WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 7, 1149-1169. Research Article ISSN 2277–7105

A PROSPECTIVE OBSERVATIONAL STUDY ON PRESCRIPTION PATTERN AND RATIONAL USE OF PROKINETICS AND PROBIOTICS IN TERTIARY CARE HOSPITAL

***Md. Abed Alam, *E. Sindhuja, *E. Rohith Goud, *G. Pravalika and *Dr. D. Venkata Ramana**

M. Pharm. Ph. D, Professor

Holy Mary Institute of Technology & Science (College of Pharmacy), Bogaram (V), Keesara (M), Medchal (Dist), TS – 501301.

Article Received on
14 February 2025,

Revised on 04 March 2025,
Accepted on 25 March 2025

DOI: 10.20959/wjpr20257-36090

***Corresponding Author**
Dr. D. Venkata Ramana
M. Pharm. Ph. D, Holy Mary Institute of Technology & Science (College of Pharmacy), Bogaram (V), Keesara (M), Medchal (Dist), TS - 501301.

ABSTRACT

Aim: To identify prescribing patterns and rational drug use of prokinetics and probiotics in tertiary care hospital, Secunderabad. **Objectives:** To assess the effects of prokinetic and probiotic prescription practices. To examine how probiotics and prokinetics are used to treat various illnesses. They evaluate the drawbacks of taking probiotics and prokinetics. To assess probiotics and prokinetics' effectiveness and safety for a range of illnesses. To ascertain probiotics and prokinetics efficacy. **Methods:** 200 cases were gathered for the study, which was supported out over six months at the KIMS Sunshine Hospital in Secunderabad. The data was obtained from patient case sheets from several departments where the patients received surgery. **Results:** A total of 200 subjects were recruited for the research, for the study, 116 men and 84 women were presumably recruited. When considering gender as a variable, we can state that men (58%) and women (42%), respectively. The age range with the highest percentage (23.5%) was between 46 and 60, while the lowest percentage (12%) was between 18 and 30. Prokinetics were given more frequently than probiotics, based on the drug's categorization. The majority of prokinetics and probiotic prescriptions were made in surgical gastroenterology and liver transplantation (i.e., 73 (36.5%)), followed by general medicine (i.e., 67 (33.5%). The probiotic and prokinetic treatments had greater OD frequencies (49.5%), with HS (bedtime) frequencies displaying the

lowest frequency (3%). Prokinetics andprobiotic prescription patterns are greater for monotherapy (81.9%) and 90.7%, respectively, and are followed by triple treatment, which has a lesser range (3%), (0%), respectively. **Conclusion:** In the present clinical study, it is concluded that the outcomes of Prokinetics and probiotics often highlight the potential for health benefits, improving symptoms and individual responses. The most often prescribed prokinetic medication in the study was Levosulpiride (17.5%), metoclopramide (11%), Prucalopride (63.7%), and Domperidone (7.5%). The most often prescribed probiotic medication in this study was Caps VSL#3 (60%), Tab. Sporlac (11%), Cap.Providac (28%). Although prokinetics and probiotics have a high range of efficacy but accompanied by several adverse effects on the longer duration of administration of drugs. This study concludes that Prucalopride is a safer prokinetic drug in ameliorating digestive motility disorders and related symptoms and is widely prescribed. It is suggested that rather than other prokinetic drugs prucalopride is effective in achieving a sustained benefit in the majority of patients. And cap vsl is a probiotic drug that is more often prescribed which is mainly used to maintain a healthy digestive tract and found to be associated with several AEs. It is suggested that regular prescription monitoring should be done to encourage rational use of drugs.

KEYWORDS: Prescription pattern, Prokinetics, Probiotics, Functional dyspepsia, Gastroparesis, Gut microbiota, Bifidobacterium strains, Prucalopride, CAP VSL#3.

INTRODUCTION

The probiotic market has seen a considerable expansion in recent years due to the increasing interest of people in their health and the growing awareness of probiotics' health benefits.[1,2] In addition, probiotic therapies have been more prevalent in the last decade, being widely recommended and prescribed during antibiotic therapy in order to avoid intestinal imbalance. According to the International Probiotic Association (IPA), the EU probiotic market was valued at EUR 9.5 billion in 2022, approximately 25% of the global sales of probiotics, including probiotic supplements, yogurts, and sour milk. Probiotic supplements accounted for 17% of the total probiotic market, with Italy representing the lead consumer of this kind of product in Europe.[3]

Innovation in the field of probiotics is challenging due to a lack of efficacy proofs, competition with already on-the-market probiotic products that are not supported by evidence, and a complex regulatory approval process that must be gone through. Insufficient fundamental knowledge and poor investment in research and development result in

inadequate and underpowered clinical trial designs.[4] Most randomized controlled trials are effectively just pilot studies, too limited to foster any meaningful probiotic-specific clinical advancements. More extensive clinical studies (phase III) are required to demonstrate efficacy to health authorities and improve the health practitioners' confidence in probiotics efficacy.[5] While many probiotic products lack evidence, some particular strains showed efficacy depending on the type of disease and mode of administration (for prevention or treatment).[6]

At the global level, there are few guidelines based on scientific evidence intended to support healthcare professionals in incorporating probiotics into their daily patient care practice. The most recent guidelines issued by the World Gastroenterology Organisation (WGO) include probiotics for prophylaxis and the treatment of targeted conditions like diarrhea (in the acute phase or associated with *Clostridium difficille* infection, antibiotics, etc.), inflammatory bowel disease (IBD), and irritable bowel syndrome (IBS) among other gastrointestinal disorders and infections. This guidance offers probiotic options, doses, and routes of administration for targeted diseases based on clinical evidence.[7] Other guidelines, like the one released by the American Gastroenterological Association (AGA), are not that optimistic and do not recommend the ingestion of probiotics for most digestive diseases (IBS, IBD, *Clostridium difficile* infection) due to the heterogeneity of studies and inconsistency in the probiotic strains studied.[8] For the prevention of antibiotic-associated diarrhea (AAD) in children, ESPGHAN recommends the administration of *Lactobacillus rhamnosus* strain GG and *Saccharomyces boulardii* (no specific strain). This guidance does not deny the efficacy of other probiotic strains but requires future studies to establish their beneficial effect.[9] Although guidelines for probiotic use exist, there is a lack of consensus among them, indicating that universal guidelines for probiotic use are still not established but are needed for the accuracy of medical acts and the correctness of patients' therapy.

Due to the variety of probiotic supplements, the multitude of strains, the lack of general clinical guidelines, and the absence of proper regulation over these products, it is complex and confusing for healthcare practitioners to decide on a specific probiotic product for their patients.[10] Also, making educated decisions about probiotic usage is challenging due to insufficient scientific data on their effectiveness. Therefore, the decision to choose a bacterial supplement is often left to the patient.[11]

Prokinetics research is crucial because these drugs improve the mobility of the intestines, which facilitates the passage of food through the gut. Treating diseases like gastroparesis and gastroesophageal reflux disease (GERD) and enhancing patient outcomes and quality of life requires an understanding of their causes and consequences.

Investigating probiotics' potential advantages for gut health and general well-being requires further research. By providing light on the relationships between probiotics and the human microbiome, this research helps us comprehend the functions of probiotics in the body'sdefenses, digestion, and even mental health.

The main aim of the study is to identify prescribing patterns and rational drug use of prokinetics and probiotics in tertiary care hospital, Secunderabad.

METHODOLOGY

Study design and study period

- It is a prospective, observational study to be conducted in KIMS – SUNSHINE, Secunderabad.
- The study is proposed to be conducted for 6 months.

Source of data

Data would be collected from treatment charts, case sheets, and laboratory data of the subjectsincluded in the study.

Sample size

The estimated sample size is about 200 patients.

Inclusion criteria

The study includes if the subject satisfies the following criteria.

- Inpatients and Outpatients.
- Patients with other comorbidities.
- Age (about 18 years).
- Gender (both and female).

Exclusion criteria

- Pediatrics.
- Patients who be situated not willing to give the consent.

- Emergency cases.
- Pregnant women.
- Lactating women.

Method of collection of data

Informed consent would be obtained from the study participants after explaining the study details. Data collection and DRPs were identified.

STUDY PROCEDURE

The study's methodology has been approved by Sunshine Hospital's ethics committee. 200 casesof both sexes have been added to our research. Forms for collecting patient data were used to gather all the information needed for our investigation. For the first two months of the six-monthresearch period, data collecting was conducted. As part of the data-collecting procedure, we spoke with the patients who met the requirements for our research and made sure theyunderstoodthe specifics of it before obtaining their consent. There is a consideration for a general medicinedepartment. Their prior medical history. Two months were spent analyzing information following data gathering. Excel was the program used to create the graphs, tables, and other visual representations of the statistical analysis. In Sunshine Hospital, the study was carried out. The thesis was prepared throughout the last two months of the study session.

Statistical analysis

This study will make use of descriptive statistics. A Microsoft Office Excel spreadsheet will beused to store and analyze all of the patient data that has been recruited.

RESULTS

Over six months, 200 cases were gathered in the KIMS Sunshine Hospital in Secunderabad the gathered information was used to make the following assessment.

Table 1: Distribution Based On Gender.

GENDER	NO OF PATIENTS	PERCENTAGE (%)
MALES	116	58
FEMALES	84	42
TOTAL	200	100

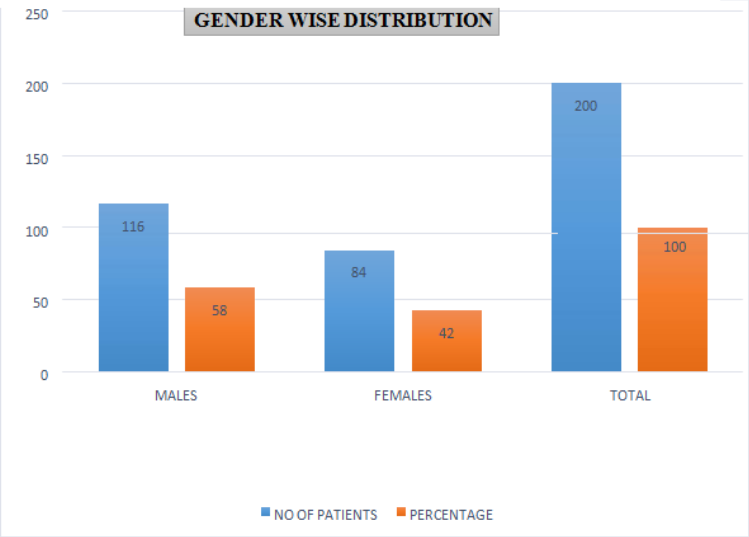

Figure 1: Gender Wise Distribution.

A total of 200 participants—116 males and 84 women—were probably sought out for the study. Ifgender is taken into consideration as a variable, we can say that men (58%) are treated with prokinetic and probiotic treatment more frequently than women (42%), when they have multipleillnesses related to their stomachs and other organs.

Table 2: Distribution Based on Age.

AGE (YEARS)	NO OF PATIENTS	PERCENTAGE
18-30 YEARS	24	12
41-45 YEARS	44	22
46-60 YEARS	47	23.5
61-70 YEARS	39	19.5
71-90 YEARS	46	23
TOTAL	200	100

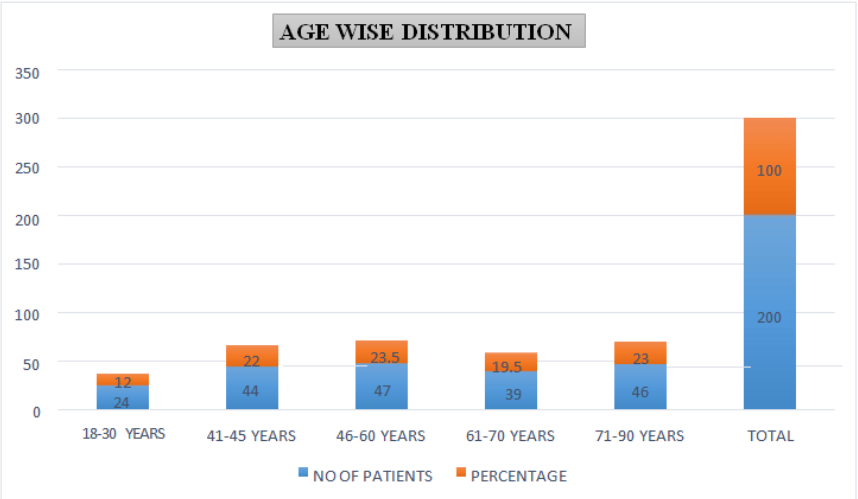

Figure 2: Age Wise Distribution.

Most of the 200 hospitalized patients with various issues were treated with prokinetics and probiotics treatment; the majority (23.5%) were between the ages of 46 and 60, and the least amount (12%) were between the ages of 18 and 30.

Table 3: Distribution Based On Comorbidities.

COMORBIDITIES	NO OF PATIENTS	PERCENTAGE
HTN	36	18
DM	25	12.5
HYPOTHYROIDISM	4	2
HTN+HYPOTHYROIDISM	17	8.5
DM+HYPOTHYROIDISM	1	0.5
DM+HTN	30	15
DM+HTN+HYPOTHYROIDISM	8	4
CHRONIC LIVER DISEASES	2	1
CHOLECYSTECTOMY	2	1
NONE	75	37.5
TOTAL	200	100

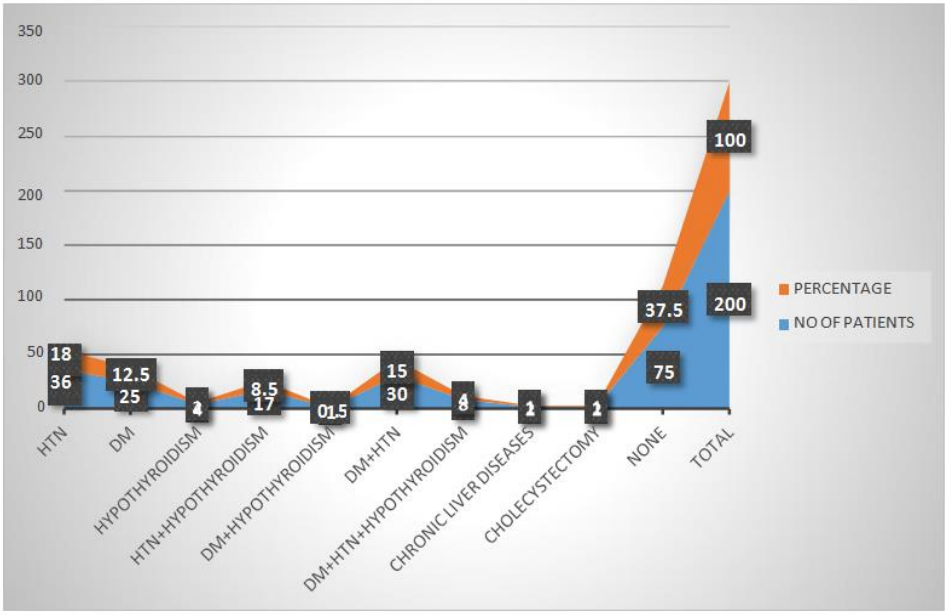

Figure 3: Comorbidities Wise Distribution.

It was conveyed that 200 people were selected to participate in the investigation. The disorders affecting the patients are attributed to 18.5% and 12.5%, respectively, to HTN and DM. The patients' rates of cholecystectomy and chronic liver disease were the lowest—6% and 7%, respectively.

Table 4: Distribution Based On Drug Classification.

DRUG CLASS	NO OF PATIENTS	PERCENTAGE
PROKINETICS	99	49.5
PROBIOTICS	86	43
BOTH	15	7.5
TOTAL	200	100

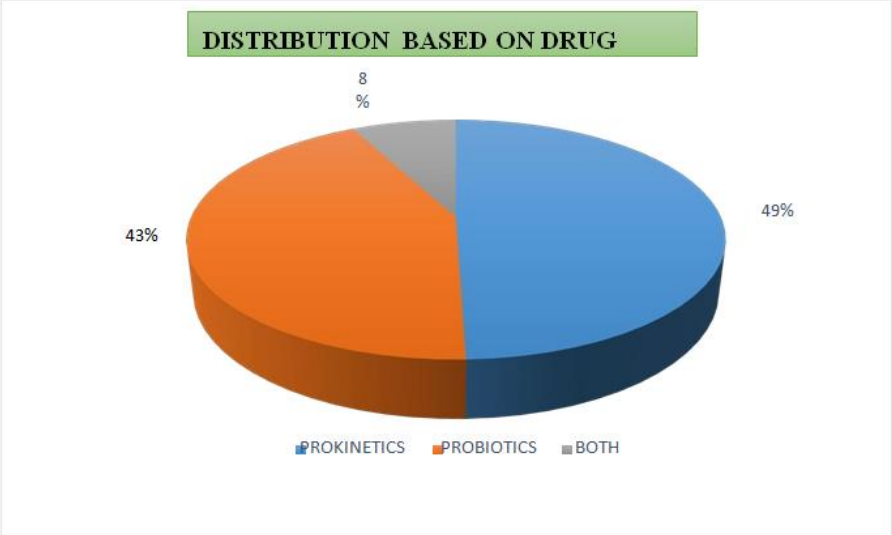

Figure 4: Drug Class Wise Distribution.

Conferring to the classification of the drug, out of 200 sample patients, 99 (49%) got prokinetics. Both prokinetics and probiotics I:e 15 (8%) and probiotics I:e 86 (43%) come in last. This assessment concluded that prokinetics were prearranged more often than probiotics.

Table 5: Distribution Based on Department.

DEPARTMENT	Column3	Column2
GENERAL MEDICINE	67	33.5
SURGICAL GASTRO AND LIVER TRANSPLANT	73	36.5
GASTROENTEROLOGY	20	10
ORTHOPEDICS	25	12.5
ONCOLOGY	1	0.5
PULMONOLOGY	5	2.5
NEUROLOGY	5	2.5
NEPHROLOGY	3	1.5
UROLOGY	1	0.5
TOTAL	200	100

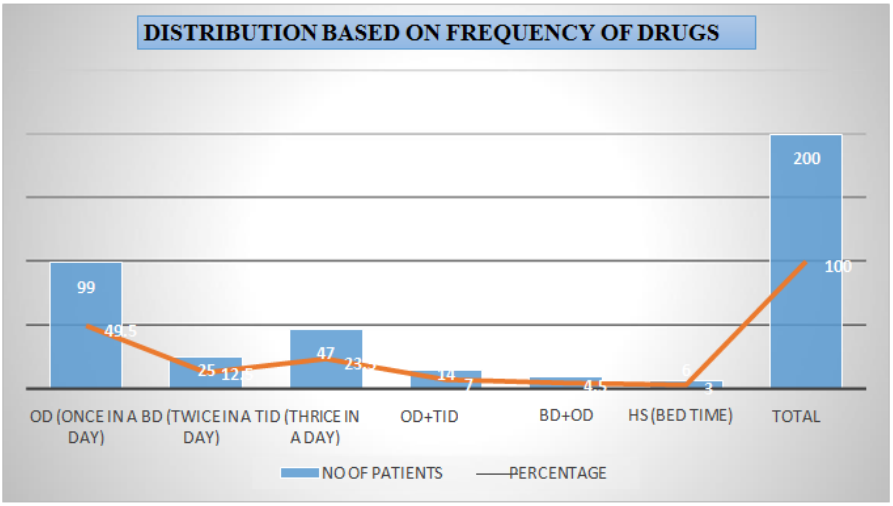

Figure 5: Based On Department.

Most prokinetics and probiotics were prescribed in surgical gastroenterology and liver transplantation (i.e., 73 (36.5%)), followed by general medicine (i.e., 67 (33.5%), in this 200 sample size study based on departmental classification. Then came gastroenterology (10) and orthopedics (12.5%), and so on.

Table 6: Distribution Based on Frequency of Drug.

FREQUENCY	NO OF PATIENTS	PERCENTAGE
OD (ONCE IN A DAY)	99	49.5
BD (TWICE IN A DAY)	25	12.5
TID (THRICE IN A DAY)	47	23.5
OD+TID	14	7
BD+OD	9	4.5
HS (BEDTIME)	6	3
TOTAL	200	100

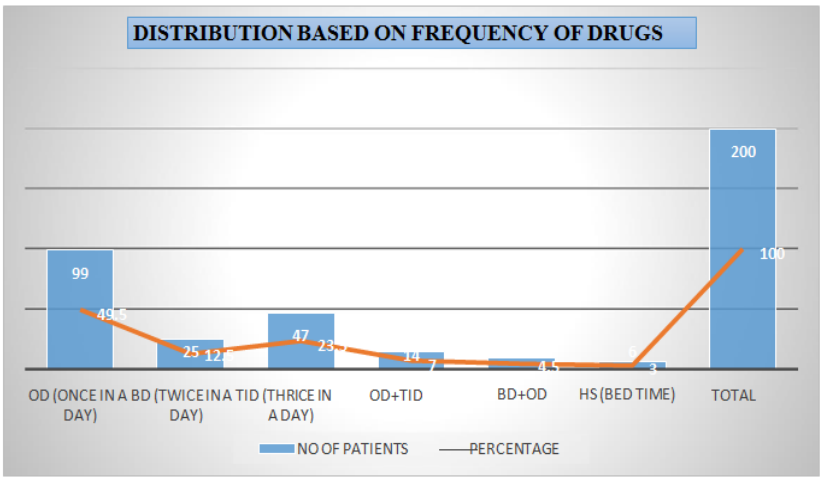

Figure 6: Frequency of Drugs.

The above-mentioned table and graph show that prokinetic and probiotic treatment had higherOD frequencies (49.5%) and the lowest showing frequency is HS (bedtime) frequencies (3%).

Table 7: Distribution Based on Dosage Form.

Dosage form	No of Patients	Percentage
TABLET	85	42.5
CAPSULE	69	34.5
INECTION		8
SACHET	2	1
TABLET+INJECTION	11	5.5
TABLET+CAPSULE	15	7.5
TABLET+CAPSULE+INJECTION	2	1
TOTAL	200	100

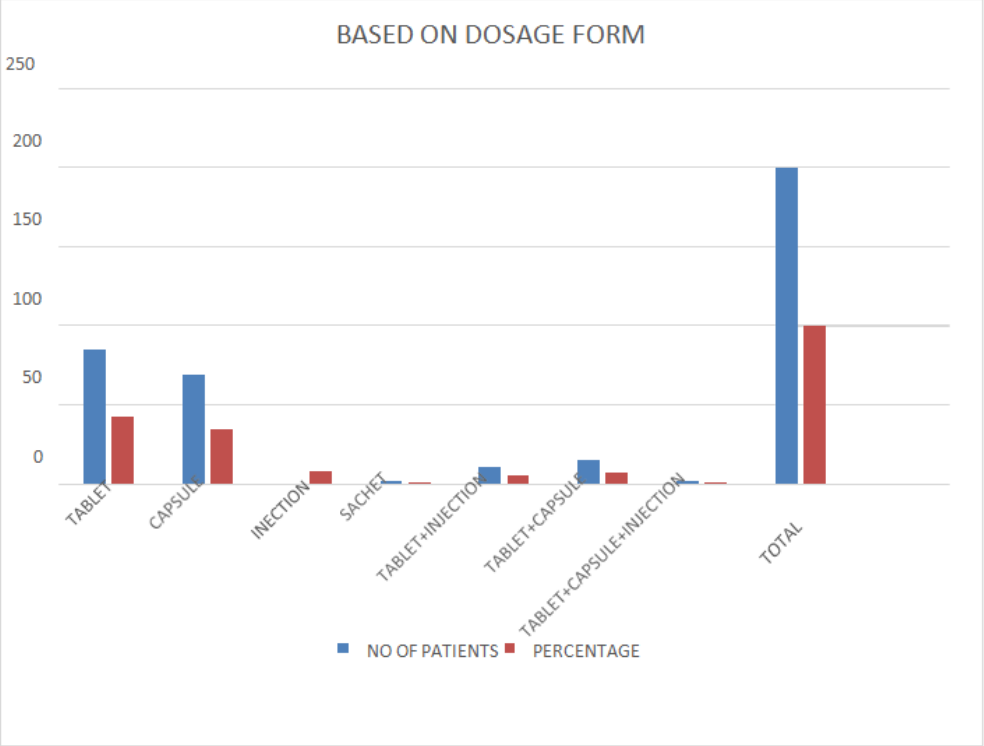

Figure 7: Based on Dosage Form.

Based on our analysis of 200 patients, the most common dose type used is capsule i:e 85 (42.5%). The prescription forms that are used the least are sachets i: e 2 (2%).

Table 8: Distribution Based On Duration of Therapy.

DURATION (IN DAYS)	NO.OF PATIENTS	PERCENTAGE (%)
2 DAYS	53	26.5
3DAYS	84	42
4DAYS	42	21
5 DAYS	14	7
6 DAYS	7	3.5
TOTAL	200	100

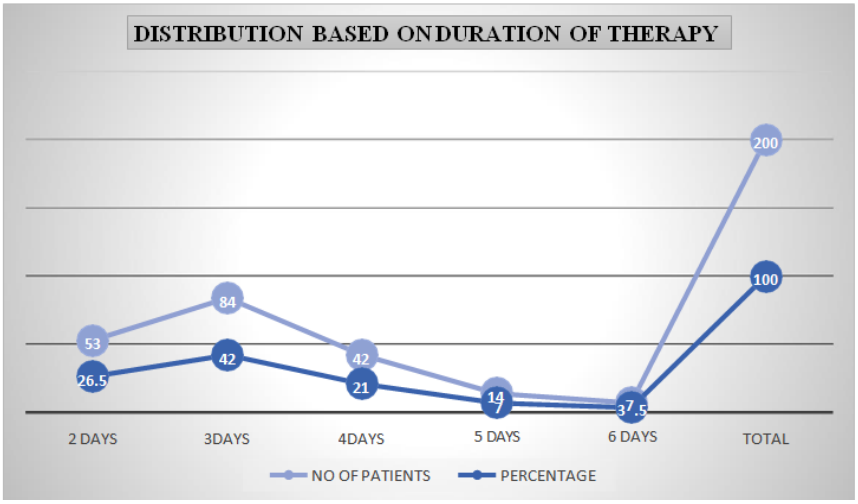

Figure 8: Based On Duration of Therapy.

It has been conveyed that 200 people were chosen to participate in the study. Prokinetic and probiotic prescriptions, when broken down by duration, have a high percentage (26.5%) for twodays and a low percentage (3.5%) for six days. Probiotics and prokinetics are recommended fora maximum of two to three days.

Table 9: Distribution Based on Weight.

WEIGHT (IN KGS)	NO:OF PATIENTS	PERCENTAGE (%)
30-40 KGS	3	1.5
41-60 KGS	118	59
61-80 KGS	64	32
81-100 KGS	15	7.5
TOTAL	200	100

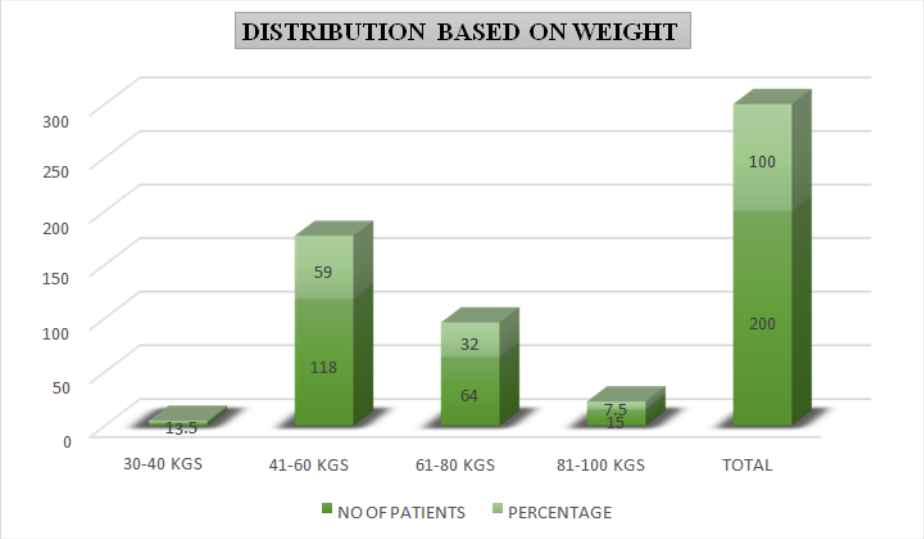

Figure 9: Based on Weight.

Based on our data from 200 patients, prokinetic and probiotic prescriptions are more common inpeople weighing 41–60 kg (59%) and least common in people weighing 30-40 kg (1.5%).

Table 10: Distribution Based on Prescription Wise.

PRESCRIPTION	NO OF PATIENTS	PERCENTAGE
BRAND	194	97
GENERIC	6	3
TOTAL	200	100

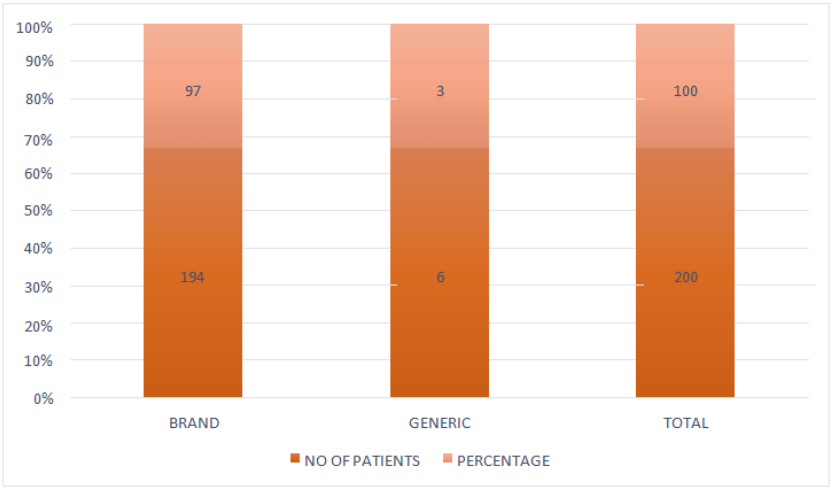

Figure 10: Based on Prescription Wise.

Based on our data of 200 patients, prescriptions were written in order of prescription type, with branded pharmaceuticals accounting for the largest percentage (97%) and generic medications accounting for the lowest percentage (3%).

Table 11: Distribution Based On Complaints.

Complaints	No of Patients	Percentage
Knee/Hip Pain	26	13
Abdominal Pain/Loose Stools/Vomitings	75	37.5
Fever with Chills	19	9.5
Ffever with Loose Stools	18	9
Constipation	22	11
None	40	20
Total	200	100

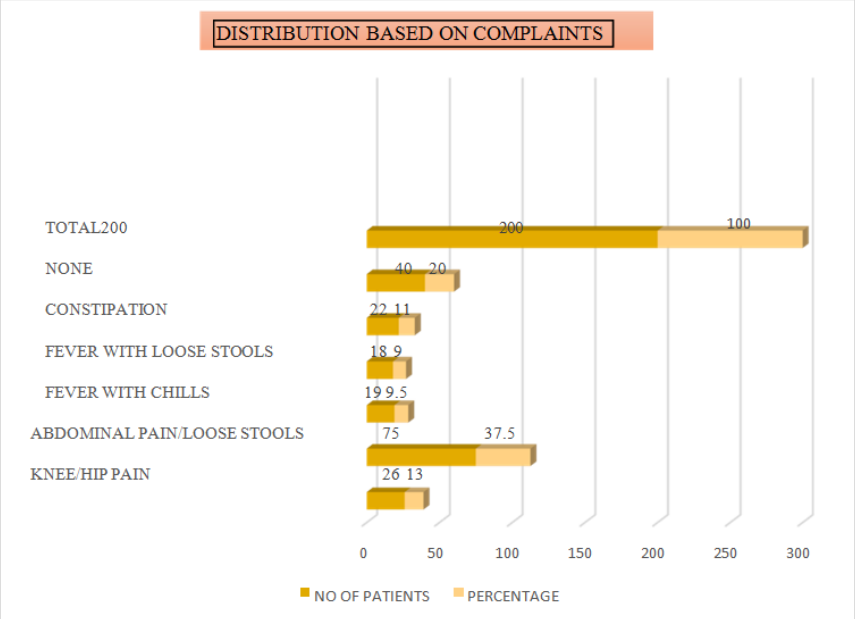

Figure 11: Based of Complaints.

Based on our analysis of 200 patients' records. There was a modest number of patients admitted with complaints of fever with loose stools (9%), but the majority of patients admitted with complaints of abdominal pain, loose stools, or vomiting (37.5%) were prescribed prokinetics and probiotics..

Table 12: Distribution Based On Prescription Pattern.

Prescription Pattern	Prokinetics	Prokinetic (%)	Probiotics	Probioti C (%)	Mixed	Mixed percentage (%)
MONOTHERAPY	81	81.9	78	90.7	0	0
DUAL THERAPY	15	15.1	8	9.3	0	0
TRIPLE THERAPY	3	3	0	0	0	0
TOTAL	99	100	86	100	15	100

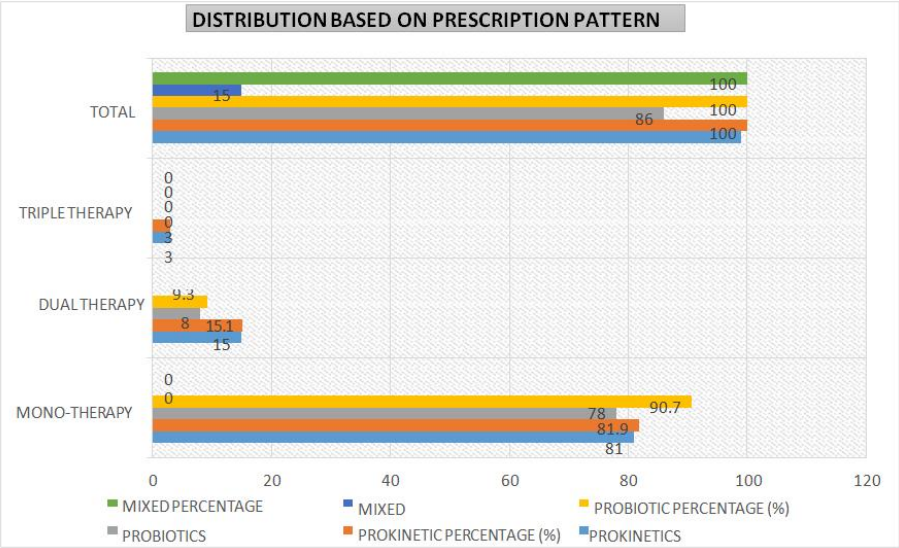

Figure 12: Based On Prescription Pattern.

It was distinguished that 200 individuals were carefully chosen for the investigation, in which the prescription pattern for prokinetics and probiotics is higher for monotherapy respectively(81.9%), (90.7%) and followed by triple therapy having a lower range (3%), (0%) respectively.

Table 13: Distribution Determined By Specific Prokinetuc Drugs.

DRUGS	NO OF PATIENTS	PERCENTAGE
PRUCALOPRIDE	51	63.75
LEVOSULPIRIDE	14	17.5
METOCLOPRAMIDE	9	11.25
DOMPERIDONE	6	7.5
TOTAL	80	100

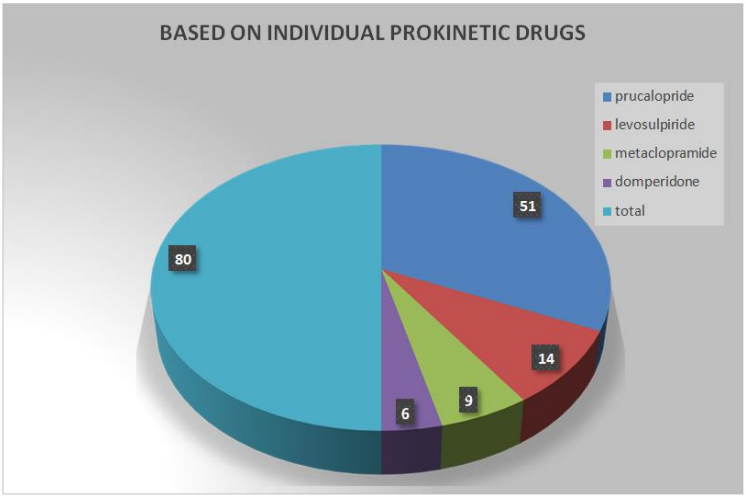

Figure 13: Individual Prokinetic Drugs.

It was distinguished that 200 individuals were carefully chosen for the investigation, in whichthe prescription pattern based on specific prokinetic drug results, utilization of prucalopride is higher (63%)rather than other prokinetics agents like Metaclopramide, Domperidone, levosulpride.

Table 14: Distribution Determined By Specific Probiotic Drugs.

DRUGS	NO OF PATIENTS	PERCENTAGE
CAP PROVIDAC	23	28.395062
CAP VSL #3	49	60.493827
TAB SPORLAC	9	11.111111
TOTAL	81	100

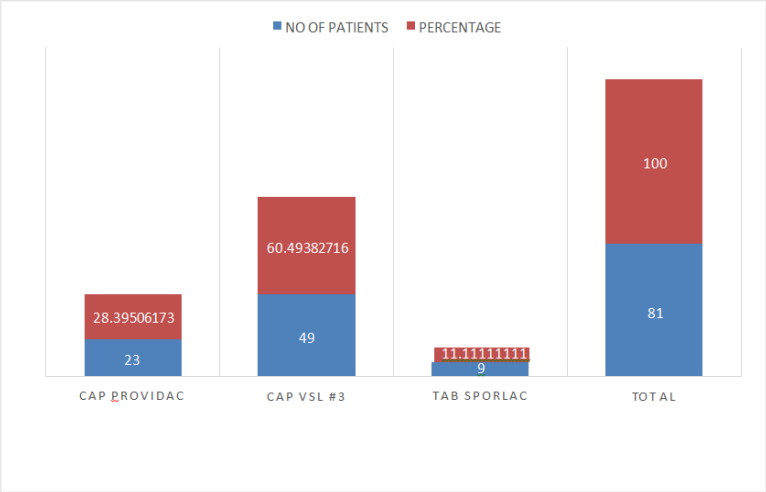

Figure 14: Individual Probiotic Drugs.

This study demonstrated that 200 individuals were selected for investigation in which the prescription pattern based on specific Probiotic drug results, utilization of cap VSL is higher(60%) than other drugs such as cap. Providac, cap. Sporlac.

DISCUSSION

- This is prospective, observational research that looked at patient prescription patterns and appropriate utilization of probiotics and prokinetics in tertiary care facilities.
- The current examination was directed at the General Medication branch of the KIMS - SUNSHINE HOSPITAL situated in Secunderabad.
- The viability and security of prokinetic and probiotic treatment are adequately upheld by the accessible information.
- We are totally happy with the review interaction and guidelines, as the review illustrated for the examination met the incorporation and prohibition measures.

- A sum of 200 examples, going in age from 18 to 90 years of age, were gathered for the imminent perception concentrate on solution examples and judicious utilization of prokinetics and probiotics.
- The patient example information assortment shapes that were assembled contained patient profiledata, emotional and objective proof, evaluations, plans for treatment, results from assessments, progress diagrams, and extra information.
- The information is sectioned in view of variables, for example, age, sex, disease type, familial history, and objections.
- For complete knowledge and trustworthy opinions, a great deal of material may be found in books.
- The research made up 200 cases in all. This study expressions that males are more prone to utilize prokinetics or probiotics to treat different gastrointestinal and other problems. Of the participants, 58% were men and 42% were women.
- Age groups 46–60 (23.5%) and 71–90 (23%) comprised the middle-of-the-road of cases.
- This indicates both prokinetics and probiotics were used more commonly by patients betweenthe ages of 46 and 90.
- A large proportion of the individuals who were included in our study had co-occurring disorders, including DM (12.5%), DM and HTN (15%), Hypothyroidism (2%), CLD (1%), and HTN (18%).
- Prokinetics were given to most patients (49.5%) compared to probiotics (43%), based on the distribution of pharmacological classes.
- According to the survey, capsules account for 42.5% of all dosage forms utilized. One of theleast utilized dose forms is sachets, or 2 (2%).
- Patients were prescribed prokinetics and probiotics based on the duration of therapy, in which three days (42%) is the maximum, and a minimum of six days (3.5%).
- Based on our data from 200 patients, prokinetic and probiotic prescriptions are more common inpeople weighing 41–60 kg (59%) and less common in people weighing 30-40 kg (1.5%).
- Based on our 200 patient data points. The majority of patients (37.5%) who were brought with symptoms of vomiting, loose stools, or abdominal discomfort also received prescriptions for prokinetics and probiotics; the fewest patients (9%), on the other hand, were admitted with complaints of fever and loose stools.
- Using data from 200 patients, we found that prescriptions for drugs were written with the highestbrand preference (97%) and the lowest generic preference (3%).

- It was reported that 200 people were chosen for the study, in which prokinetics and probiotic prescription patterns are greater for monotherapy (81.9%) and probiotics (90.7%), respectively, and are followed by triple treatment, which has a smaller range (3%),(0%), respectively.

CONCLUSION

PROKINETICS

- Prokinetic medications have unproven great potential for patients with gastrointestinal illness in response to various clinical outcomes in recent years.
- The most often prescribed prokinetic medication in the study was Levosulpride-14 (7%), metoclopramide-9 (4.5%), prucalopride-56 (28%), and Domperidone6 (3%).
- This study concludes that the prescription pattern for prokinetics has a wide range for monotherapy.
- Oral solids dose forms are more frequently used and more effective in the instance of Prokinetics,tablets and capsules are the most common form of dose type which are widely utilized in the case of Prokinetics.
- Prokinetics are administered in this trial for a maximum of 4 days, during which no adverse events are documented.
- These study outcomes often highlight the potential benefits of Prokinetics in improving symptoms and individual responses.

PROBIOTICS

- Science is now individual in evaluating the effects of probiotics, rather than just observation.
- Although the development of Prokinetics for human consumption is still in its infancy, probioticshave proven positive impacts on human health.
- The most often prescribed probiotic medication in this study were Caps VSL#3 - 47(23.5%), Tab. Sporlac -9(4%), Cap. Providac - 25(12%).
- This study also that prescription pattern for prokinetics has a wide range for monotherapy.
- Verbalized solid dose forms are more commonly used and more effective in the case of Prokinetics, capsules and tablets are the most form of dose types that are widely utilized in the case of probiotics.
- Probiotics are administered in this trial for a maximum of 3 drugs, during which no

adverse events events are documented.

- This study suggests their positive impact on digestive health and offers promising health benefits by promoting a balanced gut microbiome. Dyspepsia and patient compliance were enhanced by an innovative regimen based on prokinetics and probiotics.

- Although prokinetics probiotics have a high range of efficacy but accompanying with manyadverse effects on the longer duration of administration of drugs.
- Both Prokinetics and probiotics duration of drug administration have a lower range (3-4 days), and no adverse events were reported.
- Prescription pattern for both prokinetics and probiotics has a wide range of monotherapy, whichindicates each of these drugs is used alone to manage various diseases more safely and effectively.

SUMMARY

- The prescription patterns and rational use of probiotics and prokinetics at a tertiary care hospitalwere the subjects of a prospective observational study.
- This study consist of 200 patients after obtaining their consent
- Patient demographics, medication histories, diagnosis, and treatments were all included in the data collecting sheets.
- It additionally incorporates the accompanying: comorbidities, conclusion, other heart tests, progress graph, triple treatment, social history, family ancestry, cardiovascular history, boss sideeffects, date of confirmation, date of release, etc.
- Prescription pattern monitoring studies (PPMS) are a useful instrument for evaluating medication distribution, dispensing, and prescription practices. PPMS's primary goal is to enablethe rational use of medications (RUM).
- Prokinetics are drugs that increase the movement of the gastrointestinal tract; they are frequentlyused to treat gastroparesis and GERD. However, probiotics are breathing bacteria that support a balanced intestinal flora. Probiotics balance the microbiota to enhance overall gut health, while prokinetics help with motility. Although they have separate functions, they can work in concertto preserve gut health.
- Prokinetics are usually thought to be safe, yet there capacity be adverse effects including weariness, nausea, or diarrhea. Extended usage could have hazards and conflict with other drugs.
- Although probiotics are generally well tolerated, they may result in infections in those with weakened immune systems. Gas or bloating may occasionally occur in certain

persons. Since improperly made probiotic supplements may include hazardous ingredients, quality managementis essential.

- In this study, Statistical analyses be situated performed based on gender, age, commodities, drugclass, frequency, dosage form, based on the weight of patients, prescription, based on chief complaints, prescription pattern, and Duration.
- The most often prescribed prokinetic medication in the study was Levosulpride-14 (7%), metoclopramide-9 (4.5%), prucalopride-56 (28%), and Domperidone6 (3%). The most often prescribed probiotic medication in this study were Caps VSL#3 -47(23.5%), Tab. Sporlac - 9(4%), Cap.Providac - 25(12%).
- It was noted that 200 personalities were selected for the investigation, in which the prescriptionpattern for prokinetics and probiotics is higher for monotherapy respectively (81.9%), (90.7%) and followed by triple therapy having lower range (3%),(0%) respectively.
- Lastly, the prescription pattern for both prokinetics and probiotics has a wide range of monotherapy, which indicates each of these drugs is used alone to manage various diseases moresafely and effectively.
- Thus, by looking at the prescription pattern, we can determine that the goal of this research wasto assess the appropriate usage of probiotics and prokinetics.

LIMITATIONS

- The main limitation of the research was the duration needed to acquire the necessary data.
- The patient might save money by selecting the appropriate dosage for generic drugs.
- Certain patients' medical records lacked sufficient detail to allow for a comprehensiveassessment.
- Insufficient resources to closely and personally follow the patients.

FUTURE DIRECTIONS

- The necessity for more awareness-raising regarding the potential safety benefits of prokinetic and probiotic drugs in the treatment of different illnesses was also underlined by our study.
- Additional investigation examines the novel goals and life quality.
- Evidence of the efficacy too safety of prokinetic and probiotic drugs must be provided.
- Through continuous education programs that support physician drug therapy at various levels, itwould be feasible to further advocate for the rational prescription.

- Prokinetics future will see it utilizing innovative technology, developing targeted treatments forintestinal motility issues, and investigating advanced medication delivery methods.
- Innovation in quality assurance methodologies to monitor quantity, sustainability, and structuraland functional integrity is being driven by the need for probiotics across various product forms.

REFERENCES

1. Zavišić, G.; Popović, M.; Stojkov, S.; Medić, D.; Gusman, V.; Jovanović Lješković, N.; Jovanović Galović, A. Antibiotic Resistance and Probiotics: Knowledge Gaps, Market Overview and Preliminary Screening. *Antibiotics*, 2023; *12:* 1281. [Google Scholar] [CrossRef]
2. Lynch, E.; Troob, J.; Lebwohl, B.; Freedberg, D.E. Who Uses Probiotics and Why? A Survey Study Conducted among General Gastroenterology Patients. *BMJ Open Gastroenterol*, 2021; *8:* e000742. [Google Scholar] [CrossRef] [PubMed]
3. European Probiotic Market Insights Update 2022. Available online: https://www.ipaeurope.org/wp-content/uploads/2023/10/202305-EU-MARKET-INSIGHTS-UPDATE-2022.pdf (accessed on 3 March 2024).
4. van den Nieuwboer, M.; van de Burgwal, L.H.M.; Claassen, E. A Quantitative Key-Opinion-Leader Analysis of Innovation Barriers in Probiotic Research and Development: Valorisation and Improving the Tech Transfer Cycle. *PharmaNutrition,* 2016; *4:* 9–18. [Google Scholar] [CrossRef]
5. Day, R.L.; Harper, A.J.; Woods, R.M.; Davies, O.G.; Heaney, L.M. Probiotics: Current Landscape and Future Horizons. *Futur. Sci. OA,* 2019; *5:* FSO391. [Google Scholar] [CrossRef] [PubMed]
6. Sniffen, J.C.; McFarland, L.V.; Evans, C.T.; Goldstein, E.J.C. Choosing an Appropriate Probiotic Product for Your Patient: An Evidence-Based Practical Guide. *PLoS ONE,* 2018; *13:* e0209205. [Google Scholar] [CrossRef]
7. World Gastroenterology Organisation Global Guidelines. Available online: https://www.worldgastroenterology.org/UserFiles/file/guidelines/probiotics-and-prebiotics-english-2023.pdf (accessed on 3 March 2024).
8. Su, G.L.; Ko, C.W.; Bercik, P.; Falck-Ytter, Y.; Sultan, S.; Weizman, A.V.; Morgan, R.L. AGA Clinical Practice Guidelines on the Role of Probiotics in the Management of Gastrointestinal Disorders. *Gastroenterology,* 2020; *159:* 697–705. [Google Scholar]

[CrossRef] [PubMed]

9. Szajewska, H.; Canani, R.B.; Guarino, A.; Hojsak, I.; Indrio, F.; Kolacek, S.; Orel, R.; Shamir, R.; Vandenplas, Y.; van Goudoever, J.B.; et al. Probiotics for the Prevention of Antibiotic-Associated Diarrhea in Children. *J. Pediatr. Gastroenterol. Nutr.*, 2016; *62:* 495–506. [Google Scholar] [CrossRef]
10. Draper, K.; Ley, C.; Parsonnet, J. Probiotic Guidelines and Physician Practice: A Cross-Sectional Survey and Overview of the Literature. *Benef. Microbes*, 2017; *8:* 507–519. [Google Scholar] [CrossRef]
11. Martinez, R.C.R.; Bedani, R.; Saad, S.M.I. Scientific Evidence for Health Effects Attributed to the Consumption of Probiotics and Prebiotics: An Update for Current Perspectives and Future Challenges. *Br. J. Nutr.*, 2015; *114:* 1993–2015. [Google Scholar] [CrossRef]