

Study on Repositioning of NVM Tablet in Delhi

By

Aniruddha Jiwane

*Dissertation submitted for the partial fulfillment of the
MBA Pharmaceutical Management*

Academic year, 2015-2017



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

Study on Repositioning of NVM Tablet in Delhi

By

Aniruddha Jiwane

*Dissertation submitted for the partial fulfillment of the
MBA Pharmaceutical Management*

Academic year, 2015-2017

Seagull Pharmaceuticals Pvt. Ltd., Delhi



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

TO WHOMSOEVER MAY CONCERN

This is to certify that Mr. Aniruddha Jiwane of MBA Pharmaceutical Management from The IIHMR University, Jaipur has undergone internship training at Seagull Pharmaceuticals Private Limited, Delhi from 10th February, 2017 to 10th May, 2017.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



(Col.) Dr. Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur



Dr. Saurabh Kumar Banerjee
Assistant Professor
The IIHMR University, Jaipur



Appendix E

The certificate is awarded to

Mr. Aniruddha Rushi Jiwane

In recognition of having successfully completed his/her

Internship in the department of

P M T

and has successfully completed his /her Project on

Study on Repositioning of NVM Tablet in Delhi

10th Feb'2017 to 10th May'2017

in Seagull Pharmaceuticals Pvt. Ltd.

He/She comes across as a committed, sincere & diligent person who has a strong drive and zeal for learning

We wish him/her all the best for future endeavors

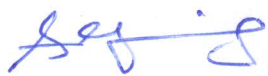

Personnel Executive

Original Literary Work Declaration

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "***Study on Repositioning of NVM Tablet in Delhi***" and submitted by **ANIRUDDHA JIWANE**, Enrollment No: **IIHMR-U/02/2015-17/0032**, under the supervision of **Dr Saurabh Kumar Banarjee** for award of **(MBA in Pharmaceutical Management)** Postgraduate Diploma in Pharmaceutical of the University carried out during the period from **10th February, 2017** to **10th May, 2017** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.



ANIRUDDHA JIWANE
The IIHMR University

Certificate of Ethical Clearance

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that all ethical issues have been considered while collecting data for my dissertation titled "*Study on Repositioning of NVM Tablet in Delhi*".



ANIRUDDHA JIWANE

Signature of student

ABSTRACT:

Objectives:

Studies have been established to find out the various strategies for repositioning of NVM tablet and doctors opinion about neurotropic vitamin tablet. This study also included objective that is which parameter should be more focused to increase market share of NVM tablet. Study is focused on evaluation of suggestions given by doctors for ideal formulation of neurotropic vitamins tablet.

Research design:

Primary data was collected from 50 doctors and 74 Chemists in the Delhi city. Convenience sampling method is used to collect data from doctor and chemist.

Methods:

Data was collected through structured questionnaire and filled in the excel format. Analysis was performed using **MS Excel** as analytical tool.

Results:

Majority of respondents (68.75%) preferred tablet form for the neurotropic vitamin because may be tablet dosage form of the neurotropic vitamin has less price than other dosage forms. Majority of patient may be diabetic so that doctors prescribing neurotropic vitamins majorly for indication of peripheral neuropathy (22.65%), diabetic neuropathy (21.54%), and also Sciatica (21.54%). Neurobion forte with 31.25% is majorly preferred brand of Neurotropic vitamins followed by NVM (22.65%) and Cynocal 16 (19.53%).

Availability (39%) is the major factor behind preferred brand prescribing by doctor. Followed by efficacy (30%) and Price (25%). For any ideal neurotropic vitamins the Vitamin B1, B6, B12 along with Niacinamide and folic acid is necessary in the formulations as per majority of responses.

Chemist response represents that total neurotropic vitamin brands available in the stock of chemist is more than six(86.48 Neurobion forte is most preferred brand by doctors hence

majority of chemist have this brand in stock. Majority of respondents(25.54%) has responses that Neurobion forte is most prescribed tablet by doctors.

Conclusion:

Study shows that majority of respondents (Doctors) uses neurotropic vitamin in indication of peripheral neuropathy, Diabetic neuropathy and sciatica. Neurobion forte is most preferred brand by doctors because of the availability factor, and this brand is majorly available at chemist too. Vitamin B1, B6, B12, Niacinamide, Folic acid are the preferred vitamins in neurotropic vitamin formulation as per the majority of responses.

ACKNOWLEDGEMENTS

This internship/dissertation would have been an insurmountable task without the support, guidance and encouragement that I have been fortunate enough to receive from many people.

I would like to express my gratitude to Mr. Salil Malhotra, Director Sales and Marketing for having great vision and give me opportunity to do dissertation project in the organization.

I am very grateful to have Mr. Dev Kishan Dadhich, Senior Product Manager, as my mentor in the organization – his knowledge and advice has always steered me along the right path. I would also like to express my sincere gratitude to everyone in the Seagull Pharmaceuticals team for support me.

I am very thankful to Prof. Dr. Saurabh Banarjee, my guide at IIHMR University, for his constant support, guidance and patience throughout the internship and thesis presentations. He has expertly molded and crafted my crude work into a finished thesis that can withstand scrutiny. Thank you so much sir.

Finally, I would like to thank IIHMR University for providing me with an amazing opportunity and for making it an experience worth cherishing for a lifetime. I could not have asked for a more interesting and wonderful bunch of classmates than the 7th batch of Pharmaceutical Management. It is always a pleasure when our paths cross.

Thank you.

ANIRUDDHA JIWANE

LIST OF TABLES:

Sr no	Table no:	Content
1	Table: 1	Composition of NVM Tablet
2	Table: 2	Average number of Neuropathic Patient examine by doctor per day
3	Table: 3	Average number of prescription of Neurotropic Vitamin Per day
4	Table: 4	Doctor's preferred dosage form of Neurotropic Vitamin
5	Table: 5	Indication in which Doctor prescribe neurotropic Vitamin
6	Table: 6	Doctors preferred brands of Neurotropic vitamins
7	Table: 7	Criteria behind prescribing Preferred brand by doctor
8	Table: 8	Doctors preferred combination of Neurotropic Vitamin
9	Table: 9	Total Neurotropic Vitamin Tablet Brand available at chemist
10	Table. 10	Different brands of neurotropic vitamin available in stock of chemist
11	Table: 11	Most prescribed brand of neurotropic vitamin tablet
12	Table: 12	Sale of Neurotropic vitamins in one month at chemist
13	Table 13	Total no. of neurotropic vitamins sale on prescription at chemist

Table of Contents

1. INTRODUCTION	1
1.1 About Neurotropic B Vitamins	1
1.2 Deficiency of Vitamin B1, B6 and B12.....	1
1.3 Neurotropic B Vitamins role in Nerve Health.....	1
1.4 Other Vitamins, Proteins and Minerals used in the treatment of Neuropathy:	1
1.5 NVM Tablet:.....	2
1.6 BACKGROUND OF THE DISSERTATION STUDY	4
2. LITERATURE REVIEW	5
3. METHODOLOGY	6
3.1 GOAL:	6
3.2 AIM	6
3.3 OBJECTIVES	6
3.3.1 Primary Objective:	6
3.3.2 Secondary Objectives:	6
3.4 RESEARCH DESIGN	6
3.5 MATERIALS AND METHODS	7
3.6 STUDY DEFINATIONS:	7
3.7 DATA ANALYSIS PLAN:	7
4. RESULTS	9
4.1. Doctors Response:	9
4.2. Chemist Response:.....	16
5. DISCUSSION:	21
6. CONCLUSION:	22
7. LIMITATIONS OF STUDY:	22
8. REFERENCES	23
9. APPENDIX	24

1. INTRODUCTION

1.1 About Neurotropic B Vitamins

Neurotropic B vitamins are Vitamin B1 (Thiamine), Vitamin B6 (Pyridoxine) and Vitamin B12 (Cobalamin) plays important role in the health of nervous system. These vitamins helps in regeneration of nerve cells and provide nourishment to it. These vitamins can be obtained in the body from the various sources like grains , eggs and meat.¹

Vitamin B1, B6 and B12 are essential vitamins which have their unique individual role in the health of nervous system. Combination of all these three vitamins is essential to treat deficiency. It is found in animal studies that the combination of these three vitamins was found to be more effective than with either vitamin alone.²

1.2 Deficiency of Vitamin B1, B6 and B12

There are many reasons behind vitamin B deficiency such as low intake due to malnutrition and specific nutritional habits and also because of malabsorption. Diabetes, renal impairment, gastrointestinal diseases these are some chronic diseases which can cause neurotropic vitamins deficiency. Symptoms of vitamin B deficiency are weak muscle relaxes, polyneuropathy, polyneuritis. After examination if patient is vitamin B deficient then neurotropic vitamin B supplementation is better approach to provide treatment. Long term treatment required (Supplementation of neurotropic vitamin B) for chronic diseases.³

1.3 Neurotropic B Vitamins role in Nerve Health

Vitamin B1: Vitamin B1 plays a role of providing energy to nerve cells, maintainance of myline sheath, nerve stimulation and synthesis of neurotransmitter.

Vitamin B6: Synthesis of neurotransmitters which is essential for transmission of nerve signals.

Vitamin B12: Formation of nerve mylin sheath, regeneration of nerve cell and metabolism of nerve cell.⁴

1.4 Other Vitamins, Proteins and Minerals used in the treatment of Neuropathy:

Niacinamide: It is also known as nicotinamide. Niacinamide is essential for normal functioning of nervous system. It is water soluble vitamin. Vitamin B6 plays many important task in the body which improves the body system regularity. Vitamin B6 maintains and regulate fluids balance in the body. It also improves immune efficiency. Deficiency of Niacinamide cause Pellagra.⁵

Calcium Pantothenate: Calcium Pantothenate is water soluble vitamin. It is essential in the treatment of burning feet syndrome. In human body it plays a role in functioning of enzymes. It convert food into energy by break down of carbohydrates, fats and protein into the body, stimulating normal bodily processes such as growth, reproduction, etc. Calcium pantothenate helps in maintains communication between central nervous system and brain.⁶

Magnesium Oxide: Magnesium oxide is mineral supplement. It is used in prevention as well as treatment in low amount of magnesium in blood. Magnesium oxide has very important role in functioning of muscle bone and nerve cells. Magnesium oxide can also be used to relieve heartburn and indigestion.⁷

Riboflavin: Riboflavin is also known as Vitamin B2. Riboflavin is required by the all flavoproteins because it is central component of cofactors FAD and FAN. It also plays role of energy production. Riboflavin plays role in thyroxine metabolism and its deficiency cause some mental illness.⁸

L-Glutamic Acid: L-glutamic acid also known as glutamic acid. It is also a component of proteins. It is produced naturally by the body. Btrain's glutamate receptor is stimulated by L-Glutamic acid. It is stimulant neurotransmitter in the brain. iT is also precursor of inhibitory neurotransmitter gamma-amino butyric acid(GABA).⁹

Folic Acid: Folic acid is water soluble B vitamin. Folic acid is used in the treatment and prevention of low levels of folate in the body. It is also used in anemia and bowel inability to absorb nutrients properly. To prevent miscarriage and neural tube defects pregnant women's are advised to take folic acid supplements.¹⁰

1.5 NVM Tablet:

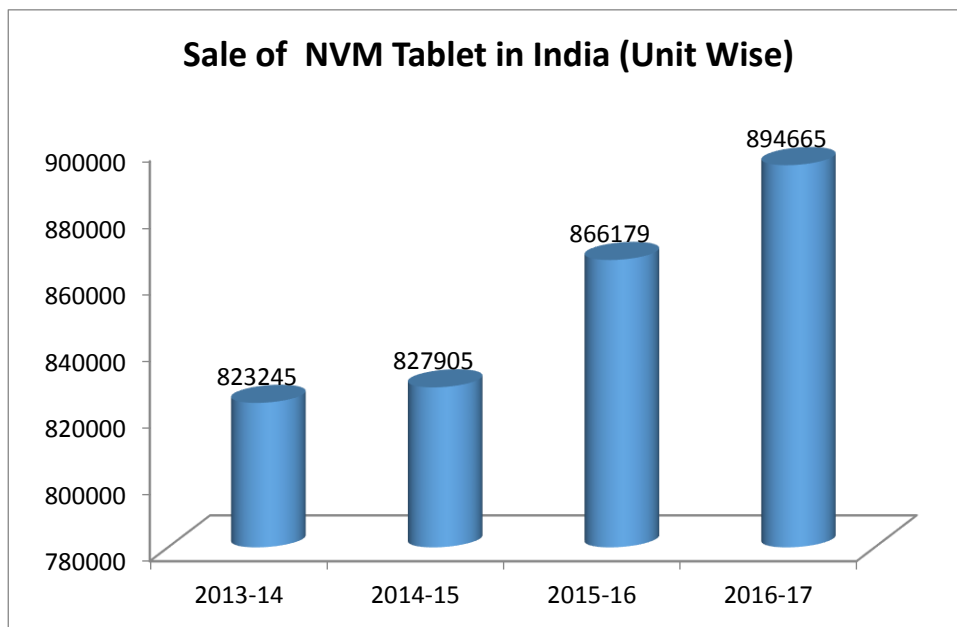
NVM tablet is brand of Seagull Pharmaceuticals Pvt. Ltd. NVM tablet is neurotropic vitamin tablet which is used in the treatment of neuropathy like peripheral neuropathy, diabetic neuropathy, neuritis. NVM tablet action is based on the principal of Citric acid cycle.

Table no.1 Composition of NVM Tablet:

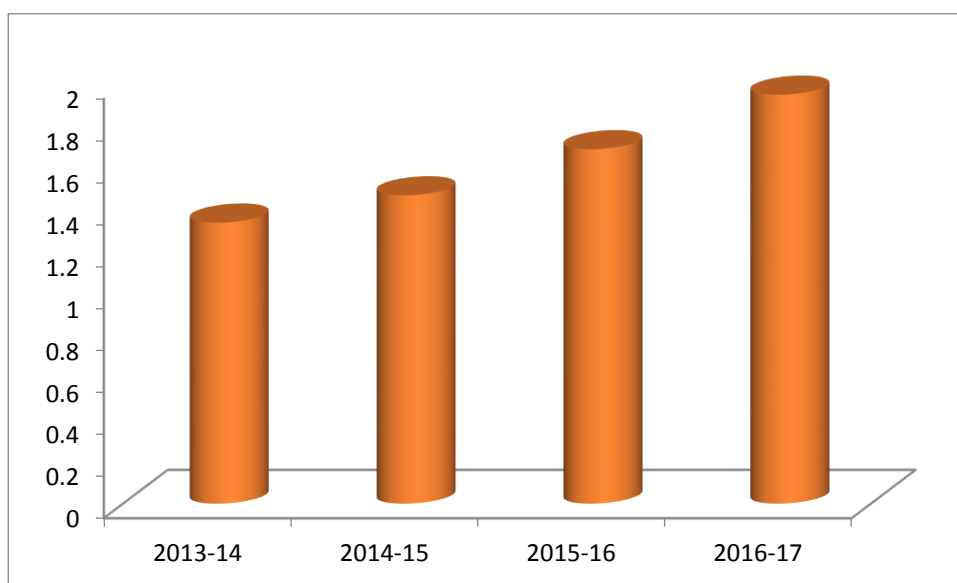
Vitamin B1 (Thiamine)	10 mg
Vitamin B6 (Pyridoxine)	3 mg
Vitamin B12 (Cynocobalamin)	15 mcg
Calcium Pantothenate	50mg
Niacinamide	50mg
Magnesium Oxide	10mg
L- Glutamic Acid	25mg

Tagline of NVM Tablet: Effectively tackles the challenge of neuropathy.

Sale of NVM Tablet: sales figure of NVM tablet is increasing per year.



Source: Seagull Pharmaceuticals Pvt. Ltd.



Source: Seagull Pharmaceuticals Pvt. Ltd.

1.6 BACKGROUND OF THE DISSERTATION STUDY

This project is mainly focused on to find the strategies for repositioning of NVM tablet which will be later included in the promotional strategies of the NVM tablet brand. NVM tablet had good market share in the north India. Sale of the NVM tablet is increasing every year. Product is growing day by day but the percent growth of NVM tablet is not less and but looks like to be sale of the NVM tablet is stabled. Neurotropic vitamins market share was occupied by various brands in market like Neurobion Forte, Optineuron, Cynocal 16, etc.¹¹ There is challenge for NVM tablet to sustained its sales and increase the market share. Hence this project is framed to find out the various factors that would be essential for repositioning of the product to sustain and increase its sale and increase the market share of NVM tablet.

To find the needed information for repositioning of the brand project include the survey of doctors and chemist. Survey of doctors and chemist is done to collect the desired information which will be analyzed and then we will came to desired outcomes. Also sales data and market scenario of the NVM tablet is also necessary for this project.

In this project first I reviewed the literatures , articles of similar project done in past. After that on the basis of past data from literature and need of the project proper questionnaire was prepared for chemists and doctors for their survey regarding neurotropic vitamins.

After that major part of project that is analysis was performed and observation of results and findings. After observation of results and findings we came to know the conclusion.

2. LITERATURE REVIEW

There are many vitamins under B-complex which are particularly important for the nervous system. Neurotropic vitamins functions as cofactor for various enzymes which are essential for the regulation of carbohydrate , protein and fat metabolism. Neurobion and Optineuron are the topneurotropic vitamins brand in the market with market share of 40.5% and 18.3% respectively as per ORG-MARG (Market Research Company) report.¹²

A descriptive study was carried out by R Praveena, S Devi and A Asha of Al-Ameen College of Pharmacy at Bangalore reveals that Of all the surveyed doctors, it was found that 42% of the doctors treat per day 11-20 patients, 2% of the doctors treat per day 41-50 patients and 3% of doctors treat per day above 50 aptients. Majority of doctors (64%) gave per day 1-10 prescriptions of vitamin B-complex. Vitamin B complex injection prescription were majorly generated by general physicians.¹³

The top brand of vitamin b complex injection was optineuron follwed by Neurobion forte Majority of doctors (95%) didn't get any copmlaint regarding vitamin b complex injection. Only problem of hypersensitivity and pain due to injection given by 5% doctors. Maximum Prescription of vitamin b complex injection was prescribed to Adult patient followed by Elder and pediatric patient respectively. Formulation changes and availability are the factors for prescribing preferred brand by doctors. Introduction of combipacks with Iron injections, vitamin C injections, calcium injections are the suggestion given by doctors.¹³

Need for study:

The pharmaceutical market is challenging. The brand which is most fitted into market condition will survive. Neurotropic vitamin market is now shifted more towards methylcobalamin from cynocobalimin.¹³ There is minute different between different brands of neurotropic vitamins to gain the advantage of some specific vitamins which is not provided by other brands in market. Company can do this only by collecting the thorough information of competitors brand and doctors view about neurotropic vitamin tablet.

Hence following study is conducted to identify the various attributes on which company has to focus while repositioning of the NVM tablet brand. This is also conducted to find out the doctors suggestion in formulations of neurotropic vitamin tablet.

3. METHODOLOGY

3.1 GOAL:

Identify the various strategies for repositioning of the NVM tablet so that the market share of NVM tablet should increased.

3.2 AIM:

To study the doctors opinion about neurotropic vitamin tablet in Delhi and market assessment of neurotropic vitamins by doing chemist survey.

3.3 OBJECTIVES:

3.3.1 Primary Objective:

- To find out the various strategies for repositioning of NVM tablet.

3.3.2 Secondary Objectives:

- To find out doctors opinion about neurotropic vitamin tablet.
- To find out which parameter should be more focused to increase market share of NVM tablet.
- To evaluate suggestions given by doctors for ideal formulation of neurotropic vitamins tablet.

3.4 RESEARCH DESIGN:

- Sample area: Delhi, India
- Study design: Descriptive study
- Study type: Analytical study
- Sampling: Convenience Sampling
- Sample size: 50 Doctors and 74 Chemists in Delhi city.

3.5 MATERIALS AND METHODS

Data type: Primary data

Tool used for data collection: Structured Questionnaire

Medium of data collection: Survey through structured questionnaire.

Data was collected through Structured Questionnaire by personally approaching to doctors chamber and chemist counter. Total 50 doctors and 74 chemists were surveyed.

Data collection Tool: Data was collected through questionnaire and filled in an excel format which further analyzed by excel tools.

3.6 STUDY DEFINATIONS:

Neurotropic Vitamin: Neurotropic B vitamins are Vitamin B1 (Thiamine), Vitamin B6 (Pyridoxine) and Vitamin B12 (Cobalamin) plays important role in the health of nervous system. These vitamins helps in regeneration of nerve cells and provide nourishment to it. These vitamins can be obtained in the body from the various sources like grains , eggs and meat.

3.7 DATA ANALYSIS PLAN:

Data filled in the excel format was analyzed by using tool pivot table. From the pivot table total responses given by doctors and chemist were calculated as there any multiple response option given to single question in questionnaire. After counting the individual options response it compared with total response and percent response for each option were calculated by considering total count of response as 100% for multiple option question and for normal question total no. of respondents is considered as 100%. Graph prepared for the percent responses given by doctor and chemist.

Inclusion Criteria: Doctors and chemist present in Patel nagar, Naraina, indrapuri, Rajendra nagar area of Delhi.

Exclusion criteria: Other areas of Delhi was not include in the study because of difficult to access.

Ethical considerations: A proposed formal consent/agreement was taken before the survey of all the samples included in study and the proposed informal agreement is provided by head of the departments after thorough quality check of questionnaire and study motives/objectives and also informal consent was provided by IIHMR University for conducting study project as a part of academia of MBA Pharmaceutical Management programme.

4. RESULTS

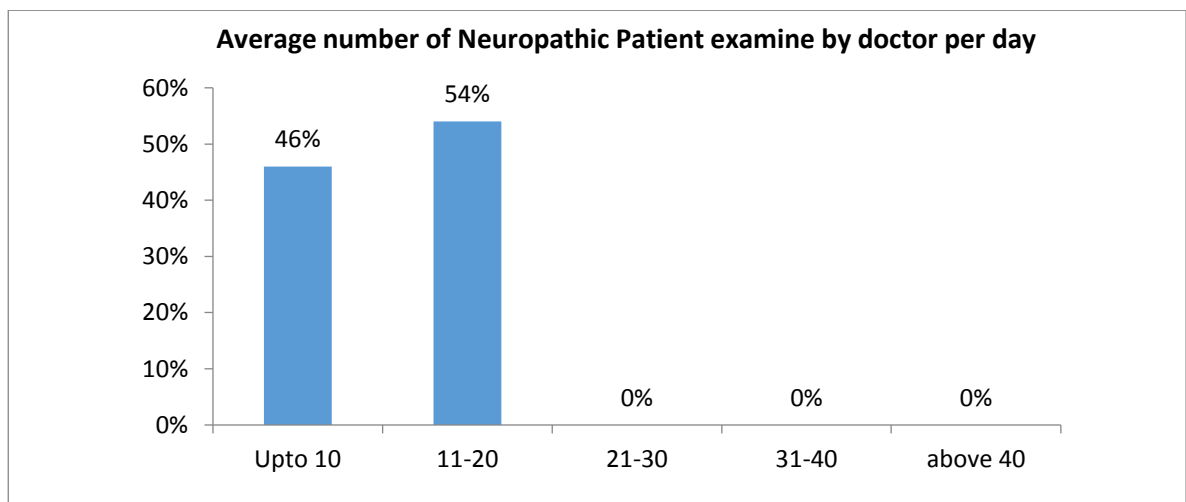
4.1. Doctors Response:

1) Average number of Neuropathic Patient examine by doctor per day:

Table.2.

Total no of respondents: 50 (100%)

No. of Patient	Number of respondents	Percentage of respondents
Upto 10	23	46%
11-20	27	54%
31-35 years	0	0
36-40 years	0	0
Above 40	0	0



Interpretation:

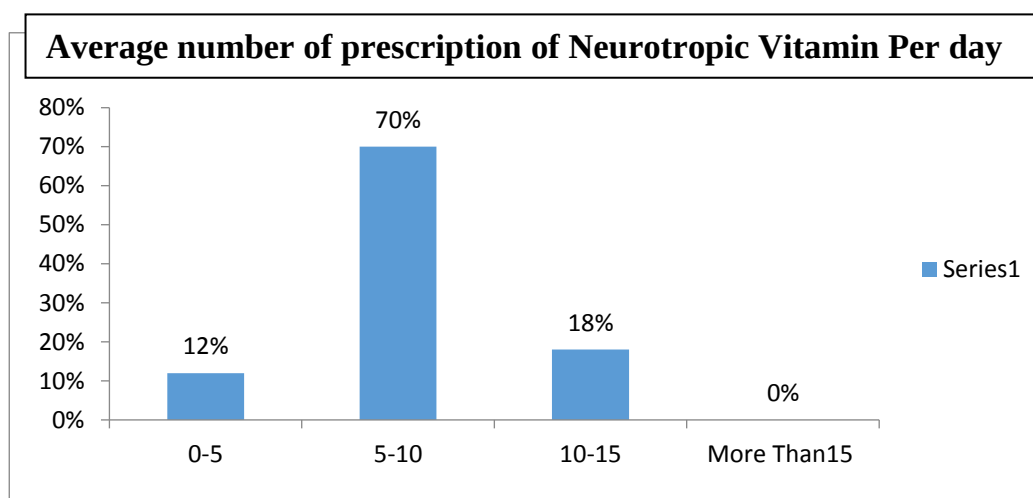
- Maximum 11-20 (54%) neuropathic patient were examined by doctor per day.
- It is followed by 46% of doctors examine up to 10 patients per day.
- No doctor examine more than 20 patients per day.

2) Average number of prescription of Neurotropic Vitamin Per day:

Table.3

Total no of respondents: 50 (100%)

No. of Prescription	Number of respondents	Percentage of respondents
0-5	6	12%
5-10	35	70%
10-15	9	18%
More than 15	0	0%



Interpretation:

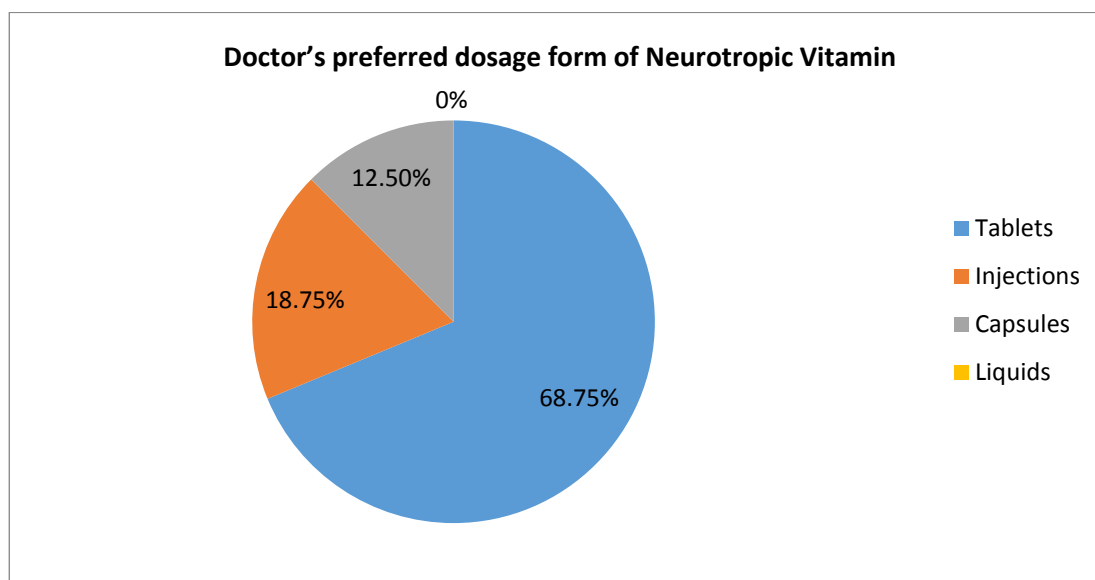
- More than two third (70%) of doctors prescribing 5-10 prescriptions of neurotropic vitamin tablet per day.
- Followed by 18% Doctors prescribing 10-15 prescription and 12% doctors prescribing 0-5 prescription per day of neurotropic vitamin tablet.

3) Doctor's preferred dosage form of Neurotropic Vitamin:

Table.4

Total no of responses: 64 (100%)

Dosage form	Number of respondents	Percentage of respondents
Tablet	44	68.75%
Injection	12	18.75%
Capsules	8	12.50%
Liquid	0	0%



Interpretation:

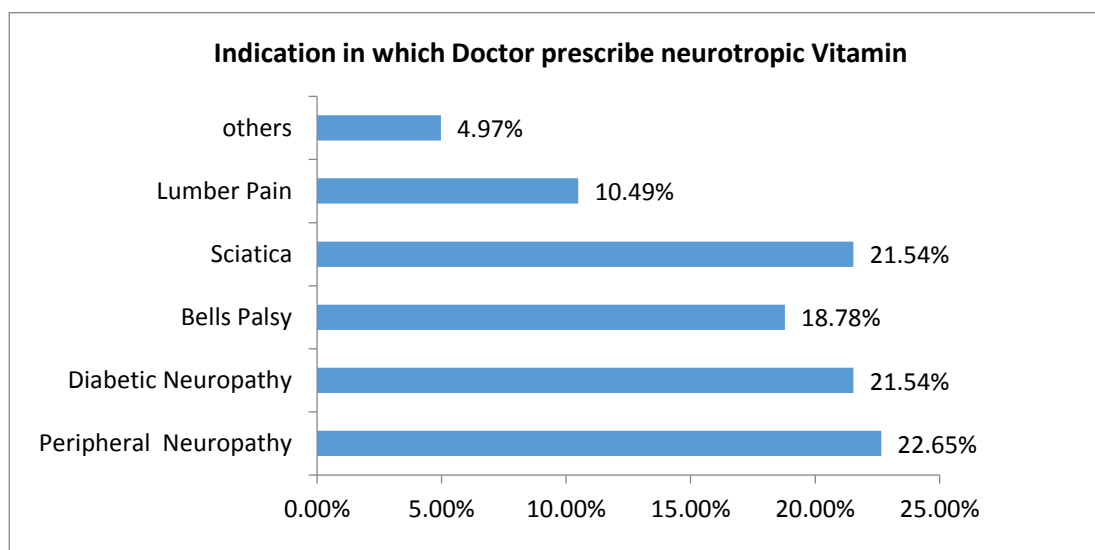
- Majority of the respondents (68.75%) preferred tablet dosage form for neurotropic vitamins.
- Followed by Injection (18.75%) and Capsules (12.50%)
- None of the doctor give response for liquid dosage form.

4) Indication in which Doctor prescribe neurotropic Vitamin:

Table.5

Total no of responses: 181 (100%)

Indication	Number of respondent	Percentage of Respondents
Peripheral neuropathy	41	22.65%
Diabetic neuropathy	39	21.54%
Bells palsy	34	18.78%
Sciatica	39	21.54%
Lumber pain	19	10.49%
others	9	4.97%



Interpretation:

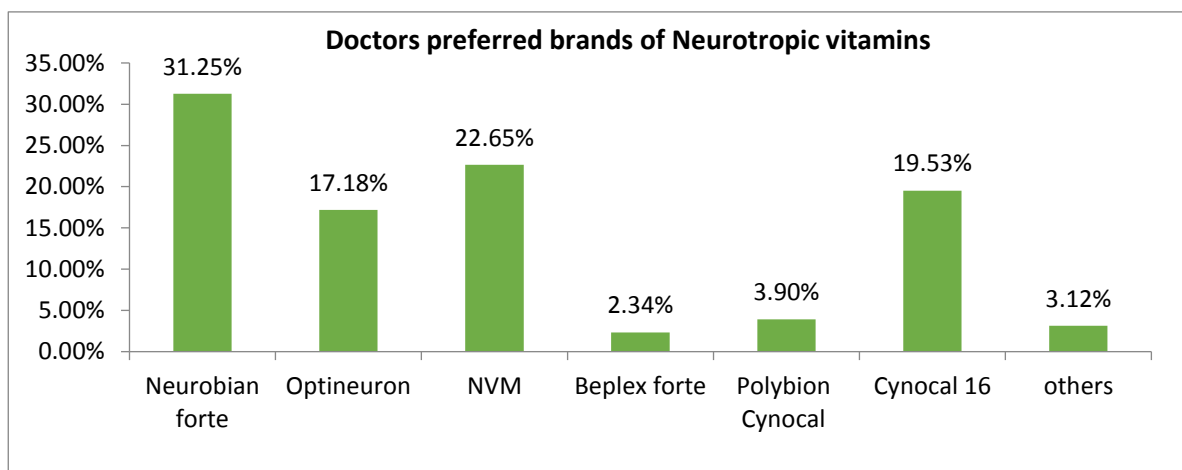
- Majority of the respondents prescribed neurotropic vitamin tablet in indication Peripheral Neuropathy(22.65%), Diabetic neuropathy(21.54%) and Sciatica (21.54%).
- Followed by Bells palsy (18.78%) and Lumber pain (10.49%).

5) Doctors preferred brands of Neurotropic vitamins:

Table.6

Total no of respondents: 128 (100%)

Brand names	Number of respondents	Percentage of respondents
Neurobion forte	40	31.25%
Optineuron	22	17.18%
NVM	29	22.65%
Beplex forte	3	2.34%
Polybion	5	3.90%
Cynocal 16	25	19.53%
Others	4	3.12%



Interpretation:

- Neurobion forte (31.25%) is most preferred brand by Doctors of neurotropic vitamins tablet.
- Others brand preferred by doctors are NVM (22.65%) and Cynocal 16(19.53%) and Optineuron(17.18%).
- Beplex forte and polybion are the less preferred brand by doctor.

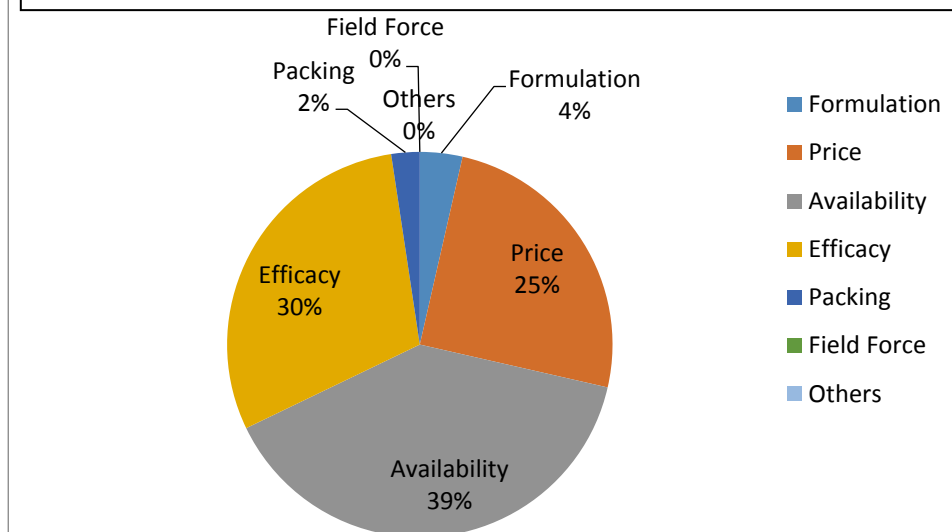
6) Criteria behind prescribing Preferred brand by doctor:

Table.7

Total no of responses: 84 (100%)

Parameter	Number of respondents	Percentage of respondents
Formulation	3	3.57%
Price	21	25%
Availability	33	39.28%
Efficacy	25	29.76%
Packing	2	2.38%
Field force	0	0%
Others	0	0%

Criteria behind prescribing Preferred brand by doctor



Interpretation:

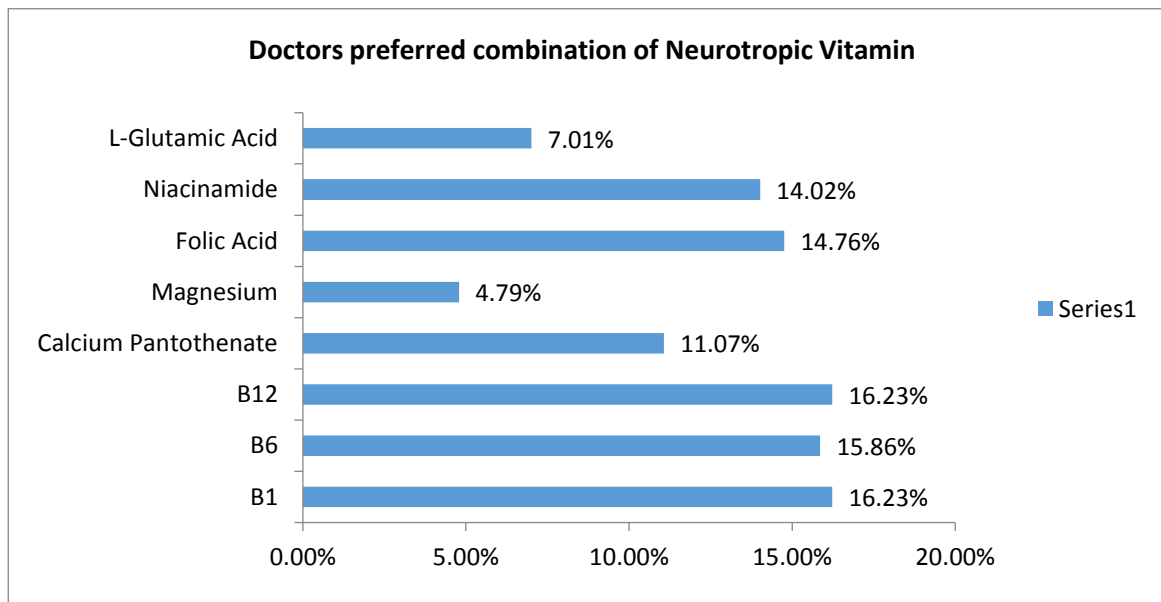
- Majority (39%) of respondents prescribed preferred brand because of the availability factor.
- Followed by efficacy (30%) and Price (25%) are factors behind prescribing preferred brands

7) Doctors preferred combination of Neurotropic Vitamin:

Table.8

Total no of responses: 271 (100%)

Vitamins	Number of respondents	Percentage of respondents
B1	44	16.23%
B6	43	14.02%
B12	44	16.23%
Calcium Pantothenate	30	11.07%
Magnesium Oxide	13	4.79%
Folic Acid	40	14.76%
Niacinamide	38	14.02%
L-Glutamic Acid	19	7.01%



Interpretation:

- As per major respondents Vitamin B1, B6, B12 should be present in the ideal neurotropic vitamin tablet.
- Followed by Folic Acid, Niacinamide and Calcium Pantothenate.

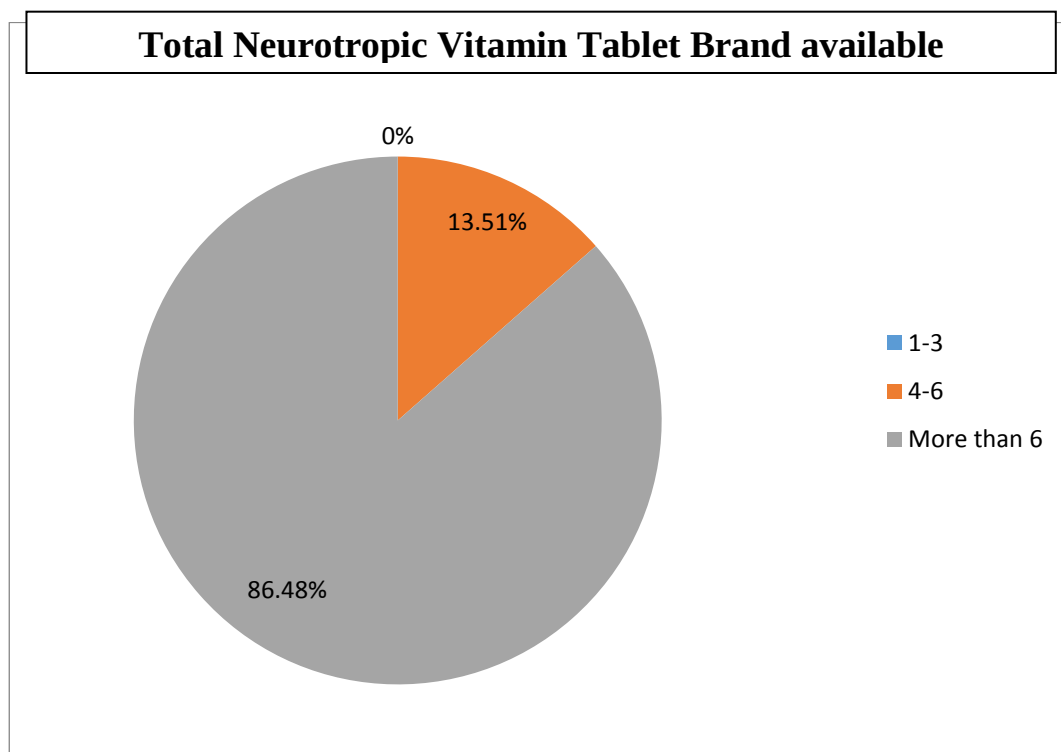
4.2. Chemist Response:

1) Total Neurotropic Vitamin Tablet Brand available at chemist:

Table: 9

No. of Respondants: 74 (100%)

Total Brand	No. of respondants	% of Respondabts
1-3	0	0%
3-6	10	13.51%
More than 6	64	86.48%



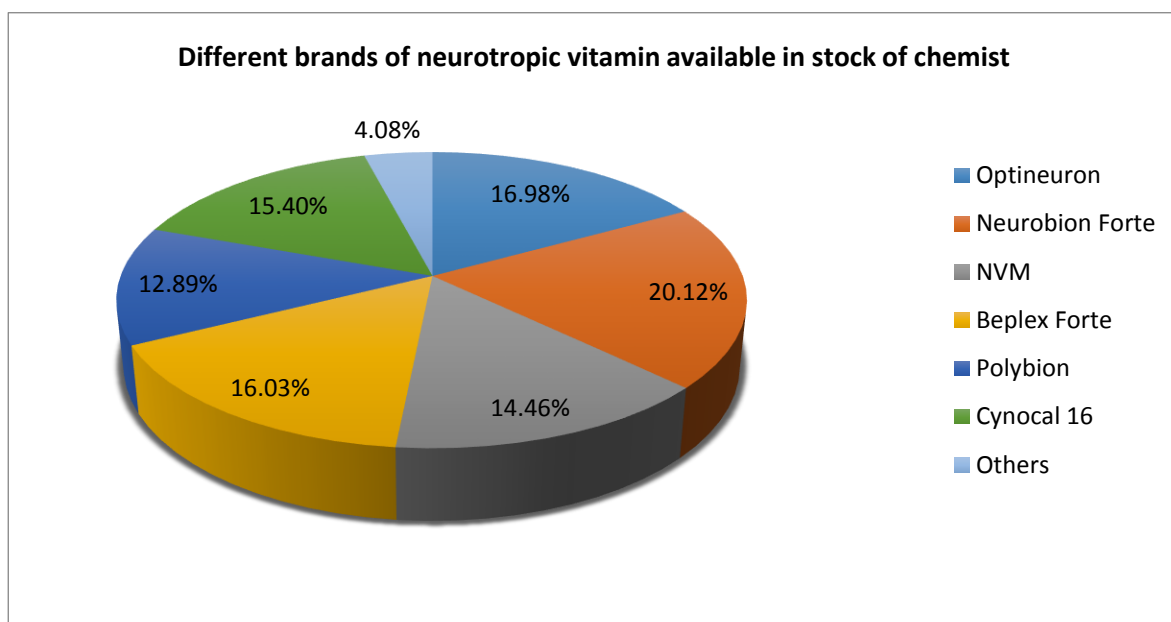
Interpretation:

- Major respondents (86.48%) have more than six brands of neurotropic vitamins.
- Remaining 13.51% of chemist have 4-6 brands of neurotropic vitamins.

2) Different brands of neurotropic vitamin available in stock of chemist:

Table no. 10 No. of respondents : 318 (100%)

Brand Names	No. of Respondants	% respondents
Optineuron	54	16.98%
Neurobion forte	64	20.12%
NVM	46	14.46%
Beplex Forte	51	16.03%
Polybion	41	12.89%
Cynocal 16	49	15.40%
Others	13	4.08%



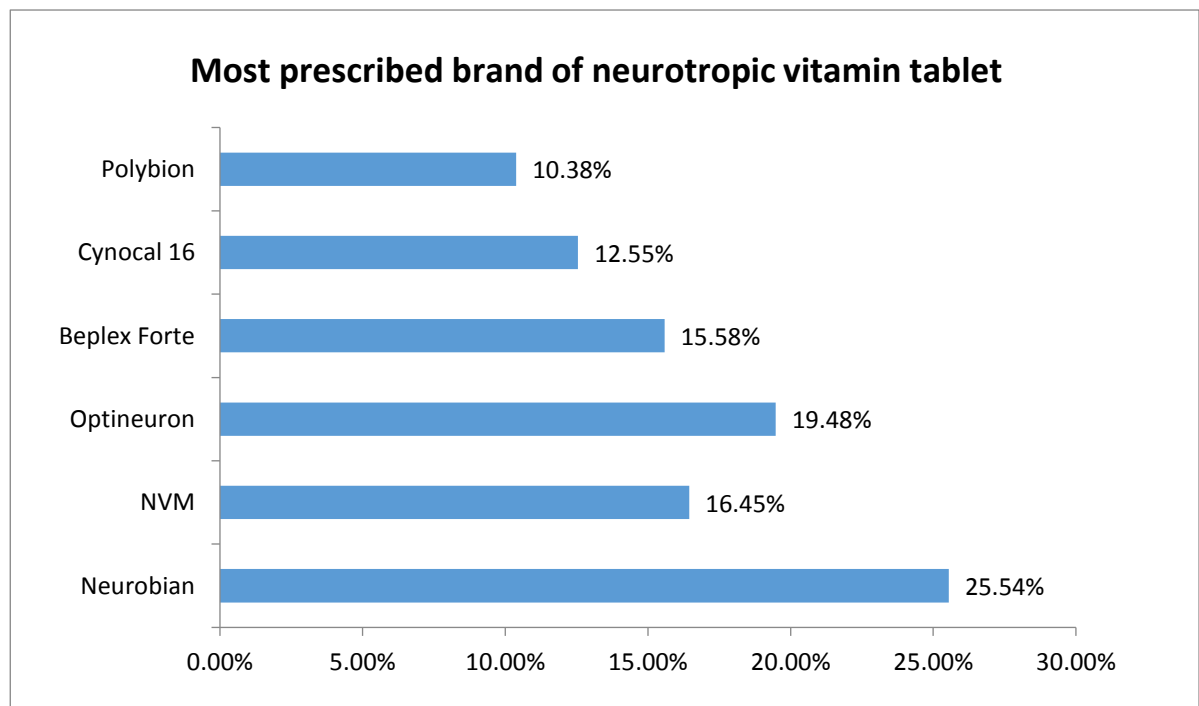
Interpretation:

- Neurobion forte (20.12%) is major brand which is available at maximum chemists.
- Followed by Opineuron, NVM, Beplex forte and cynical 16.

3) Most prescribed brand of neurotropic vitamin tablet:

Table no.11. total responses: 231 (100%)

Brand Names	No. of respondents	% Respondents
Neurobion forte	59	25.54%
NVM	38	16.45%
Optineuron	45	19.48%
Beplex forte	36	15.58%
Cynocal 16	29	12.55%
Polybion	24	10.38%



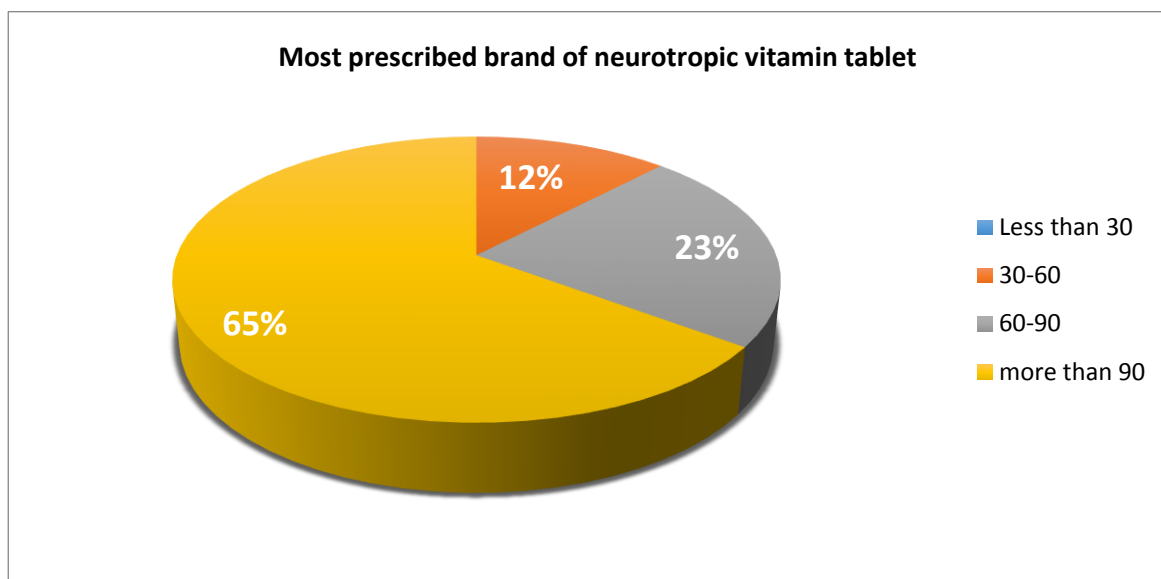
Interpretation:

- Most prescribed brand of Neurotropic vitamin is Neurobion forte tab. (25.54%).
- Followed by Optineuron (19.48%), NVM (16.45%) and Beplex Forte (15.58%).

4) Sale of Neurotropic vitamins in one month at chemist:

Table no.12 Total No. of Respondents: 74 (100%)

No. of Strip	No. of respondents	% Respondants
Less than 30	0	0%
30-60	9	12%
60-90	17	23%
More than 90	48	65%



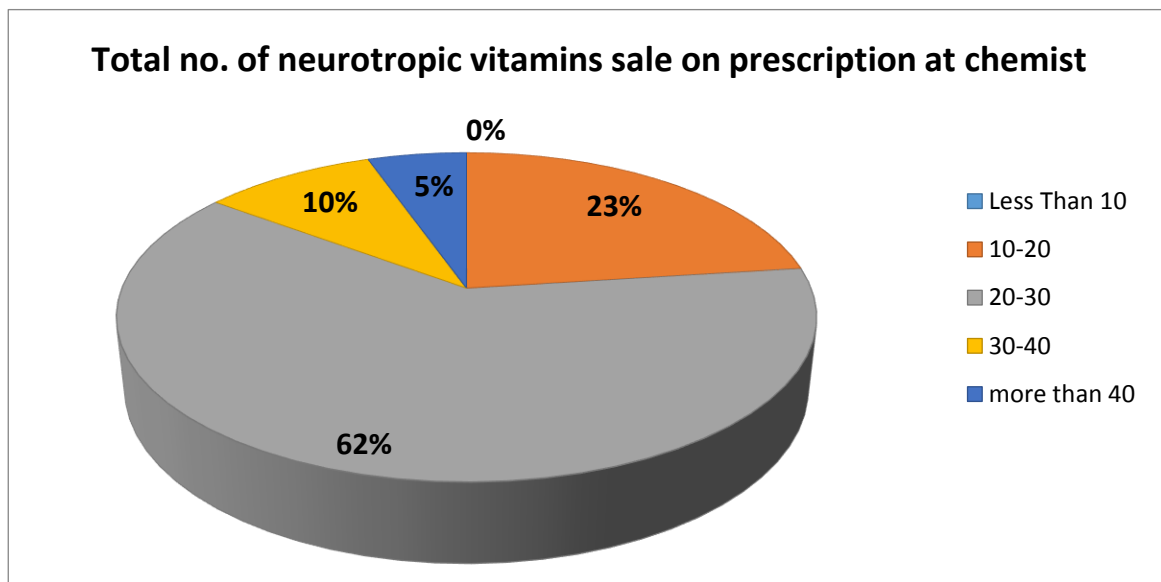
Interpretation:

- Majorly 65% of chemist sale more than 90 strip per month of neurotropic vitamin tablets.
- Followed by 60-90 strip (23%) and 30-60 strip (12%).

5) Total no. of neurotropic vitamins sale on prescription at chemist:

Table no. 13 Total no. of Respondents: 74 (100%).

No. of Strips	No. of respondants	% Respondant
Less than 10	0	0%
10-20	17	23%
20-30	46	62%
30-40	7	10%
More than 40	4	5%



Interpretation:

- Maximum 20-30 strips (62%) of neurotropic vitamins sale on prescription.
- Followed by 10-20 prescription (23%) and 30-40 prescription (10%).

5. DISCUSSION:

Major respondents (54%) in doctors survey shows that they examine 11-20 patient of neuropathy per day. Remaining 46% of doctors examine up to 10 patient per day. Majority of respondent (70%) write 5 -10 prescription per day. after diagnosis for neuropathy some patient may found another disorder so that doctor didn't prescribe neurotropic vitamin to them. Majority of respondents (68.75%) preferred tablet form for the neurotropic vitamin because may be tablet dosage form of the neurotropic vitamin has less price than other dosage forms. Majority of patient may be diabetic so that doctors prescribing neurotropic vitamins majorly for indication of peripheral neuropathy (22.65%), diabetic neuropathy (21.54%), and also Sciatica (21.54%). Neurobion forte with 31.25% is majorly preferred brand of Neurotropic vitamins followed by NVM (22.65%) and Cynocal 16 (19.53%).

Availability (39%) is the major factor behind preferred brand prescribing by doctor. Followed by efficacy (30%) and Price (25%). For any ideal neurotropic vitamins the Vitamin B1, B6, B12 along with Niacinamide and folic acid is necessary in the formulations as per majority of responses.

Chemist response represents that total neurotropic vitamin brands available in the stock of chemist is more than six(86.48%), followed by 4-6 brands available(13.51%). Neurobion forte tablet (20.12%) is majorly available at chemist, followed by optineuron (16.98%), Beplex forte (16.03), NVM (14.46%). Neurobion forte is most preferred brand by doctors hence majority of chemist have this brand in stock. Majority of respondents(25.54%) has responses that Neurobion forte is most prescribed tablet by doctors, followed by the Optineuron (19.48%), NVM (16.45%). Approximately two third of chemist (65%) sale more than ninety strip per month of neurotropic vitamins. 23% of chemist sale 60-90 strips while 12% of chemist sale 30-60 strips per month. 62% of chemist responses that sale on prescription of neurotropic vitamin is 20-30 strips, because may be remained sale is of by patient buy their own without prescription. 23% chemist responses that they sale 10-20 strips on prescription of neurotropic vitamins.

6. CONCLUSION:

- Study shows that majority of respondents (Doctors) uses neurotropic vitamin in indication of peripheral neuropathy, Diabetic neuropathy and sciatica.
- Neurobion forte is most preferred brand by doctors because of the availability factor, and this brand is majorly available at chemist too.
- Vitamin B1, B6, B12, Niacinamide, Folic acid are the preferred vitamins in neurotropic vitamin formulation as per the majority of responses.

7. LIMITATIONS OF STUDY:

- This study performed in the limited areas of Delhi city.
- Doctor and chemist responses are may be biased because some of doctors and chemist know that investigator promoting NVM brand.
- Study done on limited factor for repositioning of NVM tablet, deep study can be performed in future for other factors for repositioning.

8. REFERENCES

1. Watanabe T, Kaji R, Oka N, et al. Ultra-high dose methylcobalamin promotes nerve regeneration in experimental acrylamide neuropathy. *Journal of the neurological sciences* 1994;122(2):140-3.
2. Zhang M, Han W, Hu S, et al. Methylcobalamin: a potential vitamin of pain killer. *Neural Plast* 2013;2013:424651.
3. Singleton CK, Martin PR. Molecular mechanisms of thiamine utilization. *Curr Mol Med* 2001;1(2):197-207.
4. Smithline HA, Donnino M, Greenblatt DJ. Pharmacokinetics of high-dose oral thiamine hydrochloride in healthy subjects. *BMC Clin Pharmacol* 2012;12:4.
5. Butterworth RF. Effects of thiamine deficiency on brain metabolism: implications for the pathogenesis of the WernickeKorsakoff syndrome. *Alcohol Alcohol.* 1989;24(4):271–9.
6. Intakes, A.R.o.t.S.C.o.t.S.E.o.D.R., et al. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. The National Academies Press; 1998.
7. Koike H, et al. Rapidly developing weakness mimicking GuillainBarre syndrome in beriberi neuropathy: two case reports. *Nutrition.* 2008;24(7–8):776–80.
8. Murphy C, Bangash IH, Varma A. Dry beriberi mimicking the GuillainBarre syndrome. *Pract Neurol.* 2009;9(4):221–4.
9. Blass J. Basic Neurochemistry. 5. Raven Press; New York: 1994. Vitamin and nutritional deficiencies; pp. 749–760.
10. Koike H, et al. Postgastrectomy polyneuropathy with thiamine deficiency is identical to beriberi neuropathy. *Nutrition.* 2004;20(11–12):961–6.
11. Marcus R, Goulston.A.M, In; Gilman.A.G, Goonab.K.S, Rall T.W, Murad Feds: The pharmacological basis of therapeutics. 7th edn., New york, Macmillan, 1985, 1544.
12. ORG-MARG reports (Indian pharmaceutical market research company).
13. R Praveena, S Devi, A Asha. Study Of Doctors' Opinion About Vitamin B-Complex Market With Respect To Injectable Dosage Forms. *The Internet Journal of Nutrition and Wellness.* 2005 Volume 2 Number 2.

9. APPENDIX

1. Doctor Questionnaire:

1. Average number of patient per day you examine for Neuropathy?

☐ Up to 10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ above 40

2. Average number of prescription of Neurotropic Vitamin per day?

3. Which dosage form you prefer for the Neurotropic Vitamin?

☐ Tablets ☐ Injections ☐ Capsules ☐ Oral Liquids

4. Indications in which you prescribing Neurotropic Vitamin Tablet?

1. _____ 2. _____ 3. _____

5. Which are the different brands of Neurotropic Vitamin Tablet you prescribe? (Name the brands according to your preference)

☐ Optineuron ☐ Neurobion Forte ☐ NVM
☐ Beflex Forte ☐ Polybion ☐ Cynocal 16
☐ Others _____

6. What are the criteria behind prescribing preferred brand of Neurotropic Vitamin Tablet?

☐ Formulation ☐ Price ☐ Availability ☐ Packing
☐ Efficacy ☐ Field Force ☐ Others _____

7. What are your preferred combination of Neurotropic Vitamin?

- | | |
|---|---|
| ☐ Vitamin B1 | ☐ Folic Acid |
| ☐ Vitamin B6 | ☐ Niacinamide |
| ☐ Vitamin B12 | ☐ Magnesium Oxide |
| ☐ Calcium Pantothenate | ☐ L- Glutamic Acid |

2. Chemist Questionnaire:

Q.1) How many brands of Neurotropic Vitamin do you have in your stock?

- ☐ 1-3
- ☐ 4-6
- ☐ More than 6

Q.2) what brands do you have in stock?

- | | | |
|---------------------------------------|--|-------------------------------------|
| ☐ Optineuron | ☐ Neurobion Forte | ☐ NVM |
| ☐ Beflex Forte | ☐ Polybion | ☐ Cynocal 16 |
| ☐ Others _____ | | |

Q3) Which is the most prescribe brand of Vitamin B Complex?

1. _____ 2. _____ 3. _____

Q4) How many Neurotropic Vitamin Tablets you sale in one month?

- ☐ Less than 30 ☐ 30-60 ☐ 60-90 ☐ more than 90

Q5) How many Neurotropic Vitamin Tablets are sold on Prescription?

☐ Less than 10

☐ 10-20

☐ 20-30

☐ 30-40

☐ more than 40