is taken as two different variables of the same population as the before and after.

## Discussion:

Their condition or the level of constipation is evaluated by using Wexner scores and Bristol stool chart in this study the average Wexner score before the change in diet is 11 and after the study the Wexner score decreased to 4 and the average Bristol chart scores before the study is TYPE-1 and the average Bristol chart scores after the study is TYPE-3. Based on these average scores of the Wexner and the Bristol scores we can see a clear improvement in the condition of the subjects.

Among the 100 subjects the positive improvement is seen in 72 people and 20 members condition remained the same and 8 members showed some negative effect and their condition was deprived than that of the normal. Coming to the results, based on the numerical from the paired T-TEST there is a significance rejecting the null hypothesis proving that the study that is conducted is correct and significant.

Taking the scores under the consideration we can say that there is an improvement in the study population faecal discharging proving that the interventional study did workout in a positive manner.

## CONCLUSION:

Medicine should not be a solution for these minor problems medication exploitation due to availability of this information through various sources. Exploitation of the laxatives or laxative abuse may mould the patient GI tract or he/she may be psychologically dependent on these drugs, so being someone with the knowledge regarding the medicines and their pharmacodynamic and pharmacokinetics of the drug we should make the follow the natural remedies or life style modifications and if that doesn't work, we should prefer usage of drugs. Sometimes usage of one method may not show significant effect in those cases both the methods should be considered and used.

## References:

- [14] McRorie JW, Daggly BP, Morel JG, Diersing PS, Miner PB, Robinson M. Psyllium is superior to docusate sodium for treatment of chronic constipation. *Aliment Pharmacol Ther.* 1998;12:491–497.]
- [15] Cummings JH, Macfarlane GT. The control and consequences of bacterial fermentation in the human colon. *J Appl Bacteriol.* 1991;70:443–459.
- [16] <https://www.health.harvard.edu/staying-healthy/what-to-do-when-medication-makes-you-constipated>
- [17] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5635569/>
- [18] <https://www.slideshare.net/prashantshukla927/polypharmacy-57404596>
- [19] <https://medical-dictionary.thefreedictionary.com/constipation>

[20] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3206564/#!po=30.8511>

[21] <https://www.medicalnewstoday.com/articles/150322>

[22] <https://www.karger.com/Article/Abstract/101714>

[23] <https://www.researchgate.net/publication/>

[24] 1828140\_The\_Pathophysiology\_of\_Chronic\_Constipation

[25] <https://teachmephysiology.com/gastrointestinal-system/large-intestine/defecation/#:~:text=The%20external%20anal%20sphincter%20is,and%20relaxes%20the%20internal%20sphincter.>

[26] <https://www.rosewoodranch.com/laxative-abuse-treatment/#:~:text=Constipation%3A%20Laxatives%20are%20used%20to,stoof%20out%20of%20the%20body.>

