Trending Nutritional Business in Today's Networked World

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Abstract

The words nutritional supplement when heard leads to misconception of not having nutrition through natural source. But nutrition whether you consume it through natural source or through supplements; it remains as nutrition only, which provides us with all the essential nutrients which enhances our diet. A study of usage of these nutritional supplements by different age grouped population is done, which includes both males and females. 150 samples were examined out of 500 populations. The information about their meal patterns, consumption of various nutritional supplements, events in which consumption of such nutritional products are necessary like while doing different physical activities and their effect on health so that people could live a healthy lifestyle are all collected and tested using different statistical tools. ANOVA and Chi-square were used to test these samples to get the desired results. All these tests showed results which proved that nutritional supplements are essential for health and people should get aware of its usage. As if there is boom in the nutritional supplement market in the past years but still more the number of people gets aware of its usage more will the growth in nutritional market.

Keywords

Nutritional Supplements, Awareness, Sample, Null hypothesis, Alternative hypothesis.

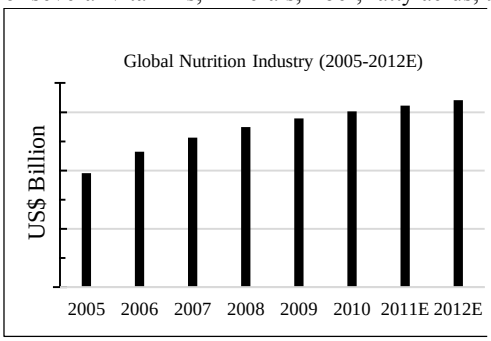
Introduction

Introduces a wide range for nutritional assessment and reviews the nutritional intake in the population. Nutrition is a source of healthy food and mentors its relationship to health. With the current lifestyle scenario, disorder around the world has increased. So being over and under nutrition both are harmful for health. Hence one should promote healthy nutrition in all age groups. Main diseases like malnutrition/ obesity, anaemia, thyroid, etc. are due to lack of nutrition's in our diet like iron, iodine, vitamin A, etc. It also

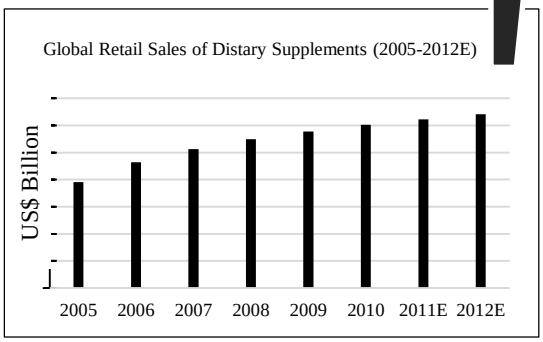
treats muscle loss with aging. But lack of these nutritional supplements can cause a disease known as Sarcopenia which decreases our whole body lean mass. A disease associated with frailty and disability in aging which gives birth to several geriatric syndromes. Also while doing intense physical exercises, it is important to have proper nutrition so as to lose, maintain or gain weight. Hence there is enormous need for one to have nutritional supplements.

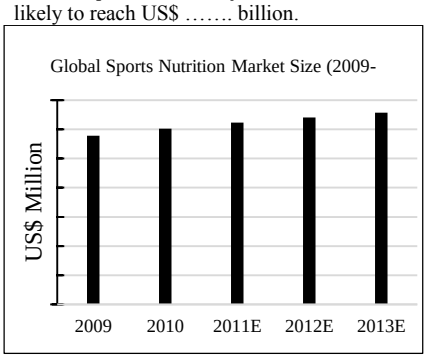
there has been a Tremendous growth in global nutritional supplement market in the last 2 decades. So number of products that promises to be the elixir of youth, health and vitality has come up into the market in these years. Below is the graph for dietary supplement market globally.

A dietary supplement, also termed as food supplement or nutritional supplement, is a concoction of several vitamins, minerals, fiber, fatty acids, amino acids and other trace elements…



- The global nutrition industry includes dietary supplements, natural & organic food and beverages, and functional foods and beverages. The global nutrition industry registered a compound annual growth rate of ……..% and is anticipated to reach US$ ……. billion by 2012 from US$ ……. billion in 2005.
- The worldwide retail sales of dietary supplements registered a CAGR of ……% and are estimated to each US$..... billion by 2012 from US$ …… billion in 2005.
- The global sports nutrition market observed a robust growth trend reaching US$ ..... billion in 2011 from US$ ..... billion retail sales value recorded in 2002. The CAGR stood at ……% over the period cited. By 2013, the market is likely to reach US$ ……. billion.





According to the estimates of the Nutrition Business Journal report, the global nutrition and supplements market stood at US$96 billion as of 2012. A year later, it was approximately US$104 billion globally. The upcoming reports also states that, the global dietary supplements market will be driven by Asia Pacific to 2020.

Objective

1. A study to understand the trends of upcoming nutritional supplement business in today's networked market.
2. To check awareness amongst the population regarding the nutritional supplements intake which will in turn leads to hike in the business.
3. To find usage of nutritional supplements in the population.
4. To observe all such activities and events which are related to increased usage of nutritional supplements.

Data Analysis

The data describing usage of nutritional supplements in common people of all age groups which distinguishes between male and female is been collected. Hence a primary data from different age groups and from different residential areas gives us information related to their consumption of nutritional products. It also focuses on awareness of these supplements. The data related to their daily lifestyle i.e. how much do they exercise, what time do they have their meals, why do they use these supplements, how have these nutritional supplement helped them etc. are all gathered for further study so that we can understand their impact on nutritional supplement business. A population of 500 individuals were collected out of which a sample of 150 individuals were observed for our research paper. Hence a data of 150 sample size using different nutritional products and all such activities which leads them to use nutritional products in their day to day living.

Following data collected by the researcher and their analysis are as follows: Figure 1a. Show that in spite of circulating the data in all kinds (males and females) still males have more awareness towards the usage of nutritional supplements than females.

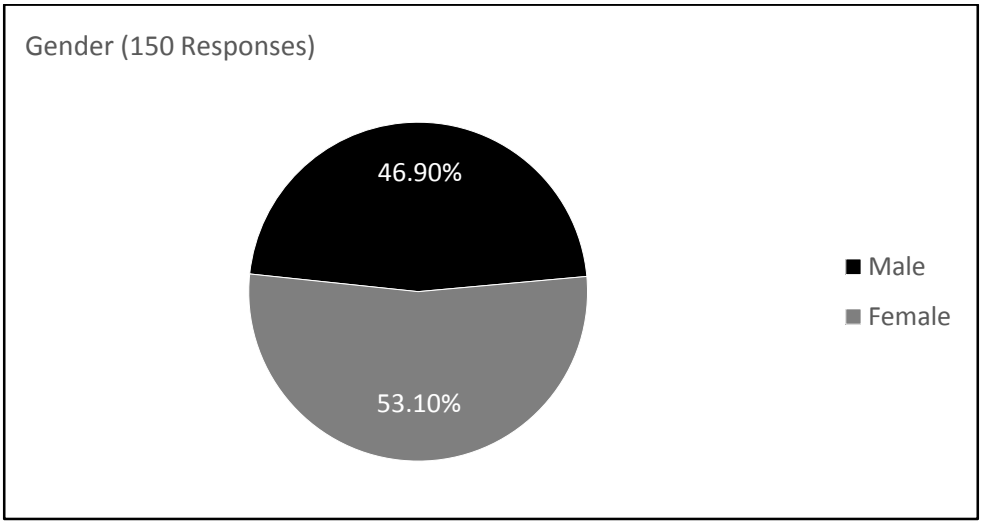


Figure 1a: Gender Ratio

In the above figure responses from females are 46.9% which are less as compared to male responses, 53.1%.

Figure 1b. Shows the daily consumption of their meals (breakfast, lunch and dinner) which is classified into consuming it always, majority of the times, sometimes and never.

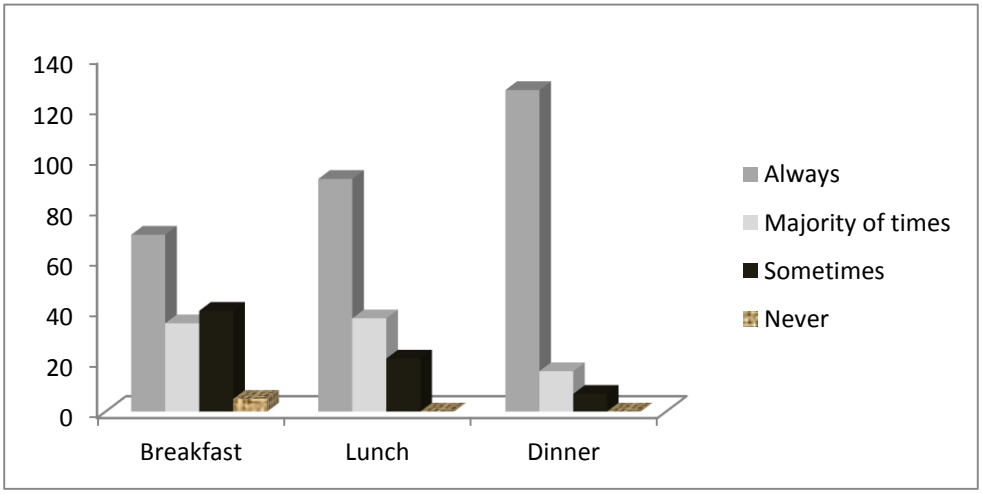


Figure 1b: Daily Consumption Habits

The above figure shows that many people ignore doing breakfast, even they do not have their lunch always but they regularly have their dinner and less number of people ignore their dinner. Which means there is significant

difference between the three breakfast, lunch and dinner. We can prove this by testing our hypothesis by an statistical method, ANOVA.

Testing of Hypothesis

Hypothesis 1

1. Statement of Hypothesis
   - ✓ **H_0 (null hypothesis):** No significant difference between the meal patterns.
   - ✓ **H_1 (alternative hypothesis):** There is significant difference between the meal patterns.
2. Level of Significance: At 5% level of significance (150) data is tested.
3. Data:

	Always	**Majority of times**	**Sometimes**	**Never**
Breakfast	70	35	40	5
Lunch	92	37	21	0
Dinner	127	16	7	0

4. Test : Anova Single Factor

Groups	*Count*	*Sum*	*Average*	*Variance*
Row 1	4	150	37.5	708.3333
Row 2	4	150	37.5	1549.667
Row 3	4	150	37.5	3603

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0	2	0	0	1	4.256495
Within Groups	17583	9	1953.667			
Total	17583	11				

5. Result: Since calculated value i.e. F value is 0 which is less than the table value i.e. F-critical is 4.256495, hence we do not reject H_0. Which means we accept our null hypothesis and reject our alternative hypothesis, H_1.

6. Conclusion: Therefore, it proves that there is no significant difference between the meal patterns of different individuals.

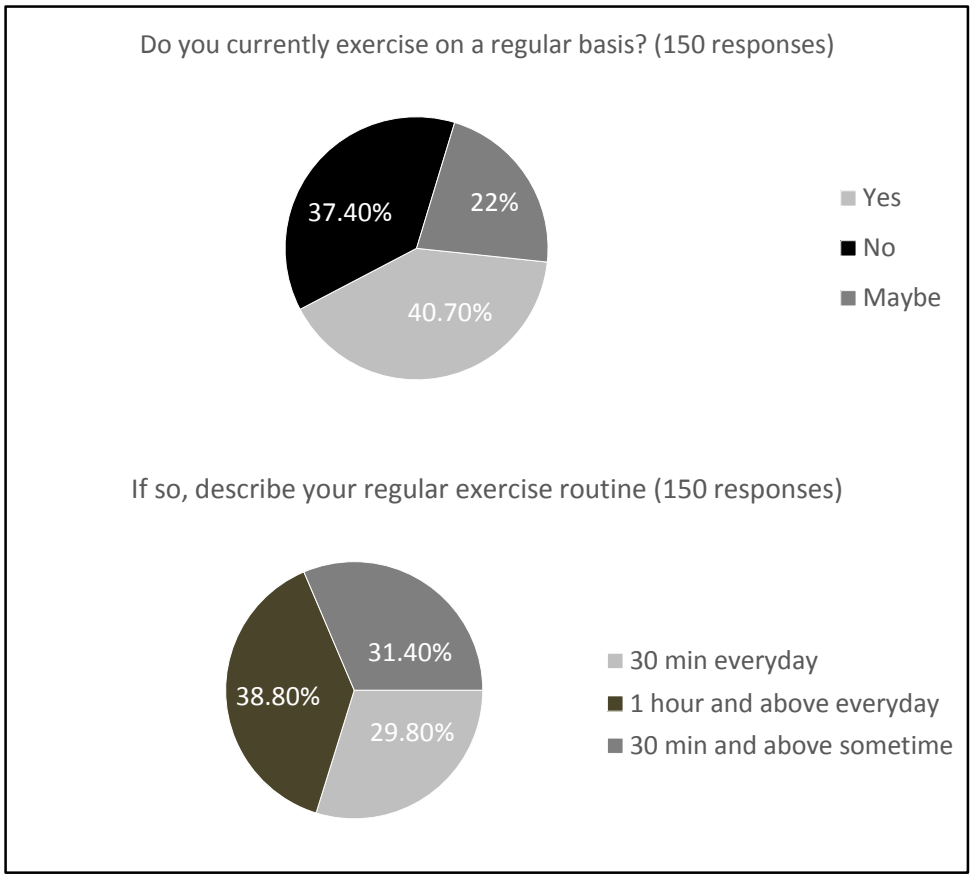


Figure 2a: Exercise Habit and Routine Chart

The next information collected after consumption of meals was the exercise routine. Most of the responses were positive. 40.7% people said YES, they exercise regularly. 22% said they do exercise but not on regular basis and 37.4% said NO for exercise.

The next question says describe your regular exercise routine. And as the above figure 2a shows that 29.8% exercises 30minutes everyday and 38.8% people do exercise 1 hour or more than 1 hour everyday. Only 31.4% said they do exercise for 30 minutes and above but not regularly.

Once we had data about their meals and exercise routine, the next question is obvious about enhancing their diet with nutritional supplements. Because both meal and all physical exercises need nutrition which can be provided more by nutritional supplements.

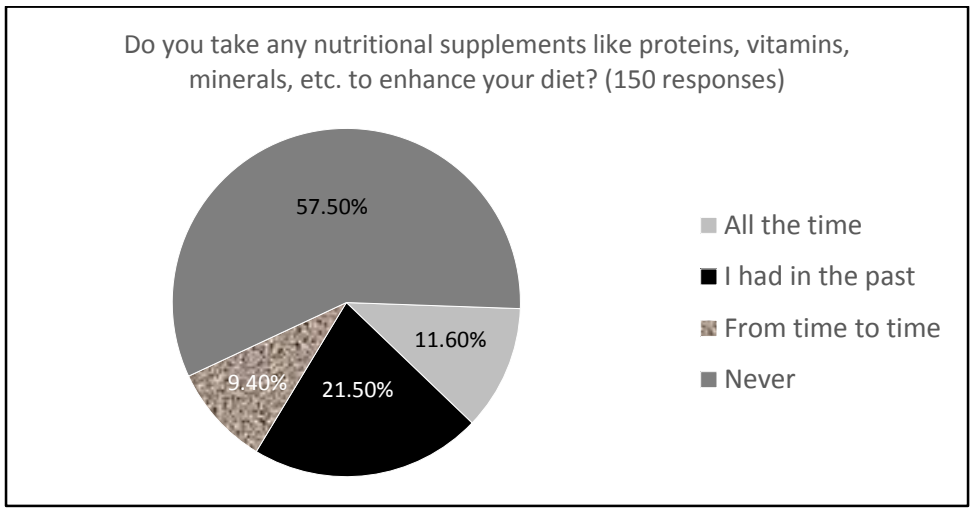


Figure 2b: Nutritional Supplement Intake Habit

From the above figure 2b, most of people say that they have NEVER used nutritional supplements (57.5% persons). Some said that they have used in the past (21.5% persons). But there are people who use it all the time in their life and used it from time to time also (11.6% and 9.4% respectively).

The next data is regarding using nutritional supplements for different reasons. Whether doctor has recommended them to use it, or are they using it for losing weight or for gaining weight, or is it due to physical activities like exercises, their daily lifestyle, etc. and there were 150 individuals giving the following responses (figure 2c.)

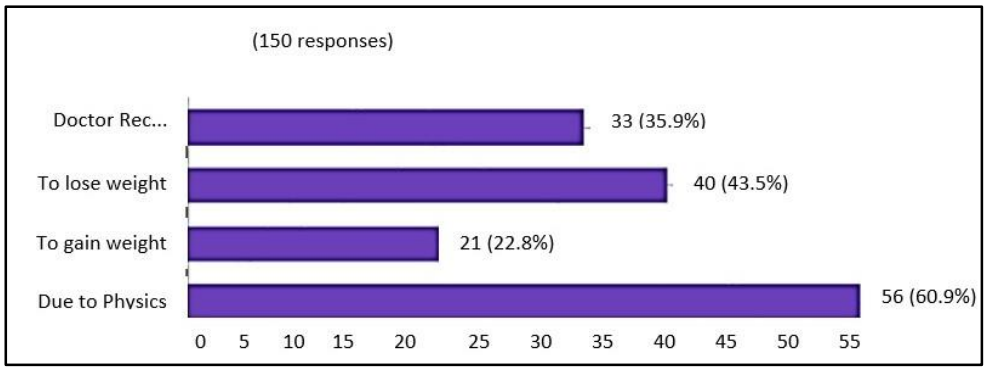


Figure 2c: Using Nutritional Supplements for Different Reasons

We can observe that nutritional supplements are mainly used for Physical activities as compared to the other reasons i.e. losing weight, gaining weight or doctor's recommendation. To prove this we would run a statistical test called as Chi-square test.

Chi Square Test

- Chi-Square test allows testing the statistical significance of differences in a classification system (one-way classification) or the relationship between two classification systems (two-way classification).
- **Chi-Squared With Degrees of Freedom and P-Value.** The Chi-squared statistic is the sum of the squares of the differences of observed and expected frequency divided by the expected frequency for every cell.
- Formula:

$$\chi^2 = \sum \frac{(observed\ count\ -\ expected\ count)^2}{expected\ count}$$

If the calculated P-value is less than 0.05, then there is a statistically significant relationship between the two classifications.

Hypothesis 2

1. Statement of Hypothesis
   - ✓ **H_0:** Nutritional supplements not used by people doing more physical activities but used for reducing, gaining and by doctors recommendations.
   - ✓ **H_1:** Nutritional supplements used mainly by people doing more physical activities.
2. Level of Significance: At 5% level of significance (150) data is tested.
3. Degrees of freedom= 4-1=3
   Thus for degrees of freedom 3 & 5% level of significance the tabular value from chi-square distribution table is 7.82
4. Data:

Using Nutritional Supplements for Different Reasons	Actual Number of Respondents
Physical activities	56
Lose weight	40
Gain weight	21
Doctor's recommendation	33

5. Test : **Chi-squared**

	Observed O	**Expected E**	**O-E**	**(O-E)^2**	**(O-E)^2/E**
Physical activities	56	37.5	18.5	342.25	9.12666667
Lose weight	40	37.5	2.5	6.25	0.16666667
Gain weight	21	37.5	-16.5	272.25	7.26
Doctor's recommendation	33	37.5	-4.5	20.25	0.54
					17.0933333

6. Result: Since, calculated value (17.09333) is greater than table value 7.82, null hypothesis, H_0 is rejected, so we accept alternative hypothesis, H_1.
7. Conclusion: Therefore, it proves that nutritional supplements are mainly used by people doing more physical activities.

To prove that people used nutritional products more for physical activities, a figure 2d. Showing different physical activities which is most likely done by many people is graphed below. It says that people like going for gym and other activities like running, walking, dancing, etc., hence the count for gym is 62 people out of 150 goes to gym and 61 people out of 150 does other physical activities. And also 20 people out of 150 like doing Yoga early morning to feel fresh and healthy. Last but not the least some people like 7 out of 150 also does Zumba, a dance form to keep our self-fit and healthy.

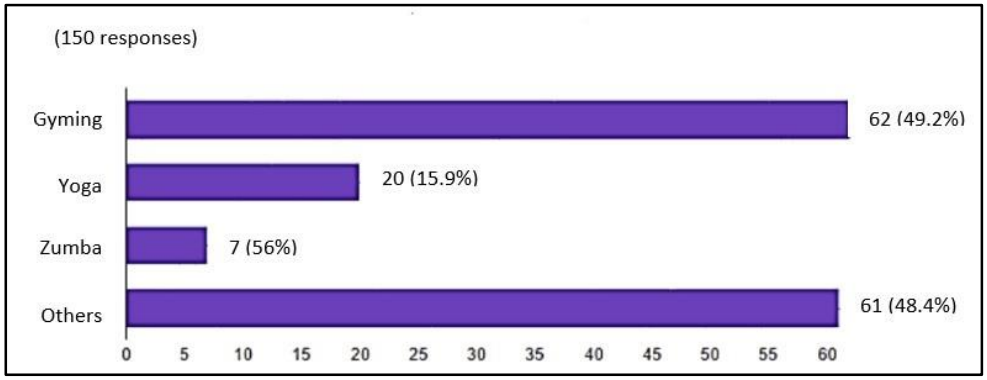


Figure 2d: Different Physical Activities Done by Individuals

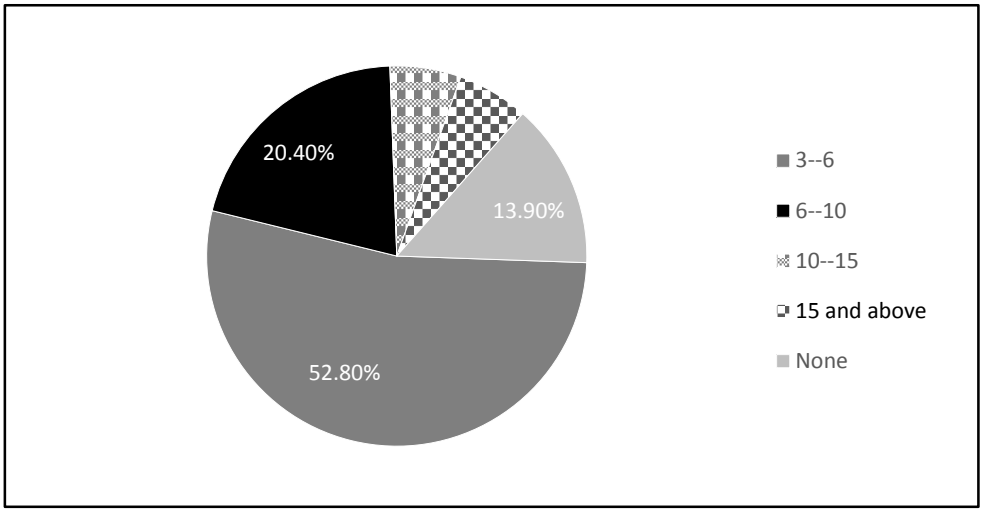


Figure 3a: Weight Loosed by Respondents Due to Physical Activities

Figure 3a. is the data responsible for people losing weight. It shows that quite large sample has loosed weight almost 86.1% individuals and very few sample which says NONE (13.9%), have not loosed weight.
Here is an analysis showing people who lose weight due to physical activities or not.

Hypothesis 3

1. Statement of Hypothesis
   - ✓ **H_0:** People who don't lose weight due to nutritional supplements.
   - ✓ **H_1:** People who lose weight due to nutritional supplements.
2. Level of Significance: At 5% level of significance (150) data is tested
3. Degrees of freedom= 2-1=1
   Thus for degrees of freedom 1 & 5% level of significance the tabular value of chi-square distribution table is 3.84
4. Data:

Have people loosed their weights	Actual number of Respondents
Yes	134
No	16

5. Test: Chi-Square

Have people loosed their weights	Observed O	Expected E	O-E	(O-E)^2	(O-E)^2/E
Yes	134	75	59	3481	46.4133333
No	16	75	-59	3481	46.4133333
					92.8266667

6. Result: Since, calculated value (92.8267) is greater than table value 3.84, null hypothesis is rejected, so we accept alternative hypothesis.
7. Conclusion: Therefore, it proves that people reduce weight due to nutritional supplements.

Conclusion

Nutritional supplements are required for all age group because being over and underweight both are harmful for health. It gives birth to several discomforts in human beings. Since our first hypothesis tested concludes that as there is no significant difference in the meal patterns of each individual; which means they follow a unique schedule for their meals. Hence we can schedule the same type of unique pattern of their nutritional supplement intakes as well. This would lead to more nutritional supplement demand. Our second hypothesis concluded that nutritional products are highly used by people doing more physical activities like gym, yoga, zumba, and all other day to day activities. Since most of the populations are highly engaged in physical activities; again the demand of nutritional products are high. The last hypothesis tested gave a very important result, concluding that different nutritional supplements have helped them in rebuilding their discomforts. The most frequent reason for using nutritional supplements was for reducing weights. And we observed that YES people do lose weight due to intake of nutritional supplements. All these conclusions share the same result that there is high demand for nutritional products in today's networked market. Due to which the nutritional business is grooming day by day. As a researcher I still feel that, there is less awareness of the usage of these nutritional supplements. If people could be helped in educating them about the nutrition in their diet through supplements definitely we can find a bright future of our nutritional market. Last but not the least; researcher has restricted herself to only one discomfort (reducing weight) that would be resolved by using nutritional supplements but there are many such which is yet to be researched.

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