

**A study to assess under nutrition in age group 0 – 10 years and  
intervention with indicated homoeopathic medicine and homoeopathic  
alfalfa tonic – a randomized control trial**

Dr. Sachin Bhalerao, Dr. Swanand Shukla, Dr. Ajay Valke, Dr. Sharmila Roy,  
Dr. Farhanaz Shaikh, Dr. Deepali Paraskar

**ABSTRACT -**

Background – Undernutrition denotes inadequate intake of energy and nutrients to meet an individual's needs to maintain good health. Undernutrition is considered as a “silent emergency” according to UNICEF. It remains a persistent problem in the Indian population being responsible for nearly half of under-5 mortality. Undernutrition causes both short- and long-lasting effects in the form of recurrent infections and retarded physical and mental development. Loss of appetite is an important cause as well as consequence of undernutrition. Homeopathic Alfalfa tonic is used to improve appetite and aid weight gain in children suffering from undernutrition. The study was conducted to study whether Alfalfa tonic or homoeopathic indicated medicine is effective in the treatment of undernutrition.

Objectives – Primary Objective: To identify the role of indicated homoeopathic medicine and homoeopathic alfalfa tonic in problem of undernutrition using ESPEN criteria. Secondary Objective: To assess the problem of undernutrition in children aged 0 to 10 years in a rural population using the ESPEN criteria.

Design – The study is a randomized control trial where the patients were divided into 2 groups, Group A and Group B, and each group was prescribed homoeopathic alfalfa tonic and indicated homoeopathic medicine respectively.

Materials and methods – A survey to screen the selected population (Jalalpur, Nashik) was conducted and the patients were selected using the ESPEN Criteria along with the eligibility criteria. Inclusion criteria was children aged 0 to 10 years of both sexes with parents' consent, children eligible through ESPEN criteria. Exclusion criteria was children showing signs of preexisting pathology and children with congenital abnormalities or genetic disorders. The patients were randomly assigned to 2 equal groups. Group A was given Homoeopathic Alfalfa tonic and Group B was prescribed Indicated Homoeopathic Medicine. The study subjects were followed up on at regular intervals to determine the progress. At the end of study the data was analysed using Unpaired T test to draw conclusions.

**Result** – The population of Jalalpur Village was screened and out of the 102 children falling in the age criteria 59 were found to be suffering from undernutrition. A sample of 46 consenting subjects was divided into 2 groups, Group A and Group B, and each group was prescribed homoeopathic alfalfa tonic and indicated homoeopathic medicine respectively. From group A, 17 patients (73.9%), showed an improvement in the BMI. From group B, 19 patients (82.6%) showed an improvement in the BMI. The calculated T value was smaller than the tabulated T value and hence the null hypothesis i.e. indicated homoeopathic medicine is more effective than homoeopathic alfalfa tonic in improving the BMI in children aged 0-10 years was accepted.

**Conclusion** -Since 58% of the children aged 0-10 years in the population under study were found to be suffering from undernutrition according to the ESPEN criteria, undernutrition is a prevalent condition in the studied population. Homoeopathic Medicine is more effective than homoeopathic Alfalfa tonic in improving the BMI of individuals between 0-10 years of age, and hence in treatment of undernutrition.

**Keywords** – Undernutrition, BMI, ESPEN Criteria, Homoeopathic Alfalfa Tonic, Homoeopathic Individualized Medicine

## **INTRODUCTION -**

Undernutrition denotes inadequate intake of energy and nutrients to meet an individual's needs to maintain good health.

Under nutrition manifests in four broad forms:

1. Stunting – low height for age
2. Wasting – low weight for height
3. Underweight – low weight for age
4. Micronutrient deficiencies or insufficiency – a lack of important vitamins and minerals.

The Global Hunger Index (2020), calculated on the basis of total undernourishment of the population, child stunting, wasting and child mortality, places India 94<sup>th</sup> among 107 countries. According to the global nutrition report 2018, India accounted for half of the global wasting burden. According to UNICEF, one in three malnourished children in the world is Indian. Nearly half of under-5 child mortality in India is attributable to undernutrition. The NFHS-5 (2019-20) showed that of the children under 5 age group, 35.5% are stunted, 25.6% were wasted and 36.1% are underweight in Maharashtra.

Undernutrition leads to an increase in childhood death due to common infections as well as increases the severity and frequency of such infections with delayed recovery. Malnutrition was the predominant risk factor for death in children younger than 5 years of age in every state of

India in 2017, accounting for 68.2% (95% UI 65.8–70.7) of the total under-5 deaths, and the leading risk factor for health loss for all ages, responsible for 17.3% (16.3–18.2) of the total disability-adjusted life years (DALYs). If undernutrition is not effectively reduced, the country will not meet its SDG target of child mortality reduction. For the children who survive, stunting causes lasting damage, including poor cognition and educational performance in childhood, reduced productivity and lower earnings in adulthood and, when accompanied by excessive weight gain in later childhood, increased risk of chronic diseases. Undernutrition can cause consequences in adults as well in form of nutrition related NCDs and economic and human capital losses.

Alfalfa is a homoeopathic drug prepared from plant *Medicago Sativa*. According to Dr. Boericke in his *Materia Medica* Alfalfa is known to act on the sympathetic system, which favorably influences nutrition, evidence in “toning up” the appetite and digestion resulting in greatly improved mental and physical vigor, with gain in weight.

Homoeopathic indicated medicines act on the body to produce an effect on two ends, it can either help in improving the absorption and assimilation of the nutrition provided, or it can act on the infectious process to break the infection-undernutrition cycle through its effect on the immunity.

This research focuses on assessing the role of alfalfa tonic and indicated homoeopathic medicine as an aid to improve appetite and BMI of children between 0 to 10 years of age.

#### **METHODOLOGY -**

- Study design – Randomized control trial
- Setting (Location of study) – Jalalpur, Nashik, Maharashtra
- Duration of study – 6 Months
- Method of selection of study subject (Eligibility criteria) □ Inclusion criteria :
  - Children aged 0 to 10 years of both sexes with parents’ consent - Children eligible through ESPEN criteria □ Exclusion criteria :
  - Children showing signs of pre-existing pathology.
  - Children with congenital abnormalities or genetic disorders.
- Matching criteria: Matching is done group to group.
- Specification of instruments and related measurements : Weighing Scale, Shakir’s Tape to measure Mid Upper Arm Circumference, Measuring tape to measure height, Questionnaire to collect data regarding case details

**METHODOLOGY SPECIFIED AND EXPLAINED FOR DATA COLLECTION:-**

**Target sample size** – 46 patients

**Sampling technique** – Convenience Sampling

**Study procedure –**

The population of the study setting, Jalalpur, Nashik was screened using Google forms to identify children aged between 0 to 10 years suffering from undernutrition according to the ESPEN criteria. A total of 102 children were assessed for height, weight and BMI besides other indicators pertaining to general health status. Out of 102 children screened, 59 were found to be suffering from undernutrition. The patients' parents were counseled and guided regarding the research and 46 consenting subjects were taken under study. The 46 subjects were randomly assigned to 2 groups, Group A and B. Each group comprised of 23 subjects and Group A was prescribed Homoeopathic Alfalfa Tonic, while Group B was prescribed indicated homoeopathic medicine after a detailed case taking. The progress of both the groups in terms of height, weight and BMI was followed up on for 6 follow ups, each at an interval of 15 days. The data collected was then studied and analyzed to draw conclusions.

**Intervention -**

Group A was prescribed Homoeopathic Alfalfa Tonic as indicated by age. Children aged 0 to 5 years were prescribed 2.5ml of the tonic 2 times a day. Children aged 5 to 10 years of age were prescribed 5ml of the tonic 2 times a day. Group B was prescribed indicated homoeopathic medicine after a detailed case taking. The repetition of doses was determined according to the progress of the patient.

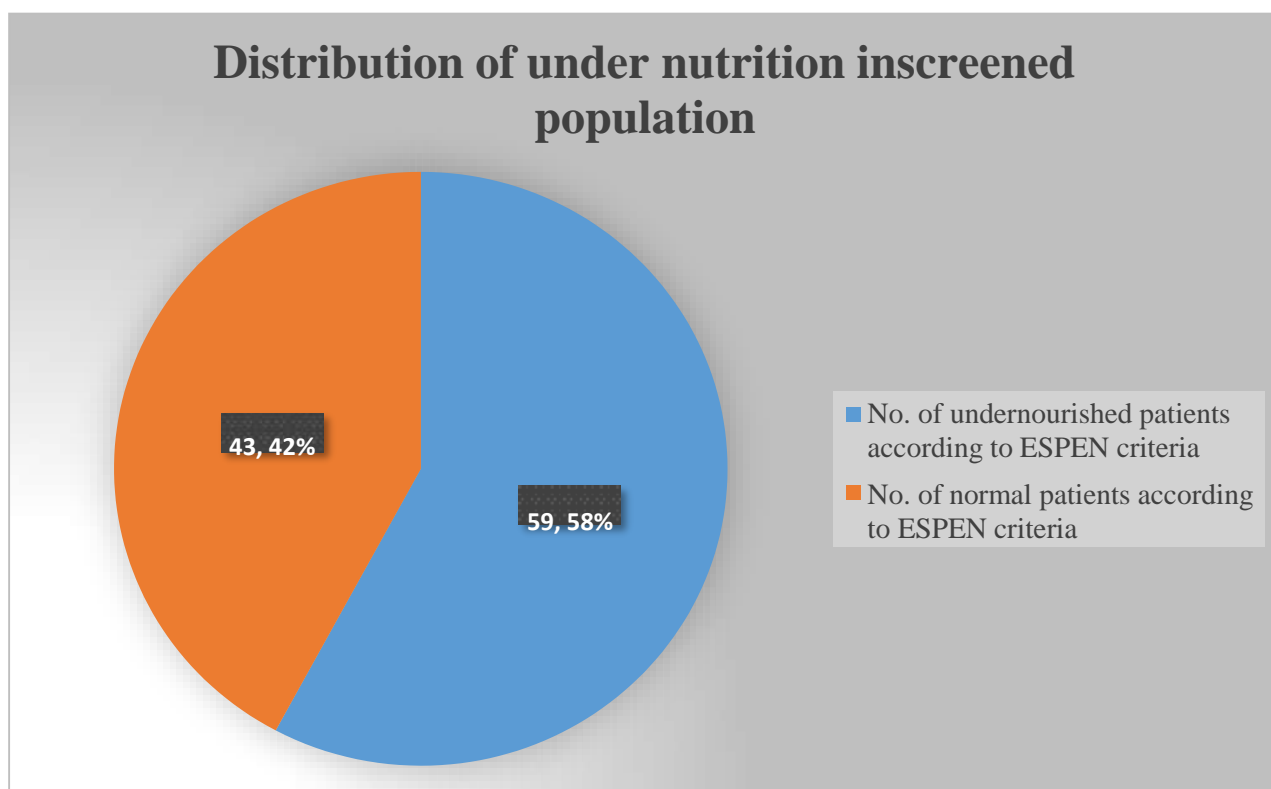
**STATISTICAL ANALYSIS -**

58% of the screened population of children aged 0 to 10 years was found to be suffering from undernutrition according to ESPEN criteria. The changes in height, weight and BMI of the study subjects was noted during the study. The average BMI of Group A before the intervention was 12.34 and the average BMI after the intervention was 12.5. The data was analysed using Unpaired T test ( Significance : 95%, 0.05 ). The calculated t value was 1.0797 and the table value of t0.05 at df=44 is 2.015. Since the calculated t value is smaller than the tabulated t value, we accept the null hypothesis, i.e. H<sub>0</sub> – indicated Homoeopathic Medicine is more effective than homoeopathic Alfalfa tonic in improving the BMI of individuals between 0-10 years of age, and hence in treatment of undernutrition.

**Table 1 - Distribution of undernutrition in screened population**

Total Population Screened	102
No. of undernourished patients according to ESPEN criteria	59
No. of normal patients according to ESPEN criteria	43

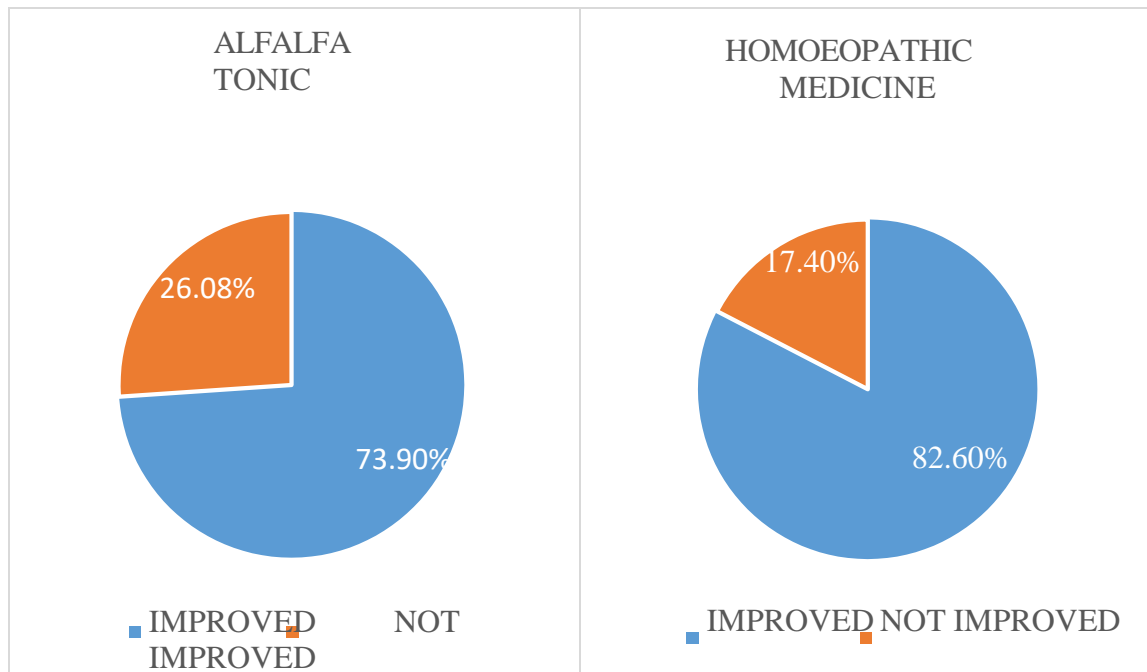
**Graph 1 - Distribution of undernutrition in screened population**



**Table 2 - Result of Alfalfa tonic and indicated Homoeopathic medicine inpercentage according to ESPEN Criteria**

	IMPROVED	NOT IMPROVED
ALFALFA TONIC	69.60%	30.40%
HOMOEOPATHIC MEDICINE	82.60%	17.40%

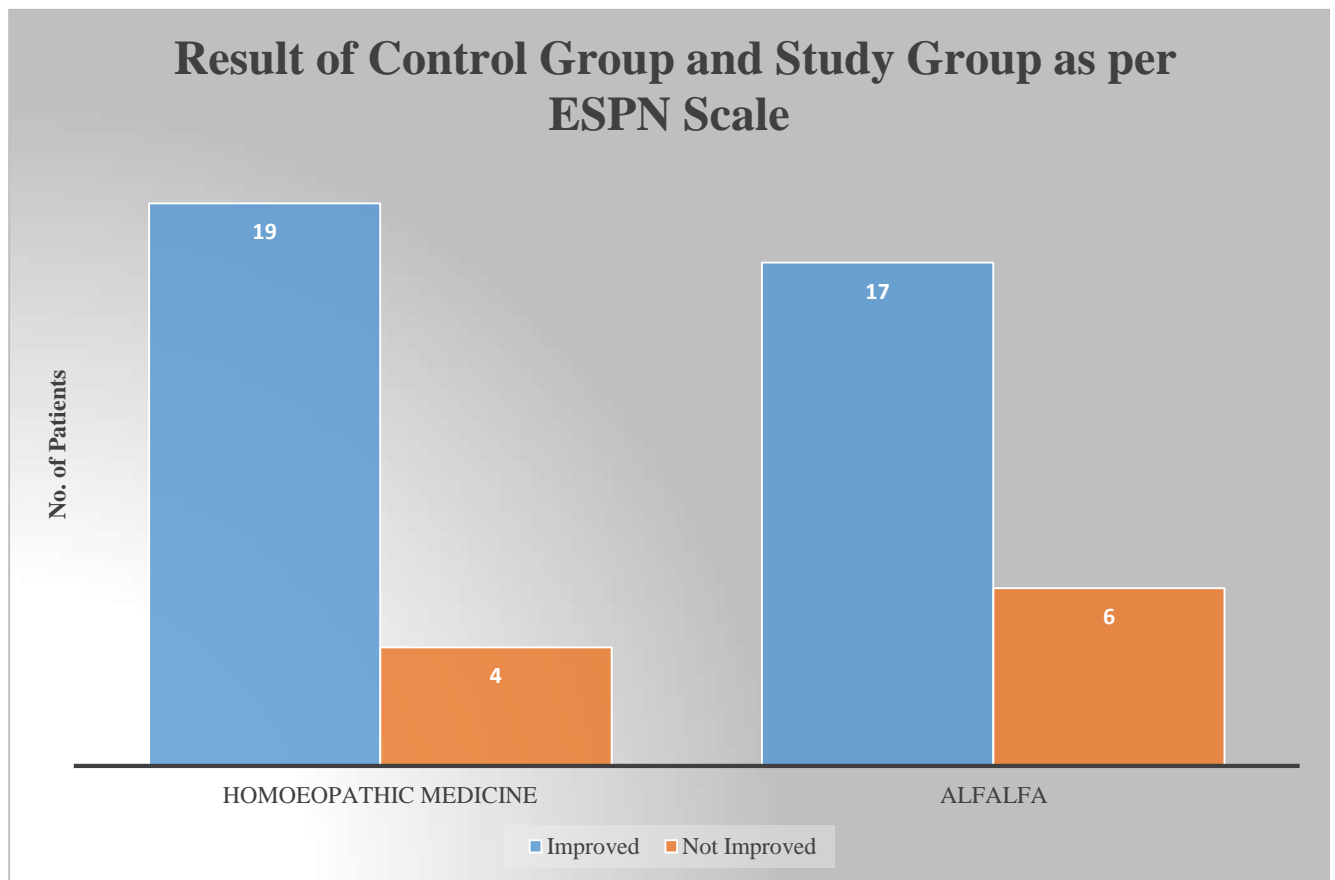
**Graph 2 - Result of Alfalfa tonic and indicated Homoeopathic medicine inpercentage according to ESPEN Criteria**



**Table 3 - Result of Control Group and Study Group as per ESPEN Scale**

Status of Patient	Homoeopathic Medicine	Alfalfa Tonic
Improved	19	17
Not Improved	4	6

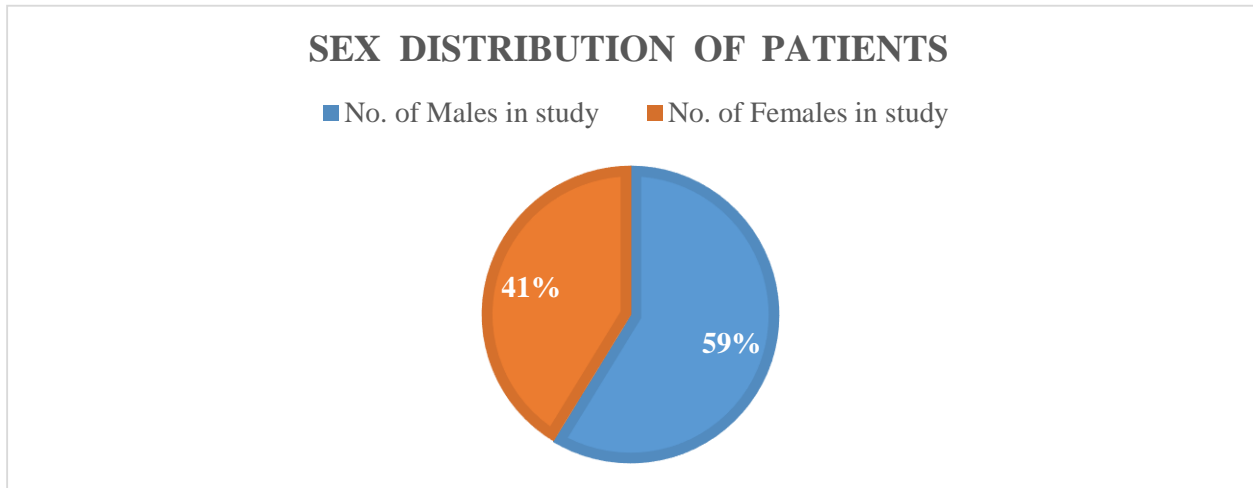
**Graph 3 - Result of Control Group and Study Group as per ESPEN Scale**



**Table 4 – Sex Distribution of Patients**

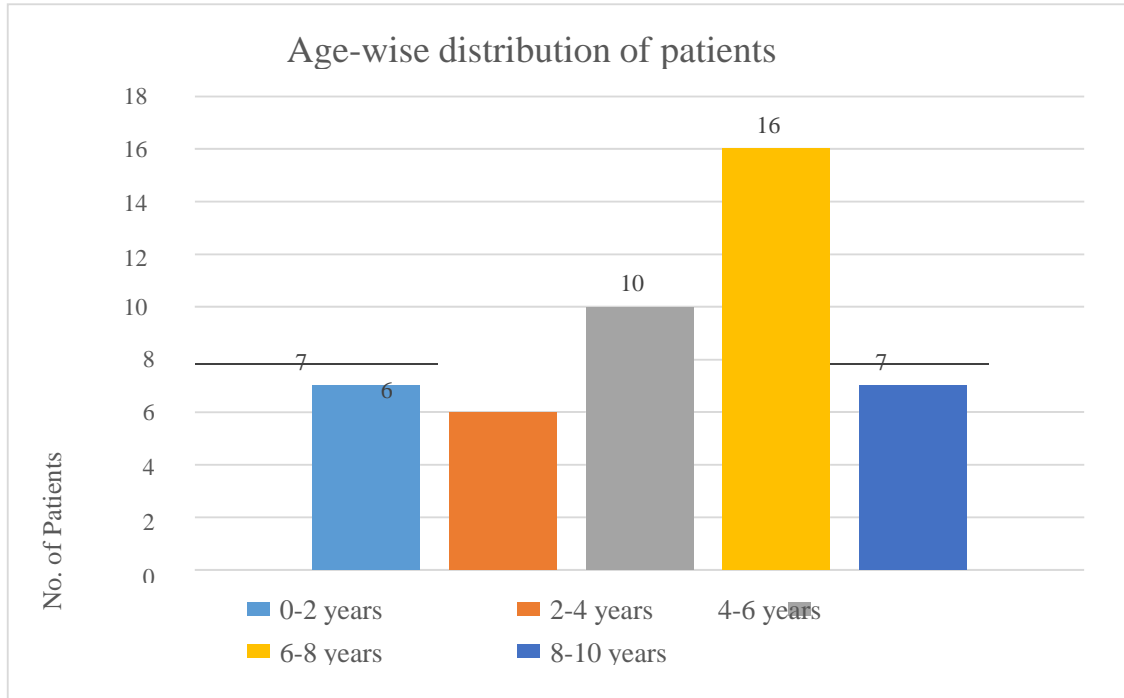
	No. of Males instudy	No. of Femalesin study
No. of patients	27	19

**Graph 4 – Sex Distribution of Patients**



**Table 5 – Age-wise Distribution of patients**

Age Group in years	No. of patients
0-2 years	7
2-4 years	6
4-6 years	10
6-8 years	16
8-10 years	7

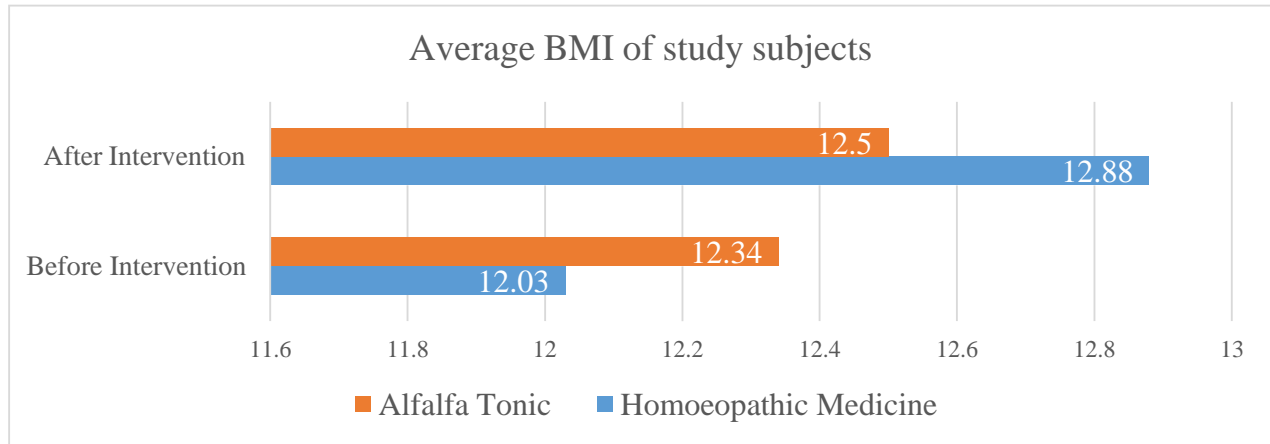


**Graph 5 – Age-wise Distribution of patients**

**Table 6 - Average BMI of Study subjects**

	Before Intervention	After Intervention
Homoeopathic Medicine	12.03	12.88
Alfalfa Tonic	12.34	12.5

**Graph 6 – Average BMI of Study**



**RESULT -**

A total of 46 patients were selected according to the ESPEN criteria and divided randomly in 2 groups. Group A consisted of 23 patients who were prescribed Homoeopathic Alfalfa tonic. Group B consisted of 23 patients who were prescribed indicated Homoeopathic medicine.

From group A, 17 patients (73.9%), showed an improvement in the BMI. From group B, 19 patients (82.6%) showed an improvement in the BMI.

The population of Jalalpur Village was screened and out of the 102 children falling in the age criteria 59 were found to be suffering from undernutrition.

**DISCUSSION -**

Undernutrition is a disparity between the intake and energy requirements of the body leading to an inability to maintain good health. It can be in the form of wasting (low weight for height), stunting (low height for age) and underweight (low weight for age).

As per homoeopathic literature, Alfalfa tonic is indicated in cases of undernutrition and acts to improve the appetite as well as helps in weight gain in an individual.

The study assessed the role of homoeopathic indicated medicine and alfalfa tonic in treatment of undernutrition in terms of changes in the BMI of the subjects according to ESPEN criteria.

Following the screening of the population 46 subjects were selected and randomly divided into 2 groups, group A and group B. Group A was prescribed Homoeopathic Alfalfa tonic and group B was prescribed Homoeopathic indicated medicine.

Along with the administration of the prescribed medicine, general guidelines on balanced diet and its importance were given to the families.

While patients have shown an improvement in the BMI, according to the ESPEN criteria, all the patients are still categorized as undernourished.

While the changes in the primary scale of assessment, i.e., BMI, are minute in most cases, a thorough study of each case has shown an improvement over time hampered by a sudden loss of weight, generally attributed to a recently acquired acute gastrointestinal or respiratory infection when investigated.

The patients showed a significant increase in appetite, improving the dietary intake in children and hence the overall BMI and nutritional status. The treatment was well tolerated by the children although the tonic was reported to be not as palatable.

Working with the community closely enabled us to detect the commonly faced hurdles in case of undernutrition in the population. A well-studied population makes the process of development of strategies to tackle the problem more efficient and effective as they are formulated according to the population's needs.

The problem of persisting and recurrent infections, respiratory and gastro-intestinal, was a commonly faced problem in the patients, interfering with the improvement of the patients. An improvement of the personal and environmental hygiene can help reduce the occurrence and recurrence of such infections and improve recovery.

Lack of knowledge regarding diet and hygiene remained an obstacle throughout, paired with poor compliance to the advice given.

**Difficulty Faced-**

1. Pediatric case taking.
2. Communication with guardian regarding child's health.
3. Difficulty keeping a track of whether the prescribed dosage of medicine was being properly administered or not.

**CONCLUSION -**

According to our study, indicated Homoeopathic Medicine is more effective than homoeopathic Alfalfa tonic in improving the BMI of individuals between 0-10 years of age, and hence in treatment of undernutrition.

The population under study was screened and it was found that 58% of the children aged 0-10 years suffer from undernutrition according to the ESPEN criteria. Hence, undernutrition is a prevalent condition in the studied population.

**CONFLICT OF INTEREST -**

There is no conflict of interest.

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