

**Summer Training At
Ranbaxy Laboratories Limited (Ranbaxy)
(April 12-May 12, 2012)**

Usage of Topical NSAID

**By
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**Under the Guidance of
Dr. Anoop Khanna**

**Post Graduate Diploma in Pharmaceutical Management
2011-2013**



**Institute of Health Management Research,
Jaipur
2012**

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Certificate

This is to certify that Mr. Sargu Sivakoti and his Deputy Director have undergone summer training in Statistics Laboratory from 6th April to 1st June, 2012.

The candidate carried out all the studies related to summer training herself. Her approach to the studies has been directed, scientific, and analytical. This summer training is partial fulfillment of the course requirement is recommended for the award of their Graduate Diploma in Statistical Management.

I wish her success in all their endeavors.



Dr. P. K. Sreenivas

Dean, Academic and student affairs,
MGRMHS



Dr. Anoop Khanna

Associate Dean, Research

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TO WHOMSOEVER IT MAY CONCERN

She has done a project on "Evaluate acceptance of roll-on in topical NSAIDs market".

For RANNEY LABORATORIES LIMITED

Source: U.S. Bureau of Economic Analysis, *Real Gross Domestic Product*, 1997.

KBR, PMA, NADPH-CYB5B, AND P-450 1A2 RESEARCH



● 關於「新學期」：新學期開始，學校將重新安排課程，並邀請專業人士來校講解，希望家長能配合學校工作，共同為孩子創造良好的學習環境。

RANBAXY

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Oct 18, 2012

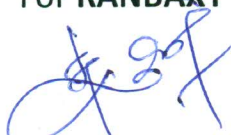
TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Durga Shukla** student of **IIHMR**, has successfully completed her summer training from **Apr'12 to May'12** under my guidance.

She has done a project on **"Evaluate acceptance of roll-on in topical NSAIDs market"**.

We wish her the best in all her future endeavors.

For **RANBAXY LABORATORIES LIMITED**



S.T.KALAIRAJ

SR. MANAGER-MARKET RESEARCH



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Project Guide-
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(Research Dean)

Submitted by-
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EXECUTIVE SUMMARY

In the project, the nature of study is exploratory whereby the efforts have been made by executing the survey in the of Mumbai, Delhi, Ahmadabad, Agra, Baroda, Bangalore, Nagpur, Hosur. A systematic as well as well-designed approach has been adopted while conducting the project about market characteristics. It is followed by the methodology which is adopted has been defined with the help of collected data, a detailed interpretation about the company has been given there, the product profile is topical NSAID . The next step was defining the sampling design where by the sample size was taken 1500 Patients ,300 Retailers, And 150 Doctors and the target area was , Mumbai, Delhi, Ahmadabad, Agra, Baroda, Bangalore, Nagpur, Hosur to facilitate the work and personal interview method was adopted for the collection of the data as a primary source whereas the secondary data was collected from different books, company library and the other business websites. Personal interview was conducted. Data was extracted on the basis of the feedback. The analysis was done with the help of the clear graphical representation using pie charts, bar graphs and other graphs. The next step was the most important step for looking at the actual findings of the project and recommend to the company what can be incorporated for further improvement. According to the data collected

Doctors

Only 10-20% Topical formulations recommended by the doctors in their prescription (shows synergistic effect with oral formulation). Roll-on concept is not recommended now a days because of its usage, Application area for Roll-on is Muscular spasm and joints pain. Sensor oil is more used over other roll-on brands.

According to doctors Gel is best topical pain killer over other topical pain killer because of Good penetration and convenient to use. Some doctors prescribe topical pain killer only as per demand of patients.

Retailers-

Roll on holds very less (<3%) market in topical pain management

In OTC market, Roll-on has very less marketing activity

Display, Advertisement plays an important role for making awareness among the patients

Roll-on has very less competition in market

Patients

Lack of awareness about the concept of Roll on

Gel is more preferred formulation over spray in topical pain management

Effectiveness is the main factor while choosing any formulation in pain management

54% of patients prefer to use single roll on within their family

COMPANY PROFILE

Ranbaxy Laboratories Limited (Ranbaxy), India's largest pharmaceutical company, is an integrated, research based, international pharmaceutical company, producing a wide range of quality, affordable generic medicines, trusted by healthcare professionals and patients across geographies.

Ranbaxy today has a presence in 23 of the top 25 pharmaceutical markets of the world. The Company has a global footprint in 43 countries, world-class manufacturing facilities in 8 countries and serves customers in over 125 countries.

In June 2008, Ranbaxy entered into an alliance with one of the largest Japanese innovator companies, Daiichi Sankyo Company Ltd., to create an innovator and generic pharmaceutical powerhouse.

The combined entity now ranks among the top 20 pharmaceutical companies, globally. The transformational deal will place Ranbaxy in a higher growth trajectory and it will emerge stronger in terms of its global reach and in its capabilities in drug development and manufacturing.

Ranbaxy was incorporated in 1961 and went public in 1973

For the year 2011, the Company recorded Global Sales of US \$ 2.1 Bn. The Company has a balanced mix of revenues from emerging and developed markets that contribute 47% and 46% respectively.

In 2011, North America, the Company's largest market contributed sales of US \$ 791 Mn, Europe contributing US \$ 297 Mn and Asia clocking sales of US \$ 503 Mn.

Ranbaxy is focused on increasing the momentum in the generics business in its key markets through organic and inorganic growth routes. Growth is well spread across geographies with focus on developed and emerging markets.

It is the Company's constant endeavour to provide a wide basket of generic and innovator products, leveraging the unique Hybrid Business Model with Daiichi Sankyo. The Company will also increasingly focus in high growth potential segments like Vaccines and Bio generics. These new areas will add significant depth to the existing product pipeline.

R&D

Ranbaxy views its R&D capabilities as a vital component of its business strategy that will provide a sustainable, long-term competitive advantage. The Company has a pool of over 1,200 R&D personnel engaged in path-breaking research.

Ranbaxy is among the few Indian pharmaceutical companies in India to have started its

research program in the late 70's, in support of its global ambitions. A first-of-its-kind world class R&D centre was commissioned in 1994. Today, the Company has multi-disciplinary R&D centers at Gurgaon, in India, with dedicated facilities for generics research and innovative research.

The R&D environment reflects its commitment to be a leader in the generics space offering value added formulations and development of NDA/ANDAs, based on its Novel Drug Delivery System (NDDS) research capability. Ranbaxy's first significant international success using the NDDS technology platform came in September 1999, when the Company out-licensed its first once-a-day formulation to a multinational company.

In July 2010, Ranbaxy's New Drug Discovery Research (NDDR) was transferred to Daiichi Sankyo India Pharma Private Limited as part of the strategy to strengthen the global Research and Development structure of the Daiichi Sankyo Group. NDDR is now an integral part of Daiichi Sankyo Life Science Research Center in India, based in Gurgaon.

However, Ranbaxy continued to independently develop the anti-malarial new drug, arterolane maleate + piperaquine phosphate that has been approved by the Indian Drug Regulator, Drug Controller General of India (DCGI) for manufacturing and marketing in India. In April 2012, Ranbaxy launched India's first new drug, SynriamTM, for the treatment of uncomplicated Plasmodium falciparum malaria, in adults.

The company will also explore the further development of late stage programs developed by NDDR in the last few years, including the development programs in the GSK collaboration. Within Ranbaxy, R&D of Generics will now get a sharper focus, as the Company is increasingly working on more complex and specialist areas.

Ranbaxy's global footprint extends to 43 countries embracing different locales and cultures to form a family of 50 nationalities with an intellectual pool of some of the best minds in the world.

PROJECT BACKGROUND

According to a National Center for Health Statistics estimate, over 50 percent of prescriptions for NSAIDS were written for diseases of the musculoskeletal system and connective tissue, including arthritis.

An additional 21 percent of prescriptions were written specifically for patients with arthritis. With an estimated 15 million Americans taking prescription non-steroidal, anti-inflammatory (NSAID) drugs for arthritis, and an estimated 68 million prescriptions a year being written for the products, according to the FDA, the market for NSAIDs is strong.

Physicians are certainly writing plenty of NSAID prescriptions. Although the products do not offer a cure for arthritis, they do offer significant relief from the pain and discomfort of the condition. The problem with the products is that they have serious and potentially fatal side effects.

Prolonged use of the products have been associated with high incidences of gastro-intestinal ulcers. The FDA recently announced that drug manufacturers must warn doctors about the serious side effects which can occur when patients take the prescription drugs on a long-term basis.

According to journal reports, virtually all NSAIDs currently on the market have the potential to cause some ulcerogenic damage. The most seriously at risk are elderly patients, patients who take multiple NSAIDs, or patients with a previous history of peptic ulcer disease.

Studies indicate that one patient in 100 treated from three to six months suffers some serious side effects. Two to 4 percent of patients treated for one year experience side effects, according to the FDA.

NSAIDs -- or nonsteroidal anti-inflammatory drugs -- are among the most common pain relief medicines in the world. Every day more than 30 million Americans use them to soothe headaches, sprains, arthritis symptoms, and other daily discomforts, according to the American Gastroenterological Association. And as if that wasn't enough, in addition to dulling pain NSAIDs also lower fever and reduce swelling.

There is some evidence that topical nonsteroidal anti-inflammatory drugs (NSAIDs) are more effective compared with placebo at improving short-term pain relief and function (up to 8 weeks) for people with osteoarthritis (mainly of the knee). There are limited data that compare the efficacy and safety of topical NSAIDs and oral NSAIDs in people with osteoarthritis, but topical NSAIDs may be as effective as oral NSAIDs at reducing pain in people with osteoarthritis of the knee. With respect to adverse effects, topical NSAIDs may be less likely than oral NSAIDs to cause gastrointestinal adverse effects in the first 12 weeks of use, although topical NSAIDs are associated with skin irritation.

OBJECTIVES

A) Primary objective-

- To find acceptance potential of different formulations in the topical NSAID market

B) Secondary objectives-

- To understand current usage of Gel Vs. spray and reasons for preference
- To study the Factors considered while choosing between gel or spray
- To Understand doctor's perception on usage of topical NSAID
- To Understand factors that influence chemist to recommend a brand of topical painkiller
- To Understand difficulty that patients come across with use of topical pain killers

RESEARCH METHODOLOGY

- **Research** : The research was Descriptive in nature .
- **Data Source** : Primary – Survey method was used for the collection of Data for the purpose of primary research

➤ **Sampling Design:**

- **Population**– Doctors, Retailers, Patients in 8 cities
- **Sampling technique**- Simple Random Procedure
- **Sample distribution-**

Speciality wise sample distribution of doctor (150 doctors)

particular	mumbai	bangalore	nagpur	hosur	ahmadabad	delhi	vadodara	agra
orthopaedician	20	14	07	05	08	21	12	05
General physician	15	09	06	05	03	10	06	04

➤ ➤

City wise sample distribution of Retailers(285)-

particular	mumbai	bangalore	nagpur	hosur	delhi	agra	vadodara	Ahmadabad
retailer	55	47	29	18	60	23	38	15

City wise distribution of patients(1285)

particular	mumbai	bangalore	hosur	nagpur	delhi	agra	vadodara	Ahmadabad
patient	228	209	80	150	300	120	150	49

Gender wise distribution of patients-

male	930
female	356

- **Contact method-** Personal(face to face interview)
- **Tools used for Data Collection:**
 - ❑ **Research Instrument-** Self designed questionnaire
 - ❑ **Type of Questionnaire-** Structured
 - ❑ **Type of Question-close and open ended.**
- **Tools used for Data Analysis:**
 - ❑ MS- Excel.

DATA ANALYSIS AND INTERPRETATION

A primary research on the topic, through field survey, lead to a series of responses which when tabulated in MS – Office lead to a series of results which when carefully analyzed lead to many possible outcomes. The analysis of same has been discussed below with proper interpretation.

1.) **Analysis of doctor's questionnaire-**

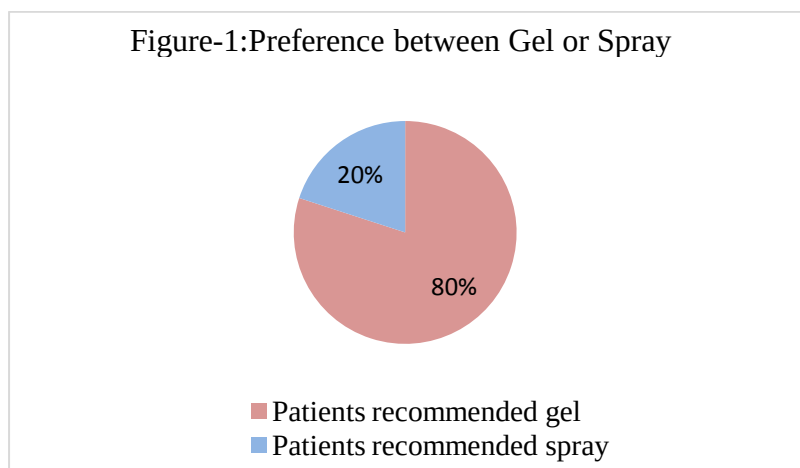


Figure-1: Study shows that 80% of the doctors prefer gel over spray if the patients in the prescription.

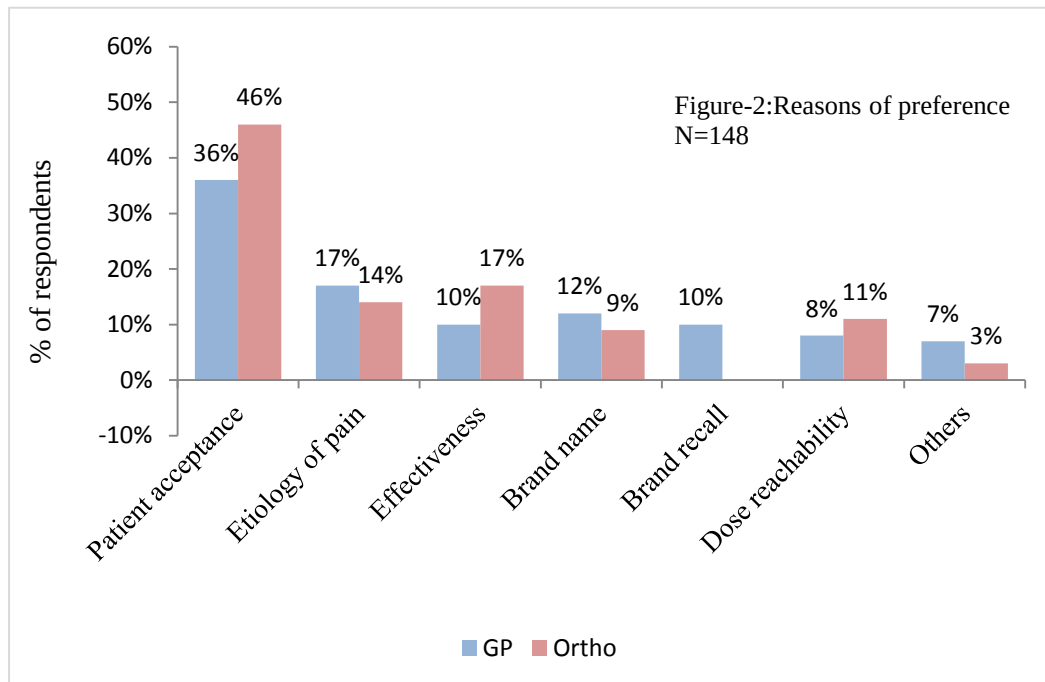


Figure-2: Patient acceptance(46%) is the major reason behind the preference of topical pain formulations by the doctors

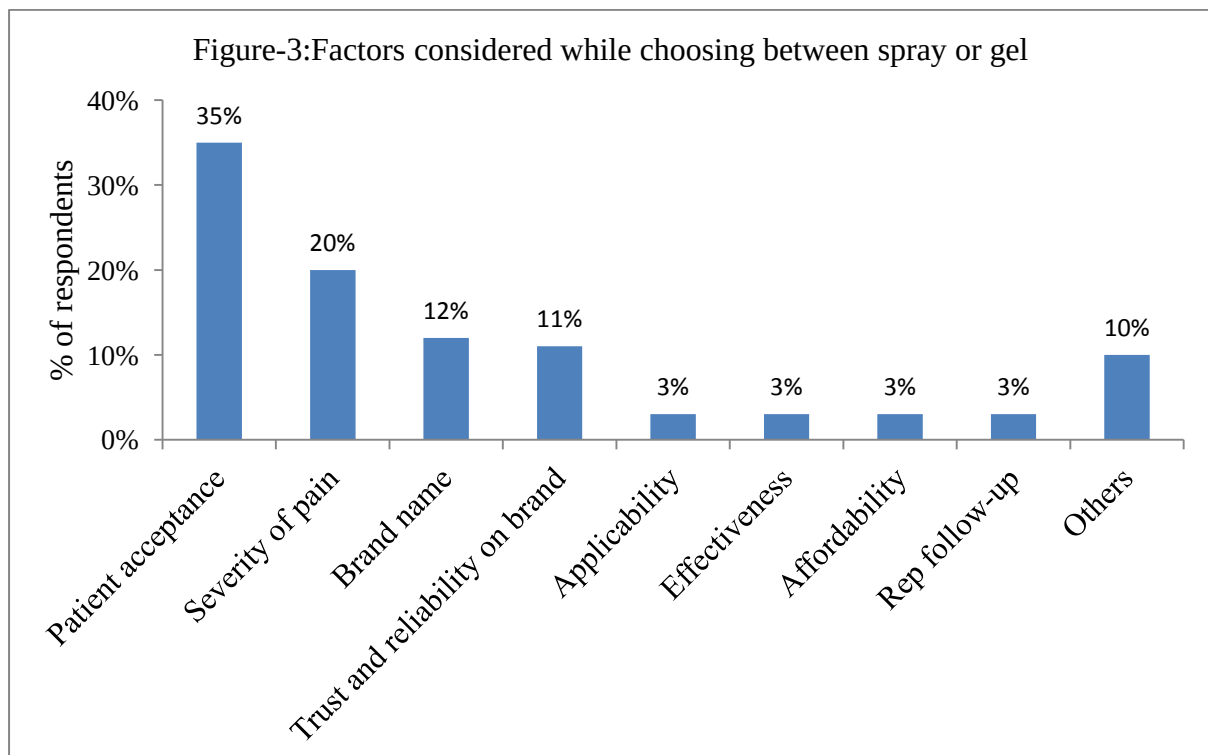


Figure-3: patient acceptance and severity of pain are the major factors while choosing topical pain formulation in pain management

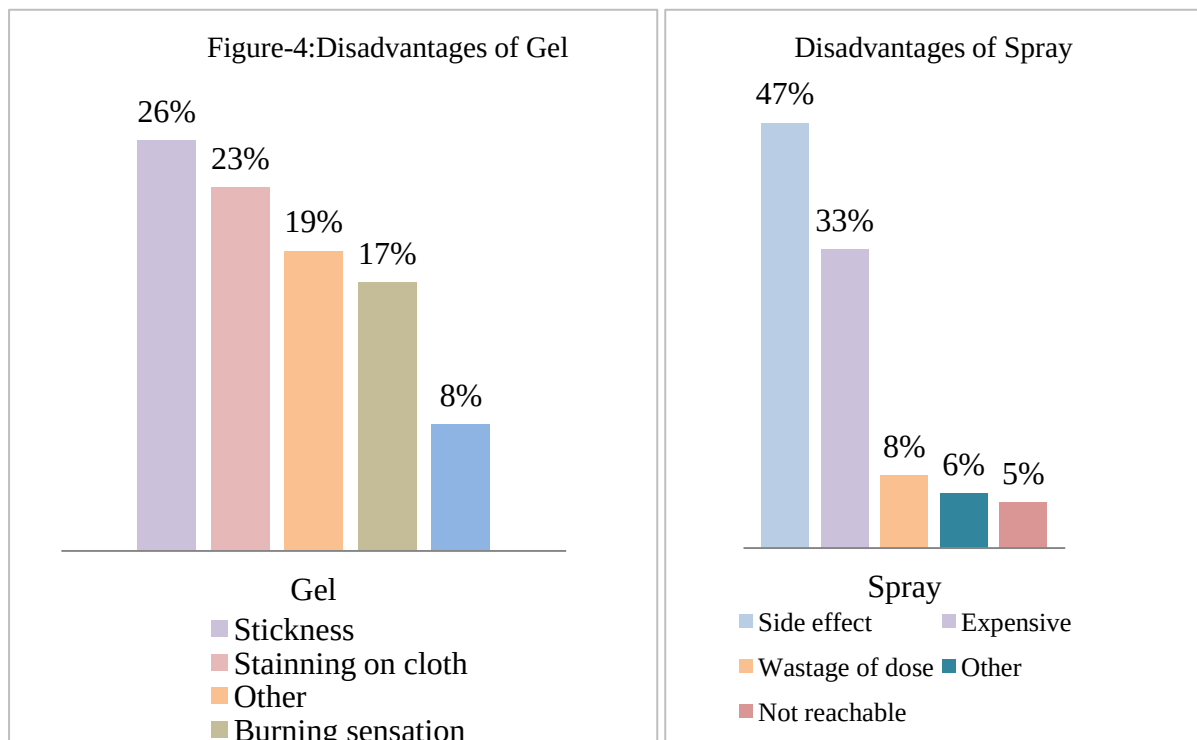


Figure-4: According to 26% of doctors stickiness is the major advantage of doctors while 47% doctors says spray has many side effects like burning sensation ,irritation into eyes ,skin reactions etc.

Figure-5: Study reveals that good penetration(35%) and cost effectiveness(27%) are the major advantages of gel while convenience(63%) and instant effect(30%) are the major advantages of spray.

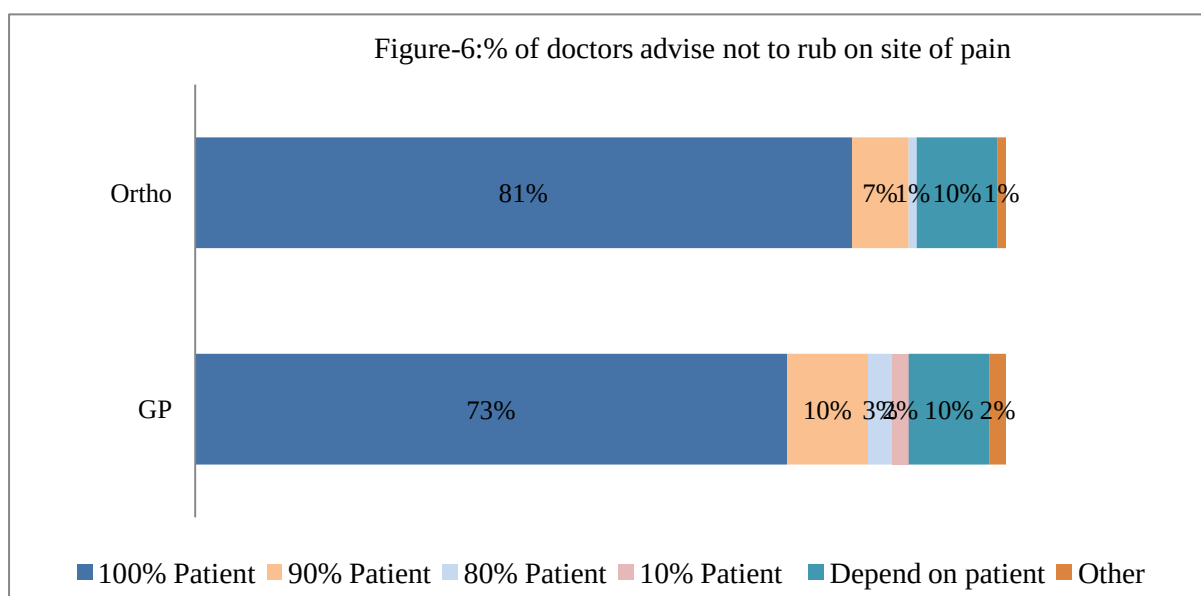
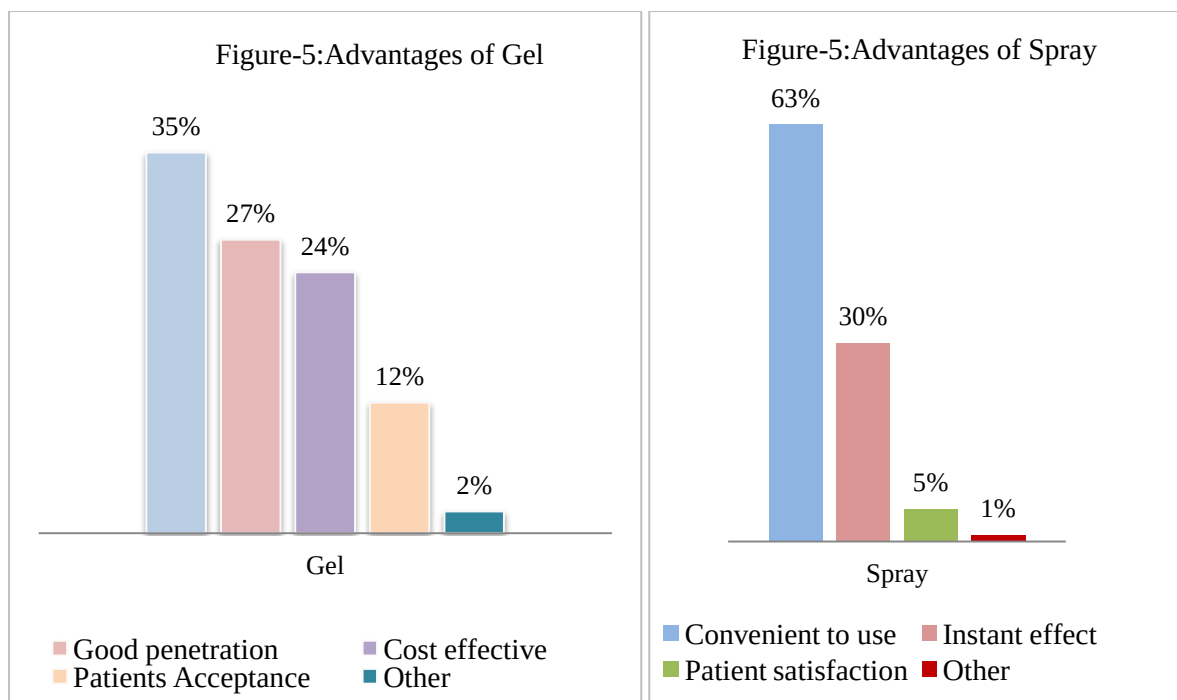


Figure-6: According to 81% of Ortho's and 73% of Gp's they advise all the patient(100%) not to run while giving the prescription.

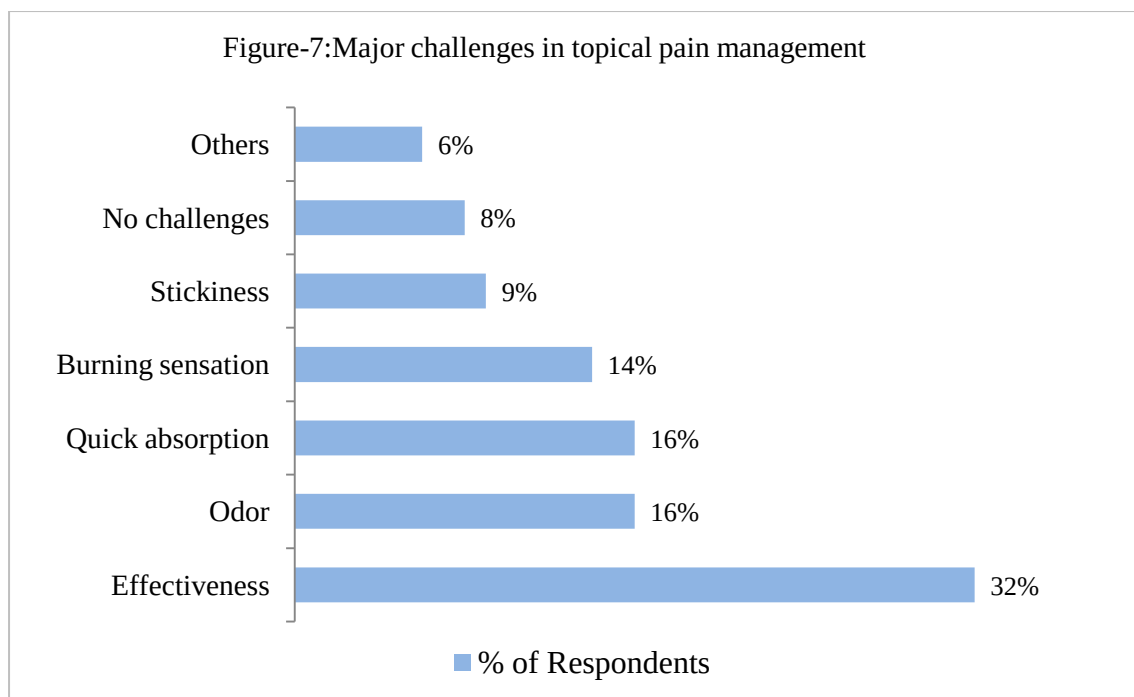


Figure-7: 37% of doctors says that effectiveness is the major challenge in pain management. All the available topical pain formulation are not as effective as oral formulation available in market.

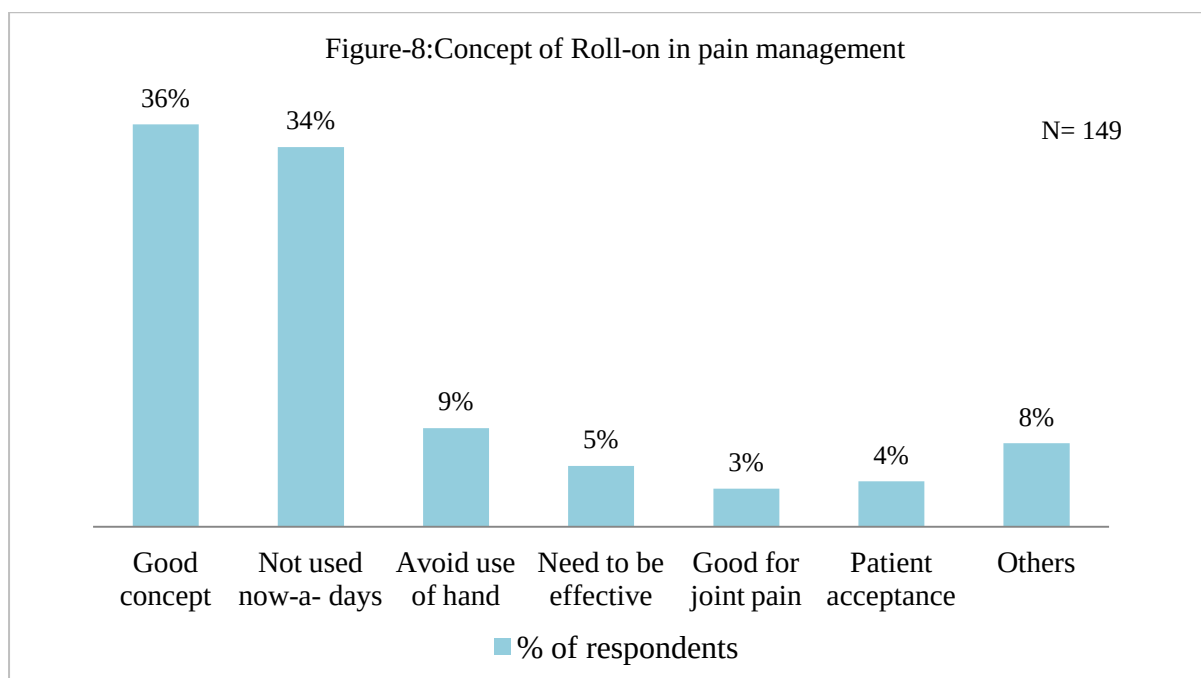


Figure-8: Study reveals that concept of Roll-on(according to 36% of respondents) is good in pain management because of its easy applicability and reachability and handling.

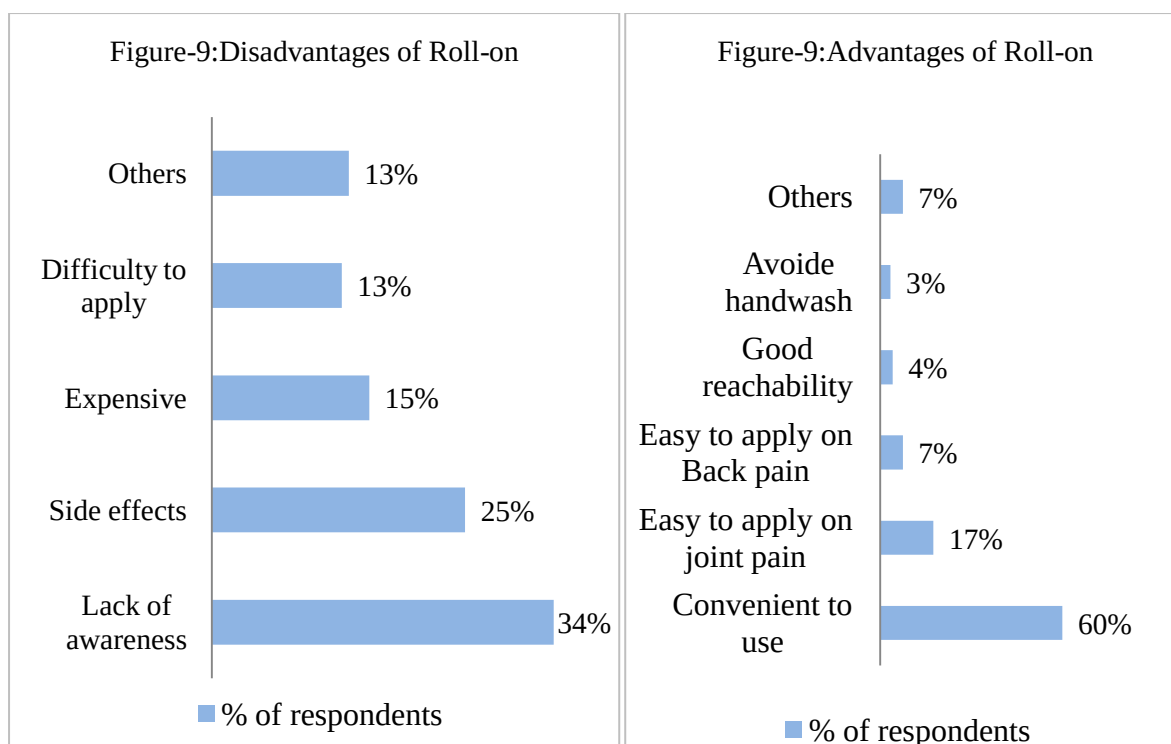


Figure-9: According to 34% of Doctors lack of awareness is the major disadvantage of Roll-on while According to 60% of Doctors convenient to use is the major advantage of Roll-on in topical pain management.

Table- Type and site of pain for topical pain formulation

As observed in studies Spray, Gel and Roll-on are used for mainly Acute and chronic pain. Muscles, Joints, Neck, Back are the main sites.

Particular	Spray	Gel	Roll-on
Type of pain	- Acute (47%) - Chronic (43%) - Others (3%) - Sports injury (7%)	- Acute (15%) - Chronic (82%) - Others (3%)	- Acute (41%) - Chronic (50%) - Others (4%) - Sprain and spasm (5%)
Site of pain	- Muscular pain (56%) - Sprain and spasm (21%) - Others (23%)	- Muscular pain (55%) - Joint pain (25%) - Others (20%)	- Muscle (30%) - Joint (26%) - Neck, Back, Headache (26%) - Others (18%)

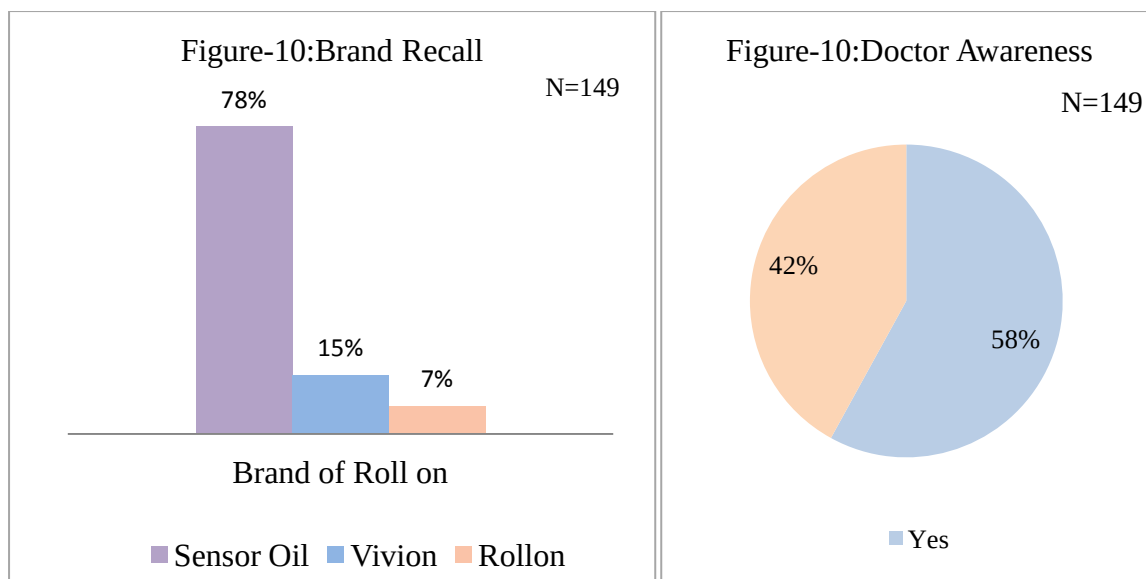


Figure-10: 58% of Doctors are aware from the brands of Roll-on. Sensor oil (78%) and Vivian (15%) are the most recommended brand by the doctors.

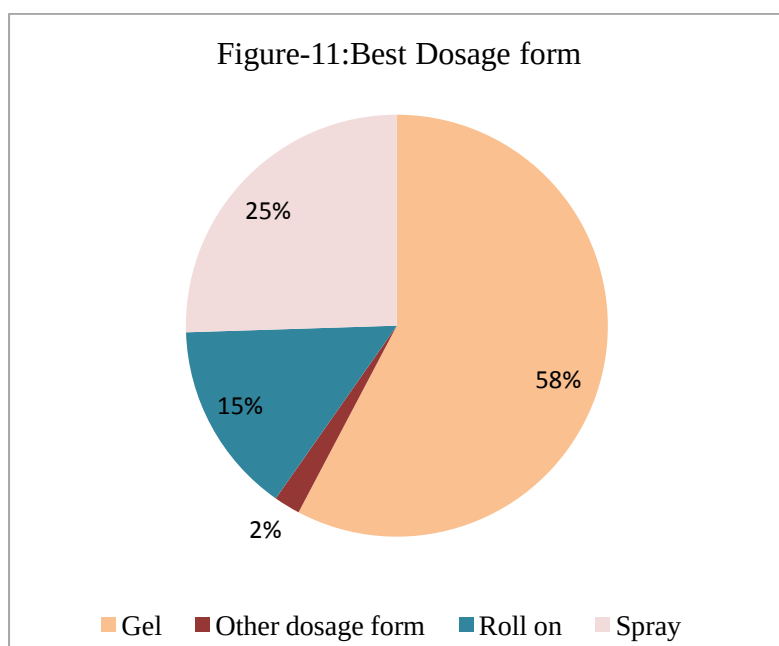


Figure-11: Nearly 58% of Doctors believe that Gel is best dosage form over spray and Roll on because of convenient to use, Good penetration. while 25% says that Spray is good because of instant effect, on the contrary 15% says that Roll-on is good because of easy handling and easy use.

2.) Analysis of Retailer's Questionnaire-

Figure-1:-On an average 16 topical pain killer are sold each day and out of them 9(58%) are sold without prescription and 6(38%) with prescription

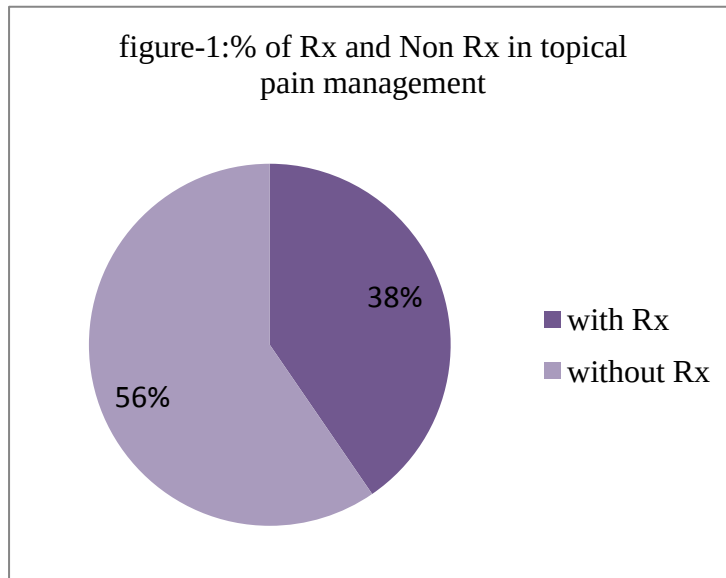


Figure-2: Among topical pain killers, ointment/gel is preferred more than spray and 77% of respondents said that dosage form is always mentioned on doctor's prescription

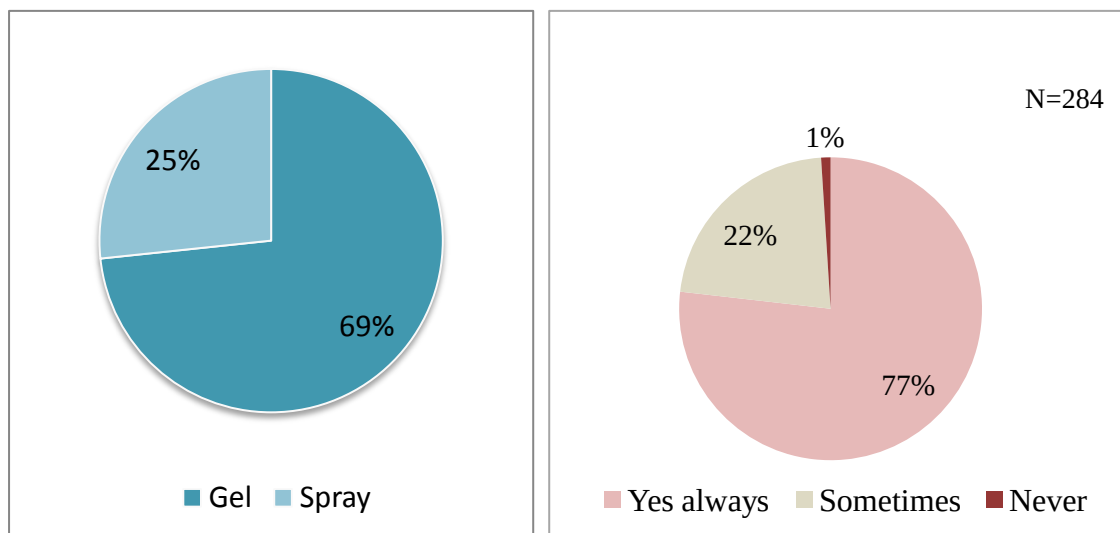


Figure-2: According to 31% of Chemists, patient sometimes prefer Gel or Spray based on price

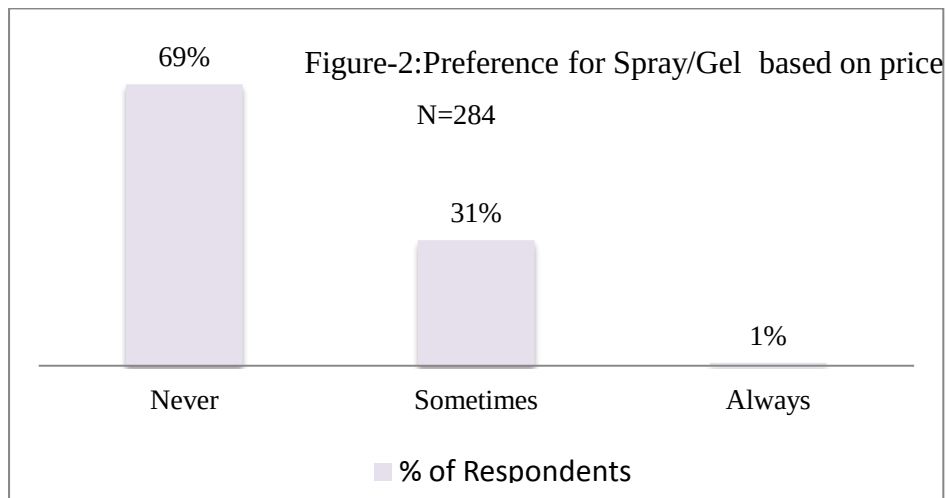


Figure-3: As observed in studies Only 33% of chemist received prescription for any Roll-on brand out of them sensor oil(21%) is the most recommended brand in prescription

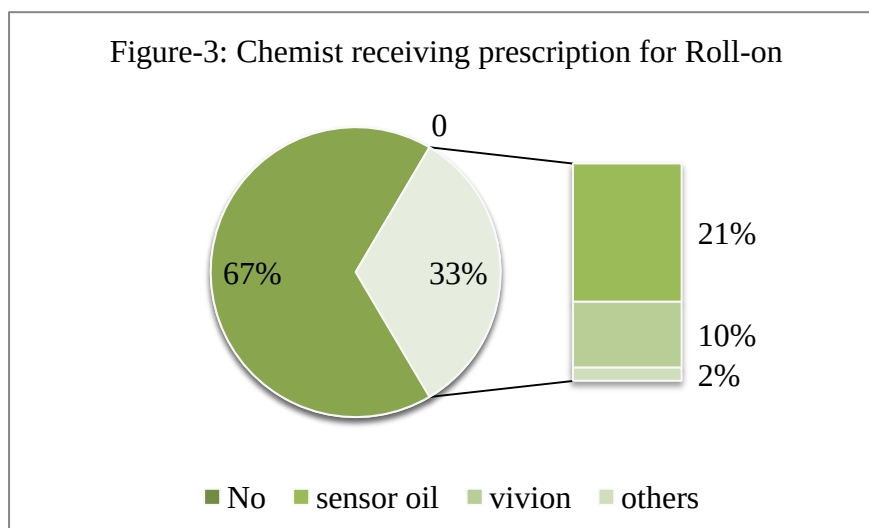
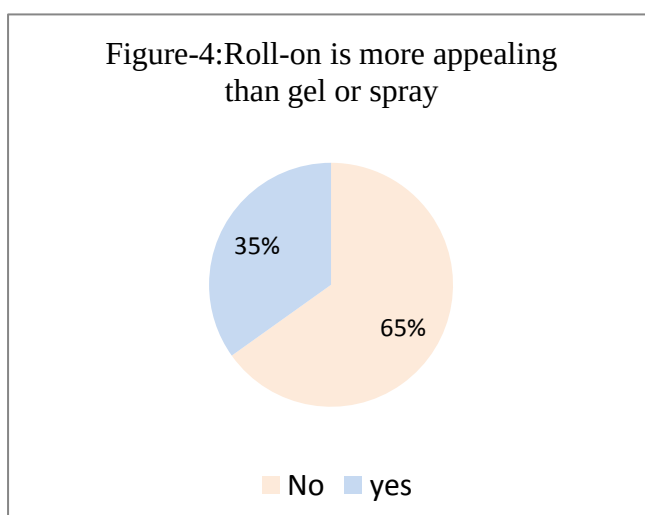


Figure-4: Roll-on is more appealing than gel or spray



Reasons why not appealing-

- Not a unique product from available formulation
- Available market formulations have better effectiveness
- This is already in market and people are not aware from it (lack of awareness)
- Effect is doubtful

Figure-4: study reveals 65% chemist says that existing formulation(Gel/Spray) is more appealing over Roll-on

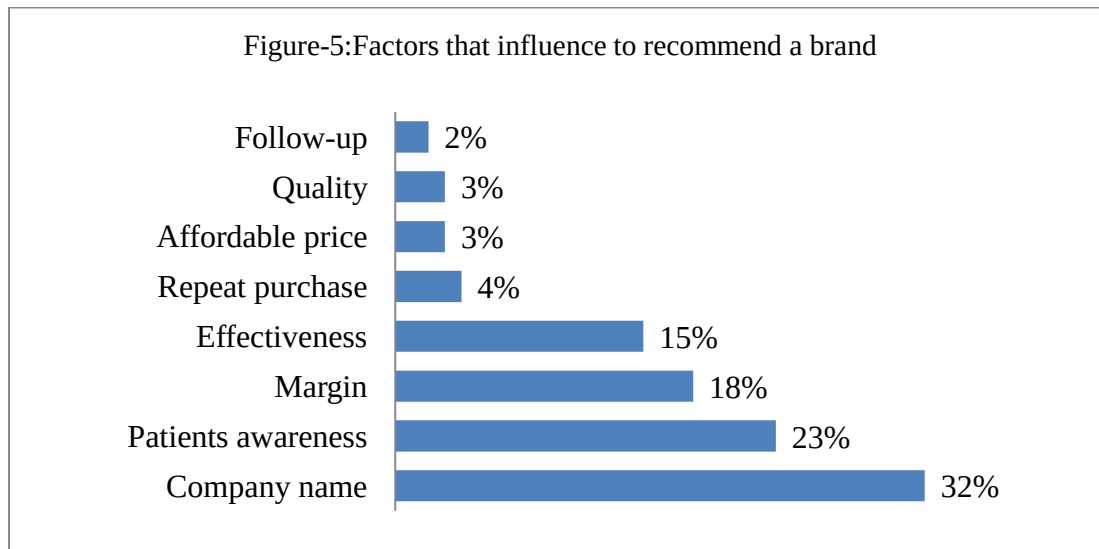


Figure-5: According to Chemists (32%) , company name, patient awareness and margin are the major factors to recommend a brand of topical pain killers to their customers

Table-Most recommended brands by the Retailers and their Reasons

Brands	Reason 1	Reason 2	Reason 3
Volini gel	Effectiveness	Demand among doctors and patients	Trust over Brand
omnigel	Good margin	Effectiveness	Brand recalling
Moov gel	Demand among doctors and patients	Effectiveness	Trust over brand

Analysis of patient's Questionnaire-

Figure-1: 85% of patients mentioned that they use topical painkiller formulations by self medication, Gel is most preferred topical pain formulation

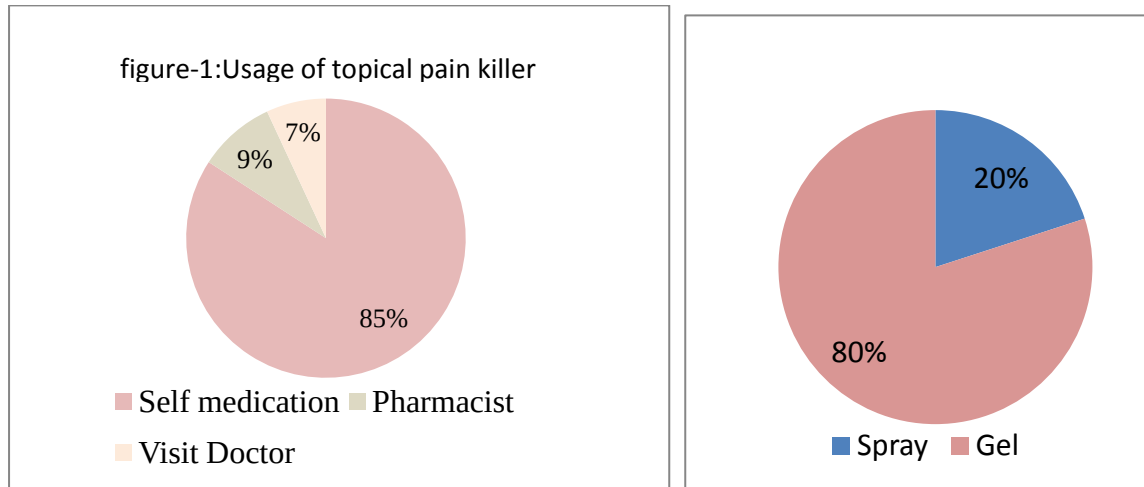


Figure-2: As observed in studies Odor from hand(62%) and burning sensation (61%)are the main difficulties in using gel while burning sensation (40%)in spray

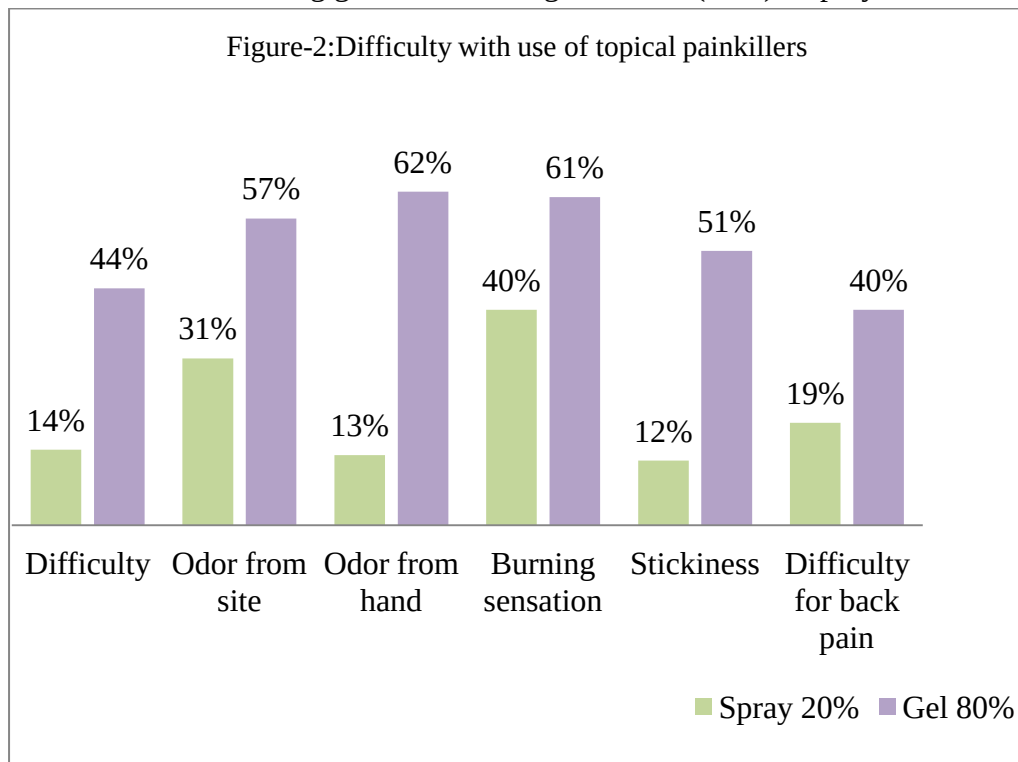


Figure-3: 29% of respondents mentioned that they cannot say anything about roll-on concept without use

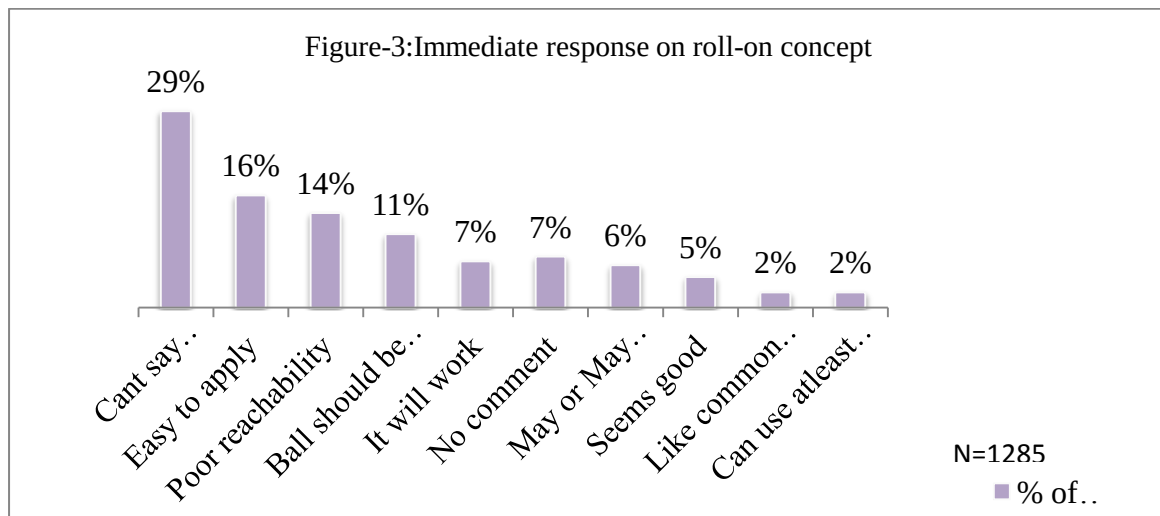


Figure-4: Individual vs. Same Roll-on within family

N=1034

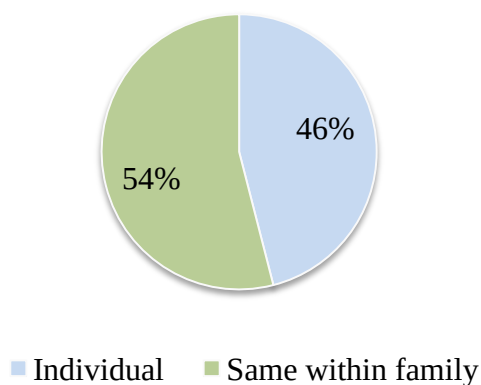


Figure-4: 54% of patients prefer single Roll-on within the family, on the contrary 465 of patients prefer different Roll-on which can increase the inventory size of family

Figure-5: Use of Roll-on by respondents

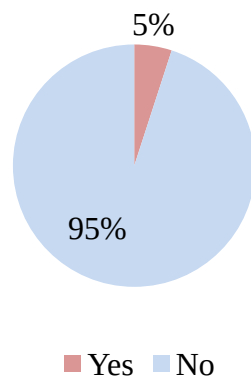


Figure-5: Brand name of roll-on

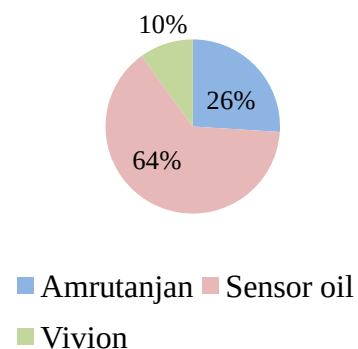
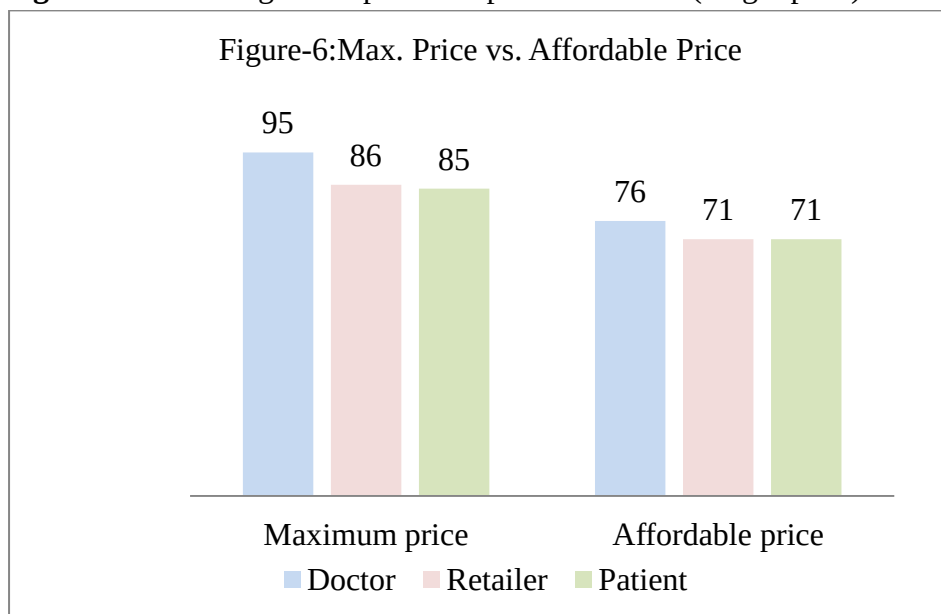


Figure-5: Only 5% of patients have used roll-on and sensor oil, Amrutanjan and Vivion are the preferred brand by them.

Figure-6: According to Respondents price of Roll-on(30gm pack)is in range of 95-70Rs



FINDINGS

Doctors-

- ❖ Only 10-20% Topical formulations recommended by the doctors in their prescription (shows synergistic effect with oral formulation)
- ❖ Roll-on concept is not recommended now a days because of its usage
- ❖ Application area for Roll-on is Muscular spasm and joints pain
- ❖ Sensor oil is more used over other roll-on brands
- ❖ According to doctors Gel is best topical pain killer over other topical pain killer because of Good penetration and convenient to use. Some doctors prescribe topical pain killer only as per demand of patients

Retailers-

- ❖ Roll on holds very less (<3%) market in topical pain management
- ❖ In OTC market, Roll-on has very less marketing activity
- ❖ Display, Advertisement plays an important role for making awareness among the patients
- ❖ Roll-on has very less competition in market

Patients-

- ❖ Lack of awareness about the concept of Roll on
- ❖ Gel is more preferred formulation over spray in topical pain management
- ❖ Effectiveness is the main factor while choosing any formulation in pain management
- ❖ 54% of patients prefer to use single roll on within their family

RECOMMENDATIONS

- ❖ 85% of patients prefer self-medication for use of topical painkillers
- ❖ Therefore patients awareness plays vital role in topical pain management, as most of the patients are not aware about the concept of roll-on
- ❖ Hence heavy promotional activities needs to be taken into consideration at the patients level
- ❖ Retailer plays a pivotal role in influencing the decision of patients in case of self medication for topical painkillers hence good margin and retailer schemes for the product will be helpful
- ❖ 54% of patients prefer to use single roll on within their family so price should be taken into consideration
- ❖ As per study it was seen that packaging of the roll on was not appealing to the end users, therefore it should be taken into consideration
- ❖ Roll-on should be promoted with the USP that it reduces rubbing habits of patients
- ❖ Also the price should be preferably between Rs.70-76 for pack of 30gm

ANNEXURE

DOCTOR'S QUESTIONNAIRE

Dear Doctor,

As part of my curriculum, I am working on a project “**Usage of topical NSAIDs**”. You are requested to spare a few minutes to answer a few simple questions for the same. All the information will remain confidential and will not be reproduced or published in any form.

Date: _____

Name: _____ Specialty: _____
Mobile: _____ No. of patients seen per day: _____ **(No ranges)**

1. Doctor, of all the patients that you treat in a day, what percentage of patients suffers from pain? _____ **(No ranges)**
2. Out of these patients suffering from pain to what %age of patients do you prescribe topical painkillers? _____
3. What is your preference pattern for different topical forms (Spray or gel)?

	Percentage of patients (%)
Patients recommended Spray	
Patients recommended Gel/Ointment	
Total patients	100%

4. Reasons for the preference?

5. What are the factors considered while choosing between spray or gel to patients?

6. According to you, what are the advantages and disadvantages of sprays and gels?

	Advantages	Disadvantages
Spray		
Gels		

7. To what percentage of patients do you need to advise “*not to rub*” on the site of pain?

8. According to you, what are the major challenges in using topical pain management drugs in general?

9. Would you suggest any other drug delivery form to address these challenges?

10. What do you think about the concept of a topical pain killer as a roll-on (ex: deodorant sticks)?

11. According to you, what are the advantages and disadvantages of a roll-on application?

a. Advantages:

b. Disadvantages:

12. Doctor in your opinion, for which type of pain and site of pain can different topical forms be used/ recommended to your patients?

	Type of pain	Site of pain
Spray		
Gel		
Roll-on		

13. Are you aware of brands with roll-on packaging in the market? Yes/No

a. If yes, which brand?

b. If no, proceed to Q. 15

14. Have you prescribed or recommended it? Yes/ No

15. Looking at the benefits and convenience of a roll-on application, do you intend to prescribe or recommend to your patients?

Yes / No

16. According to you, which dosage form can work best as a topical application?

a. Spray b. Gel c. Roll-on

17. Looking at the convenience & other benefits of the dosage form, what is the maximum price the patient can be willing to pay, (30 gm.)? _____

Current average price of spray – Rs. 110 – 120

Current average price of gel – Rs. 60 – 70

18. What would be affordable price which is comfortable for patient for to pay?

18. Any suggestion for company introducing such a product?

RETAILER'S QUESTIONNAIRE

Dear Sir,

As part of my curriculum, I am working on a project- “**Usage of topical NSAIDs**”. You are requested to spare a few minutes to answer a few simple questions for the same. All the information will remain confidential and will not be reproduced or published in any form.

Name of the person interviewed:

Date:

Mobile:

Place:

1.How many topical pain killer (gel/spray) units do you sell each day?

2.On an average out of 100 units of topical painkiller, what %age of units are sold without Rx or on patients demand?_____

3.On an average out of 100 units of topical painkiller you sell, how much %age of units account for Ointment/ Gel/ Spray/ Roll-on?

Total units	Ointment/Gel	Spray	Roll-on
100%			

4.Do the prescriptions specify the dosage form (gel or spray)? Yes always / Sometimes / Never

5. If patients do not have any idea on gel or spray, which one would you suggest?

5.Do the patients settle down on gel or spray based on Price? Yes always / Sometimes / Never

6. Do you receive any prescriptions for any roll-on brand? Yes / No
If yes, which brands?

7. According to you, what should be the price of such roll-on (30 gm.) that make your customers buy it without much hesitation?

8. There could be many factors that influence you to recommend a specific brand/form of topical painkiller to your customers? **Use Showcard. Ask to name 3 most important factors in sequence**

Factors	
Company Name	
Affordable price	
Attractive schemes	
Company representative follow-up	
Unique feature: Composition/delivery form	
Patient awareness (advertisement)	
Effectiveness	
Repeat purchase	
Quality	
Margin	
Any other _____	

9. Which brand do you recommend the most? Why?

10. Which brand do you sell the most? Why?

PATIENT'S QUESTIONNAIRE

Name:

Place:

Date:

1. Which topical painkiller for joint/back pain do you generally use? (**PROBE – GEL /SPRAY / ROLL-ON**)

2. The above product do you use as self-medication, after seeking opinion of pharmacist or do you visit the doctor?

i. Self-medication

ii. Seek opinion of pharmacist

iii. Visit doctor

3. Have you come across any difficulty while use of painkiller gels or spray? Tick the right option.

	Gel	Spray
Have you come across any difficulty?		
Odor from site of application?		
Odor from hands?		
Burning sensation		
Stickiness on site of application?		
Difficulty to apply, especially for back pain or behind shoulders		
Any Other:		

4. According to you, which is the most convenient form? Gel / Spray / Roll-on

Show the samples of tubes and roll-on to the patient; let him/her test the sample and capture patient's response after use

5. Do you find any difference between the two forms after application? Please tick the option.

	Gel	Roll-on
Which one is more appealing to you?		
Reasons:		
Which is more convenient to use?		
Did you experience any odor on site of application with any of the two?		
Did you experience any odor from your fingers after applying gel?		
Which one out of the two do you think can reach comfortably to any site of pain?		
Which one (gel/roll-on) will you prefer to use?		

6. As roll-on comes with value added benefits, how much are you willing to spend more than gel (for same pack size of 30 gm)?

7. Considering best quality product and company reputation, what is the **maximum and reasonable price** you are willing to pay?

	Maximum price	Reasonable price
For pack of 30gm gel (current average price of gel, Rs. 110 – 120)	Rs.	Rs.
For pack of 30gm roll-on	Rs.	Rs.

8. Will you prefer to use single roll-on within your family or prefer to use it individually and not share the same roll-on pack?

9. Have you used any Roll-on painkiller preparation? Yes/No

10. If yes, how was your experience with the product?

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