



PART- 1

TO FIND OUT THE ACCEPTANCE AND SCOPE OF THIOCOLCHICOSIDE & DICLOFENAC INJECTION IN TRAUMA/CRITICAL CARE UNIT

Submitted by
Raj Singh Rajput

INTRODUCTION

- Thiocolchicoside produce muscle relaxant with analgesic effects and anti-inflammatory. It works on the centers in the brain and the spinal cord to alleviate muscle stiffness or spasm and enhance the motion of muscles. Thiocolchicoside has the selective and powerful affinity for GABA-A and acts on muscular contractions by triggering the GABA inhibitory pathways thereby performing as a powerful muscle relaxant.
- Diclofenac is a NSAID which works by blocking the release of prostaglandins through the inhibition of cyclooxygenase (COX-1 and COX-2) enzymes that cause pain and inflammation. The inhibition of prostaglandin synthesis is responsible for the analgesic effect of diclofenac. Diclofenac also shows antipyretic effects.
- Commonly 70 percent of NSAID are prescribed for pain. Diclofenac are non-selective NSAID which is more prescribed drug compare to others selective NSAID class drug. Diclofenac sodium is a potent drug and widely used compound. It is one of the most powerful and tolerated drug which act by inhibiting cyclooxygenase activity with a reduction in tissue production of prostaglandins such as PgF₂alpha and PgE₂.
- In the orthopaedic patients, muscle relaxant class drug are the drugs which widely used. These drugs classify under central nervous system class of drugs. Although these drugs help to reduce spasticity but decrease in muscle tone may lead to decrease in mobility of patients.
- This study aimed towards the prescription for the combination of Thiocolchicoside + Diclofenac injection in the critical care unit, within the community Doctors.

The objective of the study

- To find out whether the Thiocolchicoside with diclofenac will be preferred.
- To find out the utilization of Thiocolchicoside injection and diclofenac injection per month

Research Methodology

- **Type of research:** - Descriptive
- **Data collection:** - Primary data was received by the respondents during questionnaire and secondary data collected from published journals, literature, and reference books, besides this statistical information will also be accessed in the research study.
- **Duration:** - 2 Months
- **Sample size:** - 200
- **Location:** - Madhya Pradesh
- **Data Analysis:** - The data analysis in the present study was done by using simple statistical tools like frequencies, percentages, average, etc. which used as per the requirement of the data. In this study, the appropriate statistical tool is EXCEL.

INCLUSION AND EXCLUSION

Inclusion: - All respondents i.e. Doctors (Orthopedics) who understand English and Hindi language are eligible to participate and included in the study. Primary Data was collected thorough Questionnaire and secondary data collected from published journals, literature, and reference books.

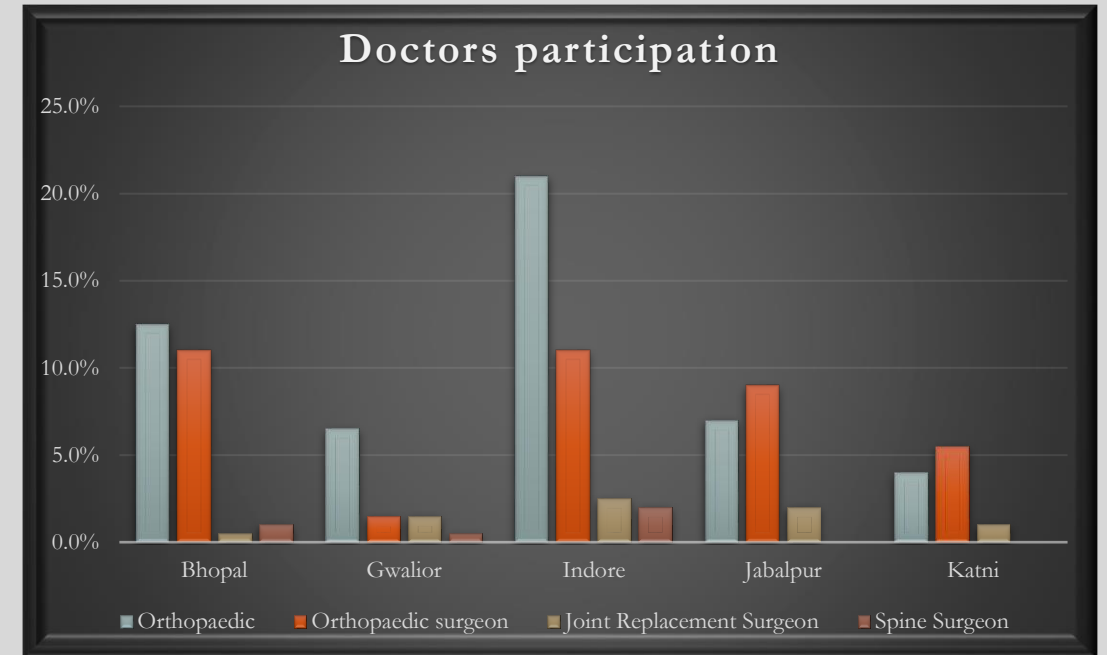


Exclusion: - Articles published in languages other than English. Doctors other than Orthopedics.

ANALYSIS/DATA INTERPRETATION

◦ Speciality of the Doctors with their location.

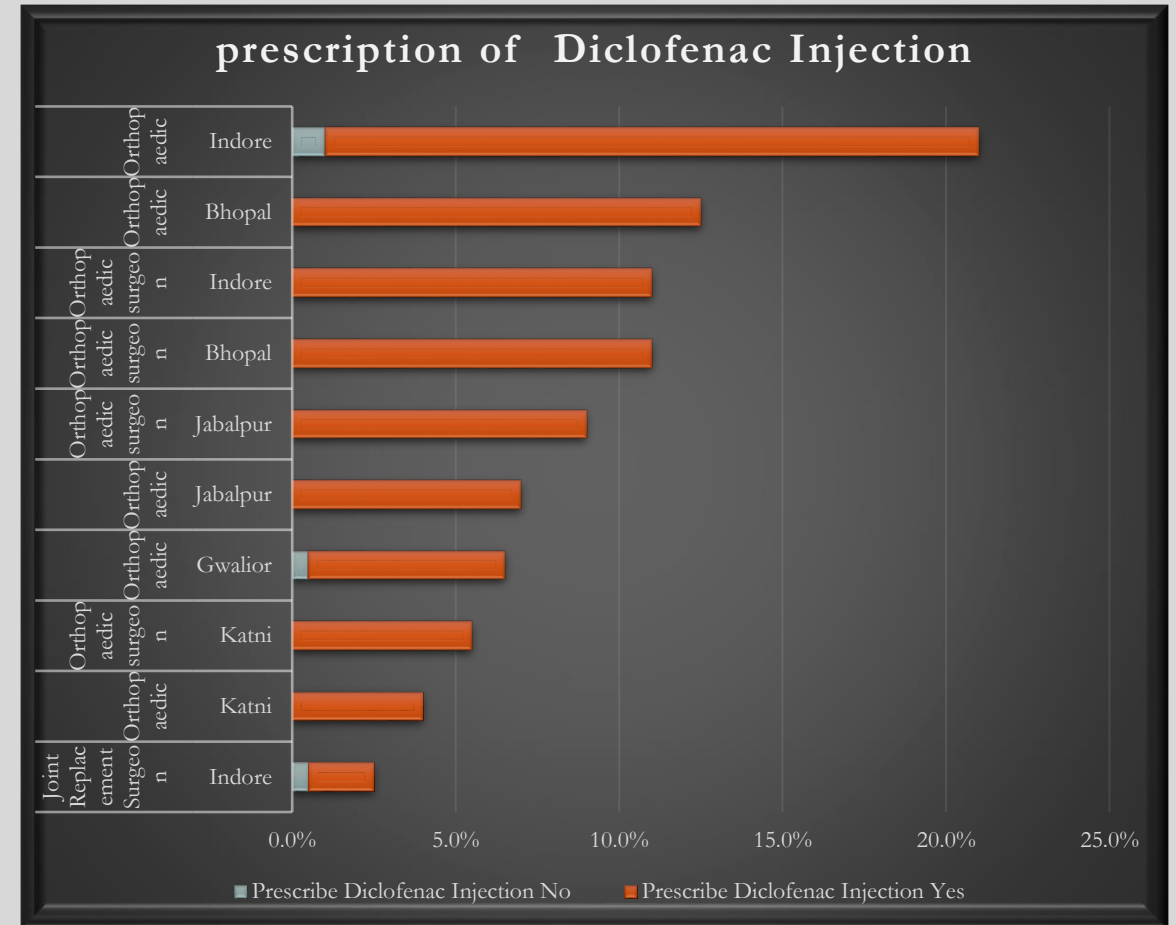
Speciality	Bhopal	Gwalior	Indore	Jabalpur	Katni	Grand Total
Orthopaedic	12.5%	6.5%	21.0%	7.0%	4.0%	51.0%
Orthopaedic surgeon	11.0%	1.5%	11.0%	9.0%	5.5%	38.0%
Joint Replacement Surgeon	0.5%	1.5%	2.5%	2.0%	1.0%	7.5%
Spine Surgeon	1.0%	0.5%	2.0%	0.0%	0.0%	3.5%
Grand Total	25.0%	10.0%	36.5%	18.0%	10.5%	100.0%



The graph illustrates the percentage value of doctors who responded to the survey conducted on the scope and acceptance of thiocolchicoside + diclofenac injection in trauma/critical care unit. Of the 51% were orthopaedic, 38% were orthopaedic surgeon, and rest of 11% were joint replacement and spine surgeon in targeted location (Madhya Pradesh).

Analysis of prescription of the Diclofenac Injection.

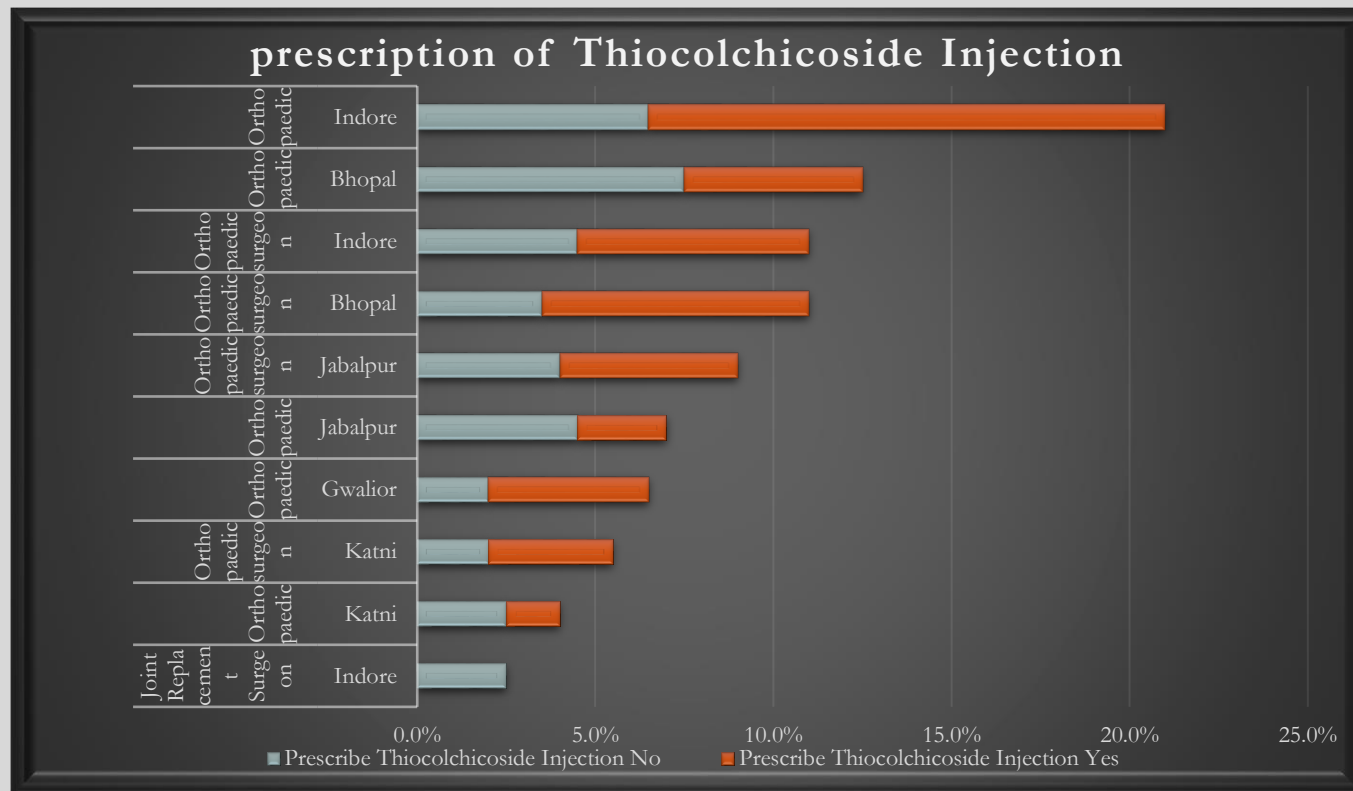
Specialty	Place	No	Yes	Grand Total
Joint Replacement Surgeon	Bhopal	0.0%	0.5%	0.5%
Spine Surgeon	Gwalior	0.0%	0.5%	0.5%
Joint Replacement Surgeon	Katni	0.0%	1.0%	1.0%
Spine Surgeon	Bhopal	0.0%	1.0%	1.0%
Joint Replacement Surgeon	Gwalior	0.0%	1.5%	1.5%
Orthopaedic surgeon	Gwalior	0.0%	1.5%	1.5%
Joint Replacement Surgeon	Jabalpur	0.0%	2.0%	2.0%
Spine Surgeon	Indore	0.0%	2.0%	2.0%
Joint Replacement Surgeon	Indore	0.5%	2.0%	2.5%
Orthopaedic	Katni	0.0%	4.0%	4.0%
Orthopaedic surgeon	Katni	0.0%	5.5%	5.5%
Orthopaedic	Gwalior	0.5%	6.0%	6.5%
Orthopaedic	Jabalpur	0.0%	7.0%	7.0%
Orthopaedic surgeon	Jabalpur	0.0%	9.0%	9.0%
Orthopaedic surgeon	Bhopal	0.0%	11.0%	11.0%
Orthopaedic surgeon	Indore	0.0%	11.0%	11.0%
Orthopaedic	Bhopal	0.0%	12.5%	12.5%
Orthopaedic	Indore	1.0%	20.0%	21.0%
	Grand Total	2.0%	98.0%	100.0%



- The above Table & Graph represents the percentage of prescription of diclofenac injection. It was found that 98% of the doctors prescribed the diclofenac injection with the maximum in Indore city while the rest 2% doctors do not, due to the side effects like GIT rash and Allergy.

Analysis of prescription of the Thiocolchicoside Injection.

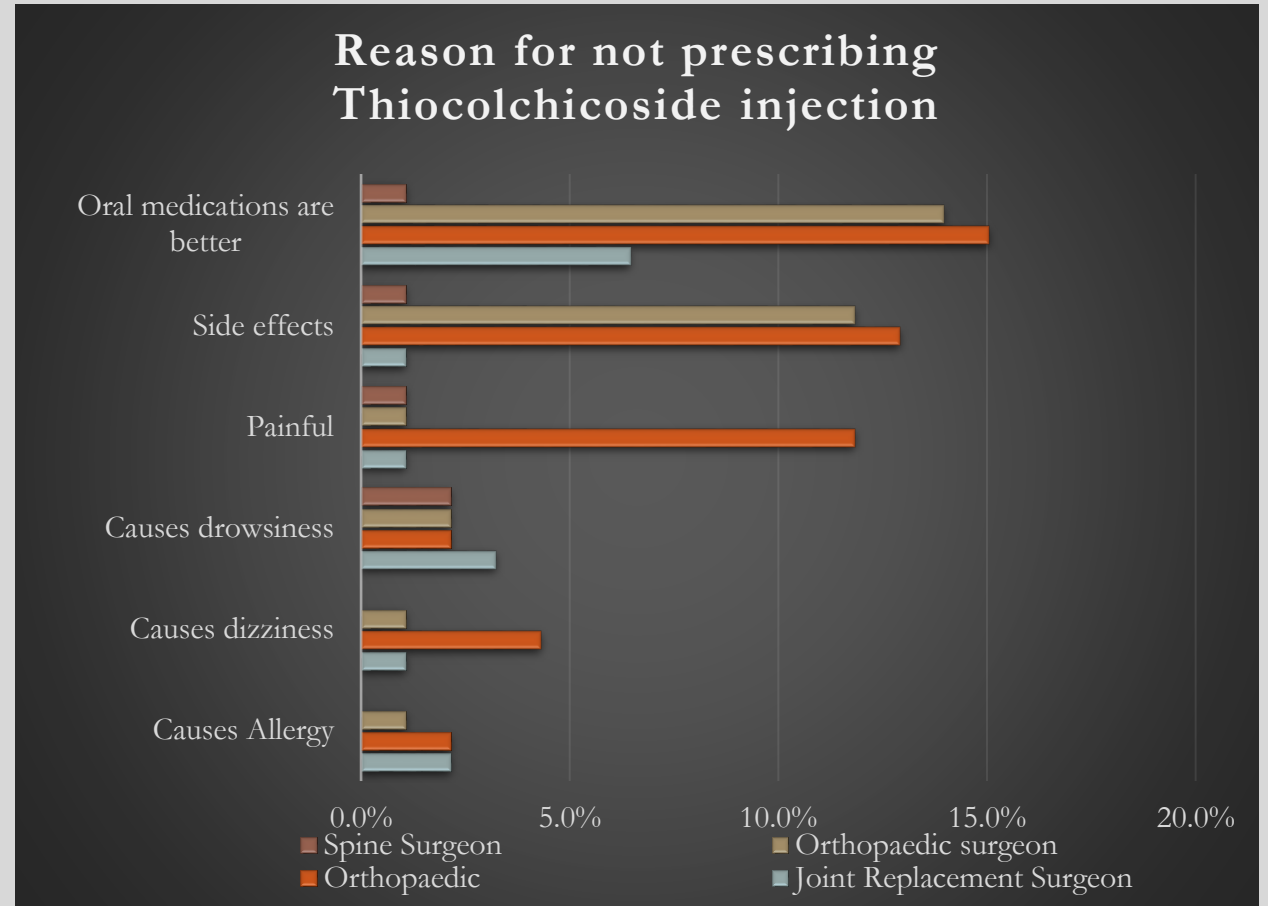
Specialty	Place	No	Yes	Grand Total
Joint Replacement Surgeon	Bhopal	0.5%	0.0%	0.5%
Spine Surgeon	Gwalior	0.5%	0.0%	0.5%
Joint Replacement Surgeon	Katni	0.5%	0.5%	1.0%
Spine Surgeon	Bhopal	1.0%	0.0%	1.0%
Joint Replacement Surgeon	Gwalior	1.5%	0.0%	1.5%
Orthopaedic surgeon	Gwalior	0.5%	1.0%	1.5%
Joint Replacement Surgeon	Jabalpur	2.0%	0.0%	2.0%
Spine Surgeon	Indore	1.0%	1.0%	2.0%
Joint Replacement Surgeon	Indore	2.5%	0.0%	2.5%
Orthopaedic	Katni	2.5%	1.5%	4.0%
Orthopaedic surgeon	Katni	2.0%	3.5%	5.5%
Orthopaedic	Gwalior	2.0%	4.5%	6.5%
Orthopaedic	Jabalpur	4.5%	2.5%	7.0%
Orthopaedic surgeon	Jabalpur	4.0%	5.0%	9.0%
Orthopaedic surgeon	Bhopal	3.5%	7.5%	11.0%
Orthopaedic surgeon	Indore	4.5%	6.5%	11.0%
Orthopaedic	Bhopal	7.5%	5.0%	12.5%
Orthopaedic	Indore	6.5%	14.5%	21.0%
	Grand Total	47.0%	53.0%	100.0%



The chart shows that 53% of the doctors prescribed the thiocolchicoside injection in their practice while 47% of the doctors did not. In the survey it was found that the maximum use of thiocolchicoside injection by the orthopaedic doctors was in Indore city with 14.5% and 7.5%, 6.5% of orthopaedic surgeon from respectively Indore, Bhopal.

Analysis of reason for not prescribing Thiocolchicoside injection.

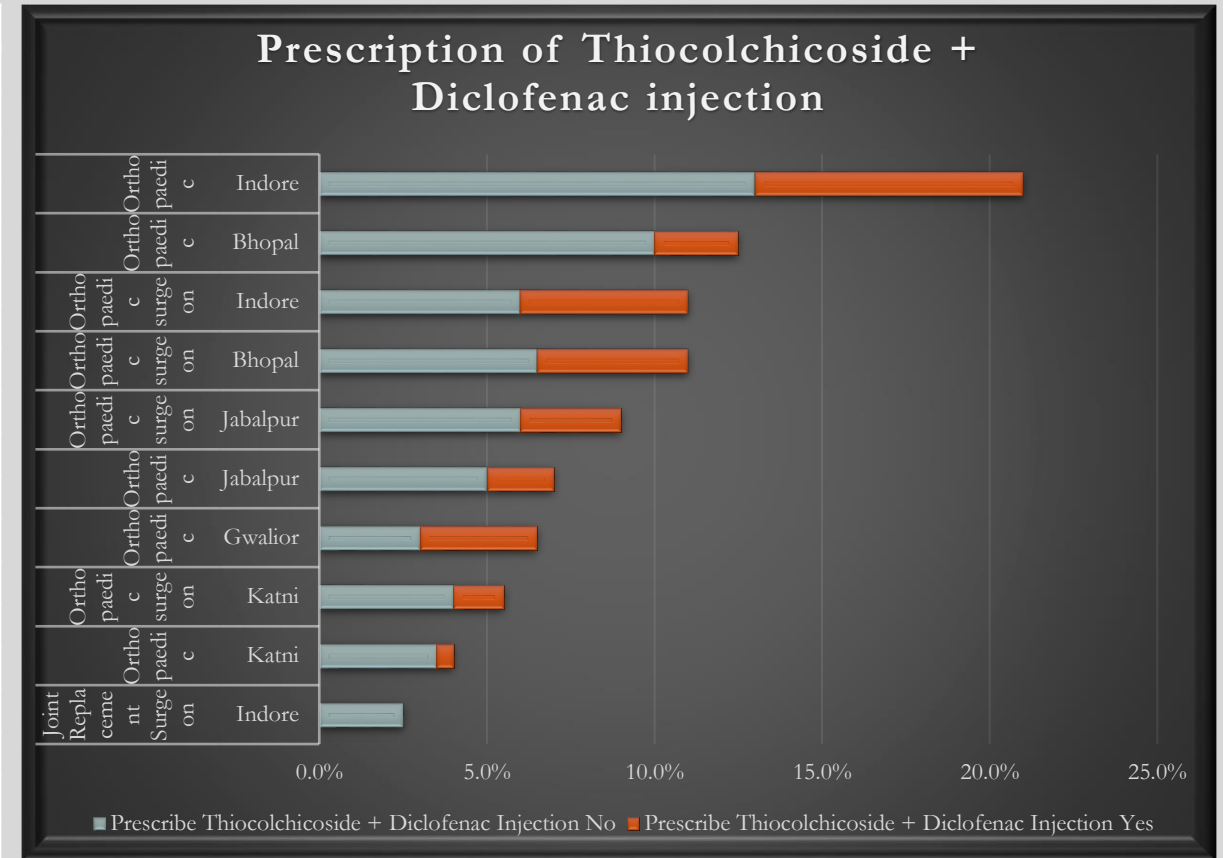
If no What restricts you to use Thiocolchicoside?	Joint Surgeon	Replacement	Orthopaedic	Orthopaedic surgeon	Spine Surgeon	Grand Total
Causes Allergy	2.2%		2.2%	1.1%	0.0%	5.4%
Causes dizziness	1.1%		4.3%	1.1%	0.0%	6.5%
Causes drowsiness	3.2%		2.2%	2.2%	2.2%	9.7%
Painful	1.1%		11.8%	1.1%	1.1%	15.1%
Side effects	1.1%		12.9%	11.8%	1.1%	26.9%
Oral medications are better	6.5%		15.1%	14.0%	1.1%	36.6%
Grand Total	15.1%		48.4%	31.2%	5.4%	100.0%



The chart outlines the various parameters of not prescribing Thiocolchicoside injections wherein according to 36% of the Respondents find it oral medications are better while approximately 48% respondent find it Side effects and allergy like drowsiness apart from this 15% respondents said that it's painful.

Analysis of prescription of the Thiocolchicoside + Diclofenac Injection

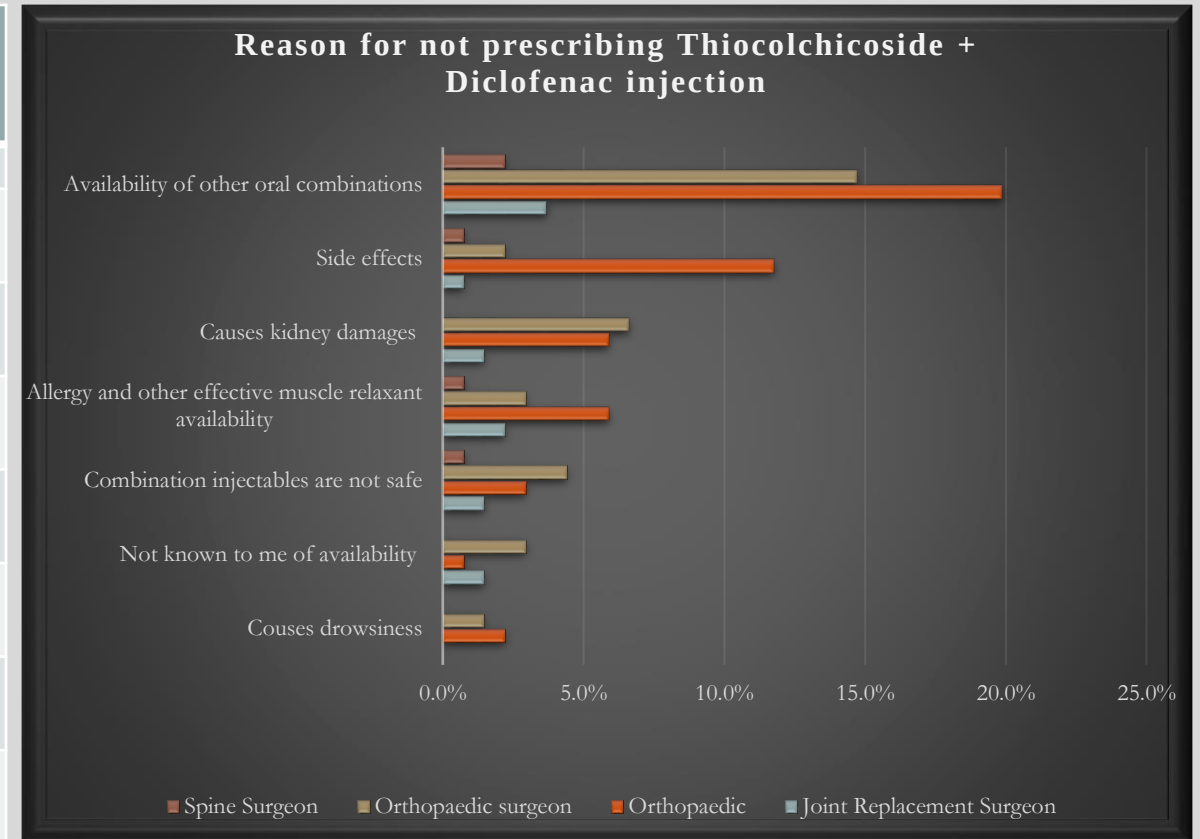
Specialty	Place	No	Yes	Grand Total
Joint Replacement Surgeon	Bhopal	0.5%	0.0%	0.5%
Spine Surgeon	Gwalior	0.5%	0.0%	0.5%
Joint Replacement Surgeon	Katni	1.0%	0.0%	1.0%
Spine Surgeon	Bhopal	1.0%	0.0%	1.0%
Joint Replacement Surgeon	Gwalior	1.5%	0.0%	1.5%
Orthopaedic surgeon	Gwalior	1.0%	0.5%	1.5%
Joint Replacement Surgeon	Jabalpur	2.0%	0.0%	2.0%
Spine Surgeon	Indore	1.5%	0.5%	2.0%
Joint Replacement Surgeon	Indore	2.5%	0.0%	2.5%
Orthopaedic	Katni	3.5%	0.5%	4.0%
Orthopaedic surgeon	Katni	4.0%	1.5%	5.5%
Orthopaedic	Gwalior	3.0%	3.5%	6.5%
Orthopaedic	Jabalpur	5.0%	2.0%	7.0%
Orthopaedic surgeon	Jabalpur	6.0%	3.0%	9.0%
Orthopaedic surgeon	Bhopal	6.5%	4.5%	11.0%
Orthopaedic surgeon	Indore	6.0%	5.0%	11.0%
Orthopaedic	Bhopal	10.0%	2.5%	12.5%
Orthopaedic	Indore	13.0%	8.0%	21.0%
	Grand Total	68.5%	31.5%	100.0%



The above chart is the graphical representation of the thiocolchicoside + diclofenac injections where it seen that 68.5% of the respondents prescribe the combination while 31.5% did not. In the survey it was found that the maximum use of thiocolchicoside injection by the orthopaedic and orthopaedic surgeon were in Indore city with 13% and 7% from the Bhopal

Analysis of reason for not prescribing Thiocolchicoside + Diclofenac injection.

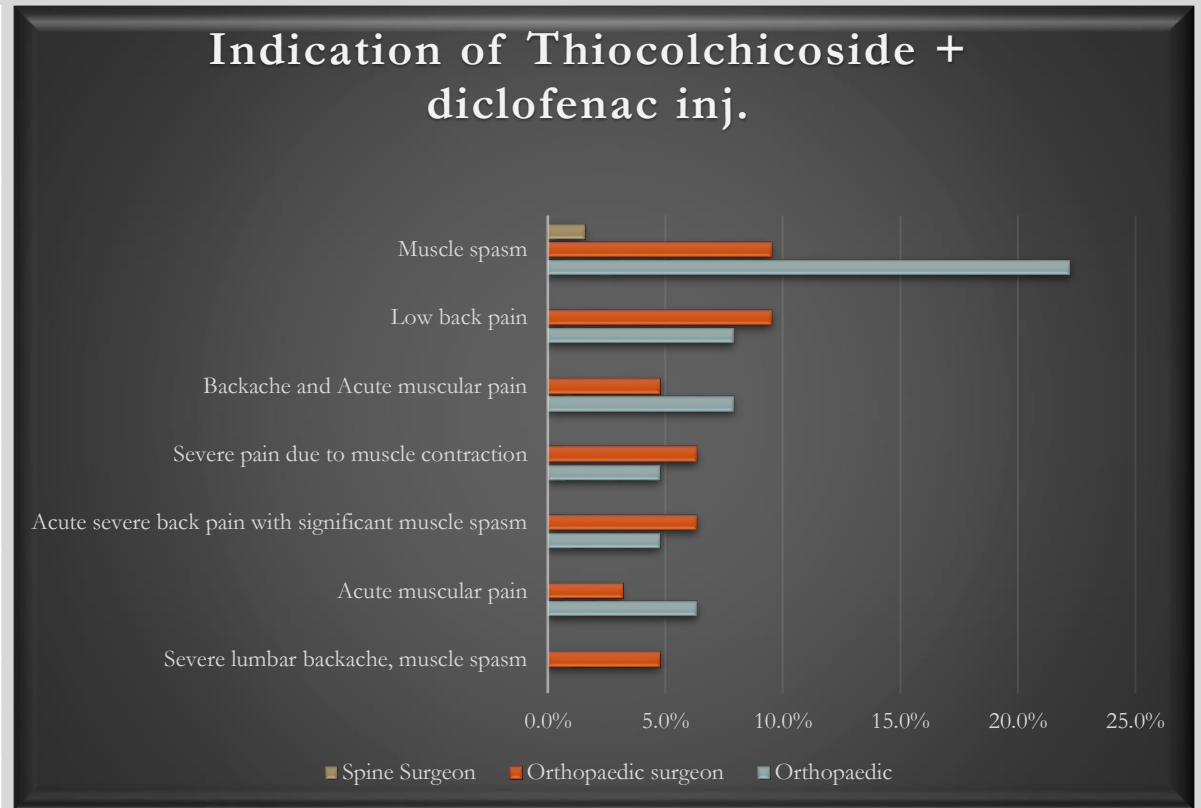
If no, then what restricts you to use Thiocolchicoside + Diclofenac injection	Joint Replacement Surgeon	Orthopaedic Surgeon	Orthopaedic Surgeon	Spine Surgeon	Grand Total
Causes drowsiness	0.0%	2.2%	1.5%	0.0%	3.7%
Not known to me of availability	1.5%	0.7%	2.9%	0.0%	5.1%
Combination injectables are not safe	1.5%	2.9%	4.4%	0.7%	9.6%
Allergy and other effective muscle relaxant availability	2.2%	5.9%	2.9%	0.7%	11.8%
Causes kidney damages	1.5%	5.9%	6.6%	0.0%	14.0%
Side effects	0.7%	11.8%	2.2%	0.7%	15.4%
Availability of other oral combinations	3.7%	19.9%	14.7%	2.2%	40.4%
Grand Total	11.0%	49.3%	35.3%	4.4%	100%



The above tabulation along with the graph illustrates the reason for restricting the use of Thiocolchicoside + diclofenac injection. In the survey it was found that approximately 40% respondents prefer oral combinations. However, 31% doctors find the combination to cause side effects like drowsiness and kidney damages in long term use and 5% doctors said they did not familiar with this type of combinations. 11% of respondents said that they prefer other muscle relaxants to the patient.

Major indications in which Thiocolchicoside + Diclofenac Injection is prescribed?

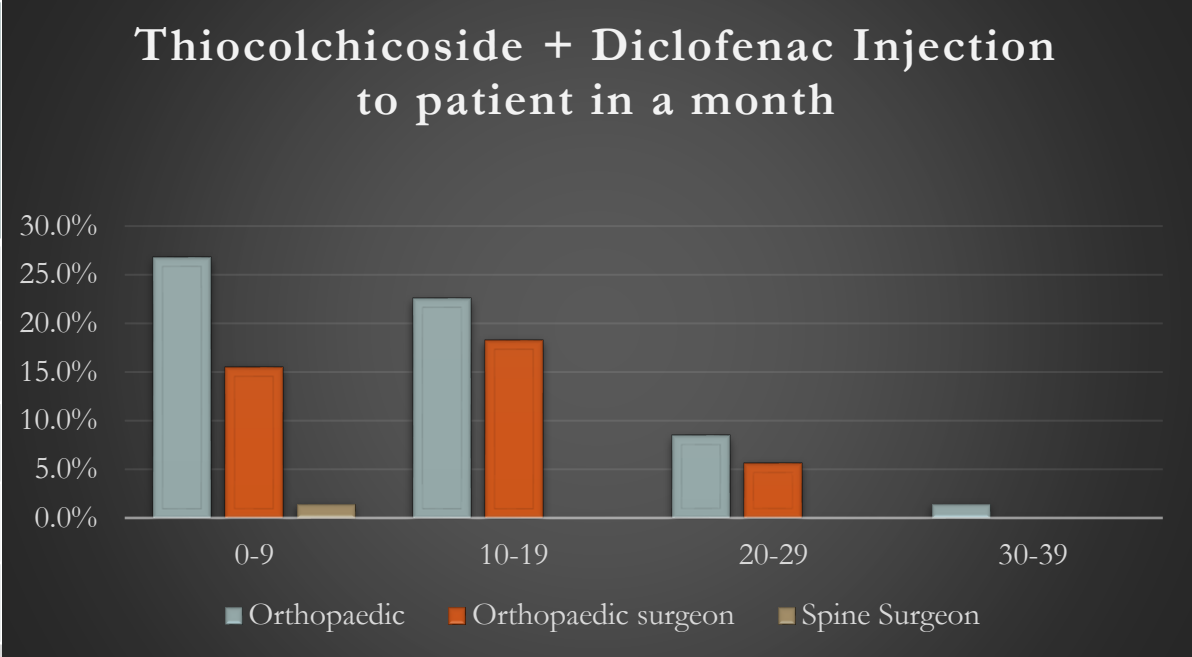
If yes, then major indications in which you prescribe Thiocolchicoside + Diclofenac Injection	Orthopaedic	Orthopaedic surgeon	Spine Surgeon	Grand Total
Severe lumbar backache, muscle spasm	0.0%	4.8%	0.0%	4.8%
Acute muscular pain	6.3%	3.2%	0.0%	9.5%
Acute severe back pain with significant muscle spasm	4.8%	6.3%	0.0%	11.1%
Severe pain due to muscle contraction	4.8%	6.3%	0.0%	11.1%
Backache and Acute muscular pain	7.9%	4.8%	0.0%	12.7%
Low back pain	7.9%	9.5%	0.0%	17.5%
Muscle spasm	22.2%	9.5%	1.6%	33.3%
Grand Total	54.0%	44.4%	1.6%	100.0%



This graph illustrates the indications in which the thiocolchicoside + diclofenac injections are prescribed by the orthopaedic doctors. 33.5% of the doctors prescribed it in Muscle spasm, 17.5% in Low Back Pain, 12.7% in backache and acute muscles pain, 11% in severe pain due muscle contraction

Analysis for the prescription of the Thiocolchicoside + Diclofenac Injection to patient in a month.

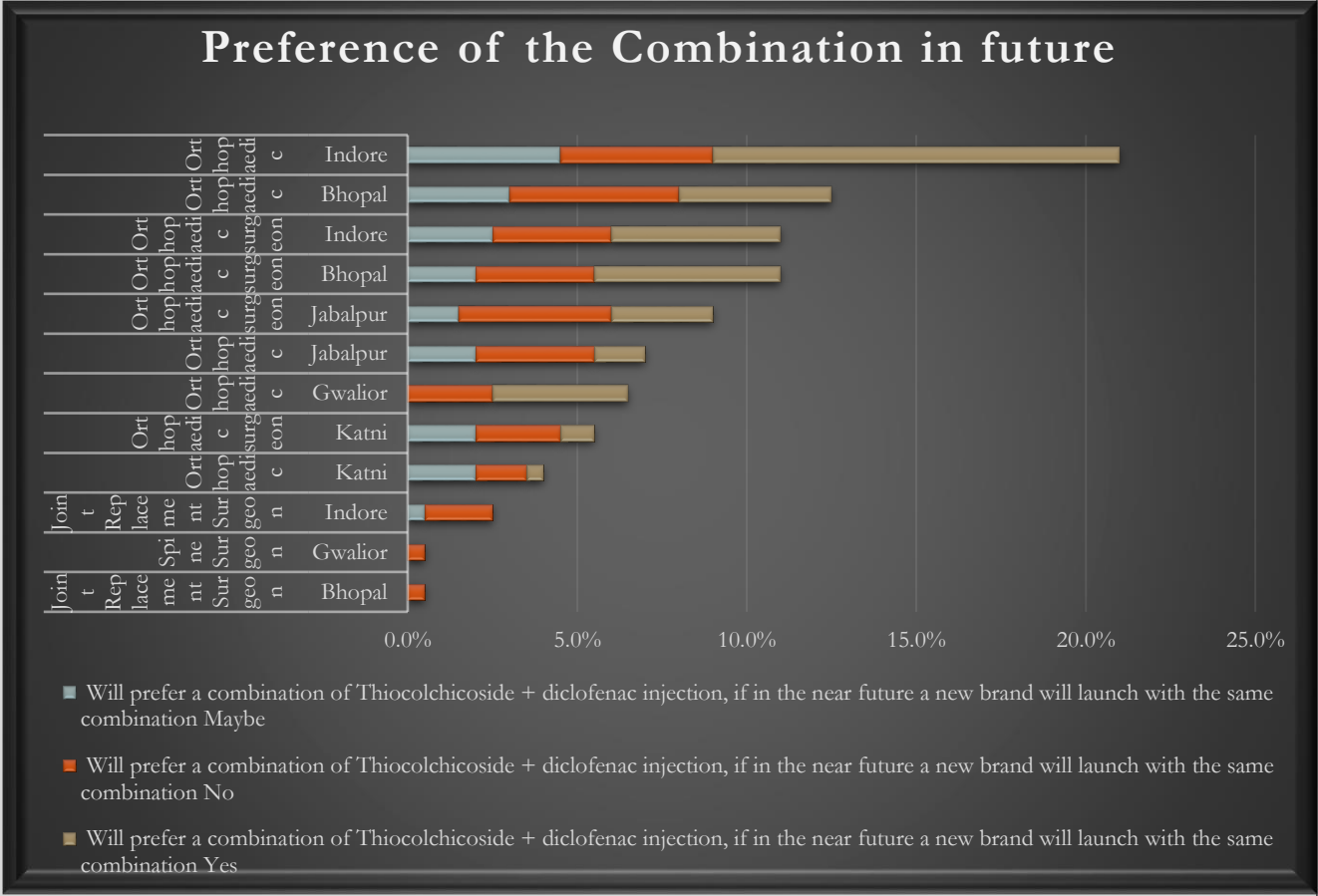
How many patients do you prescribe Thiocolchicoside + Diclofenac Injection in a month	Orthopaedic	Orthopaedic surgeon	Spine Surgeon	Grand Total
0-9	26.8%	15.5%	1.4%	43.7%
10-19	22.5%	18.3%	0.0%	40.8%
20-29	8.5%	5.6%	0.0%	14.1%
30-39	1.4%	0.0%	0.0%	1.4%
Grand Total	59.2%	39.4%	1.4%	100.0%



This graph gives the numeric value of patients to which thiocolchicoside + diclofenac injection was prescribed in a month. It was found that 43.7% of the doctors prescribed it to 0-9 patient while 40.8% prescribed it to 10-19 patients and 14.1% prescribed it to 20-29 patient in a month

Preference of the Combination by the doctors in future.

Specialty	Place	Maybe	No	Yes	Grand Total
Joint Replacement Surgeon	Bhopal	0.0%	0.5%	0.0%	0.5%
Spine Surgeon	Gwalior	0.0%	0.5%	0.0%	0.5%
Joint Replacement Surgeon	Katni	0.0%	1.0%	0.0%	1.0%
Spine Surgeon	Bhopal	0.0%	1.0%	0.0%	1.0%
Joint Replacement Surgeon	Gwalior	0.5%	1.0%	0.0%	1.5%
Orthopaedic surgeon	Gwalior	0.5%	0.5%	0.5%	1.5%
Joint Replacement Surgeon	Jabalpur	0.5%	1.5%	0.0%	2.0%
Spine Surgeon	Indore	0.0%	1.5%	0.5%	2.0%
Joint Replacement Surgeon	Indore	0.5%	2.0%	0.0%	2.5%
Orthopaedic	Katni	2.0%	1.5%	0.5%	4.0%
Orthopaedic surgeon	Katni	2.0%	2.5%	1.0%	5.5%
Orthopaedic	Gwalior	0.0%	2.5%	4.0%	6.5%
Orthopaedic	Jabalpur	2.0%	3.5%	1.5%	7.0%
Orthopaedic surgeon	Jabalpur	1.5%	4.5%	3.0%	9.0%
Orthopaedic surgeon	Bhopal	2.0%	3.5%	5.5%	11.0%
Orthopaedic surgeon	Indore	2.5%	3.5%	5.0%	11.0%
Orthopaedic	Bhopal	3.0%	5.0%	4.5%	12.5%
Orthopaedic	Indore	4.5%	4.5%	12.0%	21.0%
	Grand Total	21.5%	40.5%	38.0%	100.0%



This graphical representation is of the orthopaedic doctors who in near future may prescribe the same combination if launched by some of the other brand. 38% of the doctors agreed to use the combinations while 40.5% of the doctors disagreed and 21.5% of the doctors in dilemma.

Conclusion

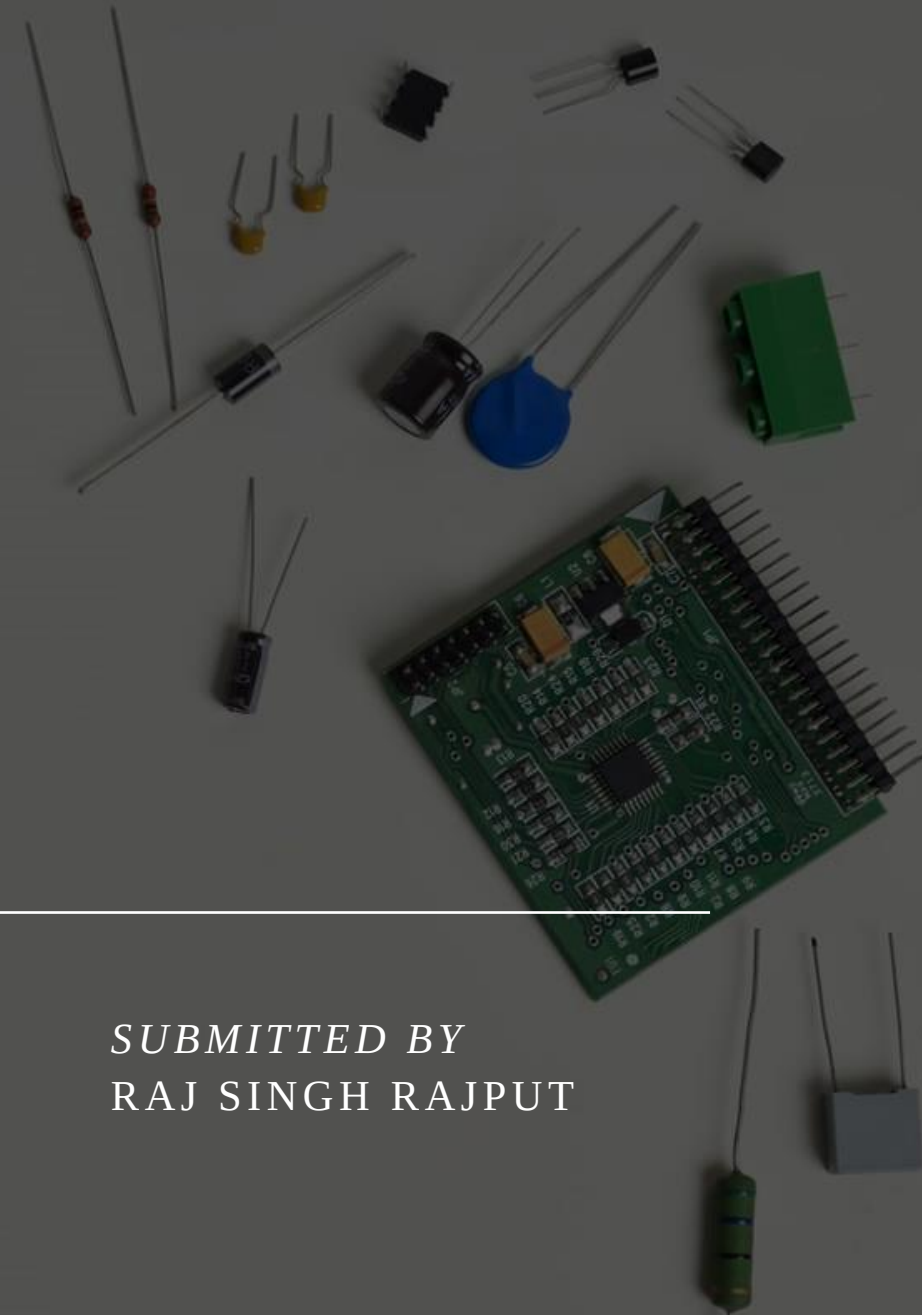
- As the completion of the market research it was found that the combination of thiocolchicoside + diclofenac injections in trauma/critical care unit prescribed by orthopaedic doctors were less in number while the use of individual injection was high in preference.

PART- 2

MARKETING ANALYTICS

Authorized By
UNIVERSITY OF VIRGINIA
Offered by
COURSERA

SUBMITTED BY
RAJ SINGH RAJPUT



COURSE DESCRIPTION

Marketing Analytics conducted by the Darden School of Business at the University of Virginia, gives the tools to measure brand and customer assets, understand regression analysis, and design experiments to evaluate and optimize marketing campaigns. The course focuses on a solid understanding to use marketing analytics to predict outcomes and systematically allocate resources.

Marketing Analytics enables marketers to measure, manage and analyze marketing performance to maximize its effectiveness and optimize return on investment (ROI). Beyond the obvious sales and lead generation applications, marketing analytics can offer profound insights into customer preferences and trends, which can be further utilized for future marketing and business decisions.

The course provides a comprehensive marketing experience in solving a real-life marketing issue for a client. The experience consists of conducting a customer insights project, creating a segmentation scheme, and writing various marketing plans to help the client with their business issue in marketing.

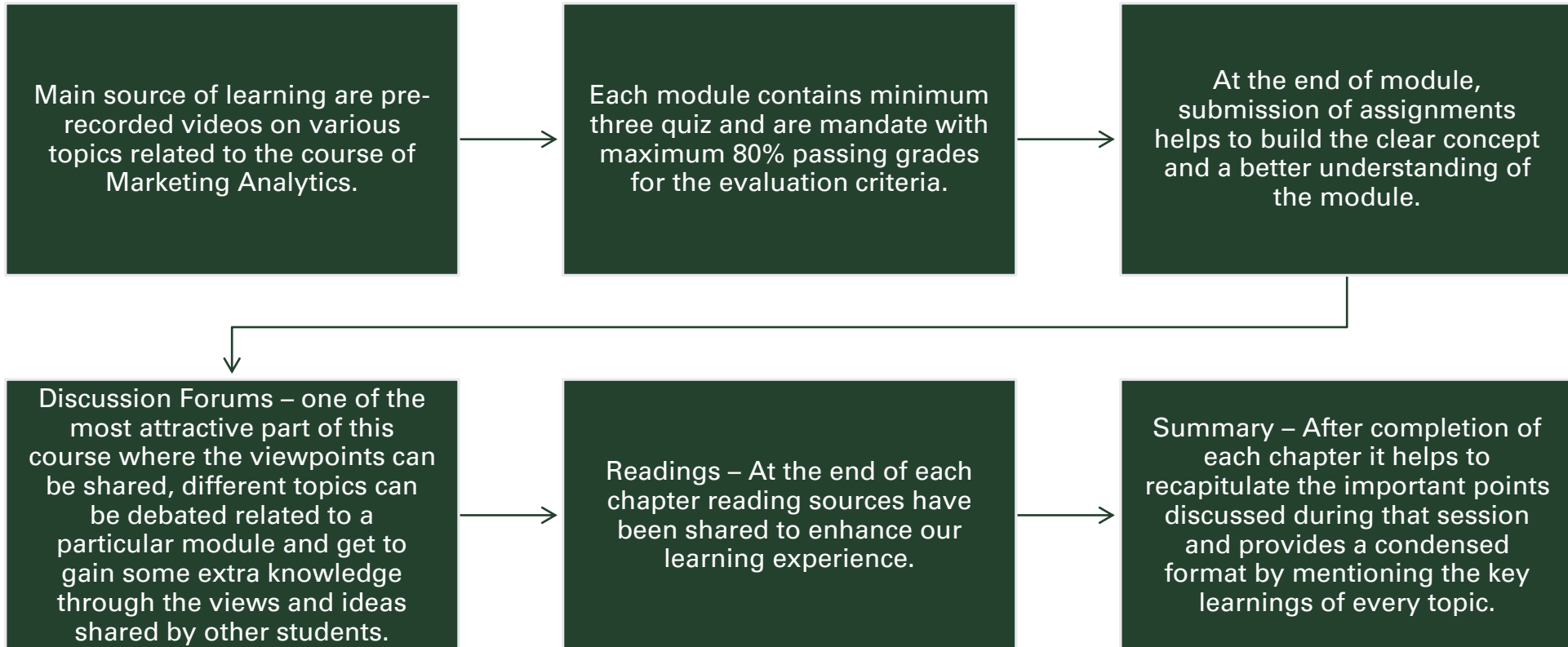


Key Objectives:

- It helps with the learning to build and define a brand architecture and to measure the impact of marketing efforts on brand value over time.
- To measure customer lifetime value and use that information to evaluate strategic marketing alternative
- To design basic experiments so that you can assess your marketing efforts and invest your marketing dollars most effectively
- To set up regressions, interpret outputs, explore confounding effects and biases, and distinguish between economic and statistical significance.



LEARNING METHODOLOGY



KEY LEARNING FROM THE COURSE

- Helps with the learning to view marketing phenomena and processes in ways that are amenable to quantitative analysis.
- Expose to several examples of the successful use of marketing analytics.
- Demand forecasting using customer-base models and statistical approaches
- Market segmentation methods and best practices for identifying potential customer segments and focused targeting.
- Computation of Customer Lifetime Value for analyzing customer, brand loyalty and forecasting revenue in the short and long run
- Factors to consider while designing and introducing new products to the market
- Calculating Optimal Pricing for products and services to get the best ROI
- Assessing Marketing ROI for making better and data-driven decisions.

CONCLUSION

The purpose of the Marketing Analytics course is testament to the reality of the skills gap, which the management students must know for higher quality problem solving. Imparting the knowledge on industry activity.

Experimental learning theory and marketing analytics offers their framework in hopes that the experiences and results described were useful to address pedagogical goals in the marketing curriculum.

The session also enlightens the crucial role of research in understanding customer insights and shaping marketing strategies. Customer insights through a client-bases projects, identification of benefits and challenges of market research. It is an extensive study, conducted to understand the marketing analytics tool and its importance in prediction and potential of this line of business that are available in the session.



THANKYOU