AIRO JOURNALS

Free / Unpaid
Peer Reviewed
Multidisciplinary
International

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

INTERVENTION TOOLS FOR HEALTHY FOOD CHOICES: A STUDY ON EVALUATING MULTIPLE COMPONENTS AND NUTRIENT VALUES OF FOOD LABELS IN PROCESSED FOODS

Neha Sharma,
Research Scholar,
University of Technology, Jaipur
Dr. Jayanti Tripathi,
Research Supervisor,
University of Technology, Jaipur

Abstract

Although consumers should make better use of the nutrition information provided on food labels, they often don't. This study looked at whether or not food labeling requires consumers to have a certain level of nutrition literacy. Consumers who already know a lot about a topic are more likely to utilize label information wisely, according to a cognitive processing model. This means they will pay greater attention to the most important details, fully comprehend them, and base their purchasing choices on this knowledge. Review findings corroborate this concept by showing that nutrition knowledge supports food label usage. However, there was a large discrepancy across measures of nutrition knowledge with regards to the topics covered and the depth of the examination. When compared to nutrition information labels, research examining the impact of consumer understanding on the usage of ingredient lists and claims are few. In addition, we learned that our understanding of how knowledge promotes food label usage in older persons is constrained by an overreliance on convenience samples focusing on younger adults. If increasing nutrition knowledge may boost people's use of nutrition information on food labels, then future studies should 1) examine which aspects or kinds of nutrition knowledge are most relevant to food label usage and dietary choice making.

Keywords: nutritional values, food labels, packaged foods

AIRO JOURNALS
Free / Unpaid
Peer Reviewed
Multidisciplinary
International

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

1. Introduction

For the purpose of informing consumers about the nutritional content of a product, nutritional labels display the food's nutritional characteristics (Food and Agriculture Organization and World Health Organization, 1985). Consumers may better meet their nutritional requirements by using this data. Knowledge-based food choices also raise intake of healthful nutrients like fiber, calcium, iron, etc., while decreasing intake of unhealthy ones like fat, salt, sugar, etc. As the sole source of information conveying the nutritious content of a product upon purchase, the nutritional labels serve as further confirmation of a food product's dependability.

The nutrition facts panel and the claims section of a product packaging are the two most important places for customers to get nutrition information. The nutrients and amounts of those nutrients included in the product are listed on the nutrition information panel. For instance, on the box, the amount of calories a product has per 100 grams (or milliliter) of solids or liquids and per serving is listed. The nutrition facts panel is a typical piece of information that is printed on the back of food packaging. Because of the information it provides about a food's nutritional makeup, it helps shoppers make informed decisions. In addition, it aids buyers in meeting their unique dietary requirements by providing a quantitative measure of beneficial nutrients.

Claims are another way to get dietary information from product labels. Food labels may include claims, which are statements about the product's health benefits made via the use of various visual elements (such as pictures, symbols, and graphs). Food packaging often has health claims such as "high in fiber," "rich source of protein," "low in trans fat," etc. These do not need to be disclosed in the nutrition facts panel on food labels, but if any nutrients are promoted on the label, they must be. Product packaging, including front and back, features prominent claims. Front-of-package claims tend to be brief, whereas back-of-package claims tend to be more in-depth.

Nutrition claims

Nutrition claims highlight the presence or absence of certain elements in a food, such as calories, fat, protein, carbs, vitamins, and minerals. In addition to the nutrients mentioned above, additional

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

allowed nutrients are also included. There are two main categories of nutritional claims: nutrient content claims and nutrient comparative claims.

A food label claim that specifies the amount of a certain nutrient in the product is known as a "nutrient content claim." A few examples are "high in" "rich in" "source of" "(name of nutrient)," etc.

A nutrient comparative claim states the relative nutritional content of two or more foods and provides a comparison to another food item. Reduced in (nutrient name), less than (nutrient name), and increased in (nutrient name) are all examples.

2. Literature review

(Kim, Nayga and Capps, 2001a) Consumers may make more informed decisions about their diets and improve their health by paying attention to nutrition labels. Consumers who read food labels reduced their calorie, salt, and cholesterol intake and increased their fiber consumption.

Intodia (2011) studied the economic effects of obligatory food labeling laws, including their impact on producers, consumers, and the food industry as a whole. It was decided that makers of packaged goods must provide nutritional information on their labels. As a result, food labels should be required to provide information regarding the product's weight, ingredients, calories, protein, salt, carbs, fat, total sugars, fiber, trans fat, and vitamins and minerals. It was also emphasized that requiring labeling will help customers choose goods that meet their nutritional requirements.

Legault et al. (2004) food labels were analyzed for structural/functional and nutritional content claims, as well as health claims. Health claims were found to be advertised on 4.5% of commercially available goods. More than anything else, the "diet low in saturated fat and cholesterol and reduced risk of heart disease" was cited as the basis for these assertions' veracity. Only 19 of the fifty-seven categories of products tested included items with health claims. Almost 6% of all packages were discovered to have structure/function assertions. Energy, total fat, saturated fat, cholesterol, salt, dietary fiber, and sugar were common categories for these "high," "good source," "more," and "light/lite" claims.

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

Nocella and Kennedy (2012) Consumers' ability to interpret food labels was shown to be affected by factors like age, education, language proficiency, content, and attitude. As a result, various factors in the literature have been investigated as potential predictors of comprehension. Previous research has identified a variety of characteristics, including demographics, expertise, content and format of the words, attitude towards information, interest in healthy eating, and motivation, as the most significant ones impacting consumers' comprehension. Later, we'll talk about what we've learned from prior research on these factors.

Shine, O'Reilly and O'Sullivan (1997a) consumer purchasing behavior was positively affected by the availability of nutrition information. Along with price, brand, quality, label, and packaging, nutrition labeling was shown to be crucial. Thus, over 52% of shoppers said they would pay more for packaged goods that included nutritional information.

3. Methods and Materials

The labels of processed and ultra-processed products from the three largest supermarkets in Cuenca were photographed for this descriptive cross-sectional investigation. Permission to photograph processed and UPPs was granted by each grocery store, and the project was planned to maximize the number of goods sampled by scheduling data collecting periods.

The images were taken by three dietitians who had previously standardized their procedure in accordance with the recommended way of analyzing nutrition label information.

The crew started taking pictures at one grocery shop, and they shot everything in the store. The data was collected over the course of five days. Unregistered items at the two remaining supermarkets were photographed with the use of a verification list to avoid duplication. Following a thorough evaluation of the collected images, more shots of particular goods were taken at the grocery store if there were insufficient or poor-quality shots before.

Each product was photographed six times, once for the front of the box, once for the barcode, once for the nutrition facts table, once for the traffic light label, once for the ingredient list, and once for the nutritional and health claims. The group followed the previously described procedure for taking the images, and they assigned unique dates, categories, and image numbers to each item.

AIRO JOURNALS
Free / Unpaid
Peer Reviewed
Multidisciplinary
International
ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

The data was organized according to the following themes: Breakfast cereals and granola, breakfast sausages, canned foods, cookies and crackers, fats and dressings (fat, sweet and savory sauces), dairy products (cheese, yogurt), bread and bakery products, sweet snacks (chocolate, flan, jellies, ice cream, pudding, and canned sweets), salty snacks, and other (chocolate powder, sweeteners, frozen fruit products, and fruit pulp). Candies and marshmallows were excluded from the research.

4. Results and Discussion

According to our research, 14% of these items claimed to be "contains non-caloric sweetener," Ninety-four percent showed the traffic light nutrition label, ninety-nine percent stated the ingredient list, and one hundred percent showed the nutrition table(Table 1).

Table 1: Proportion of nutrition components found on the product label by category of food

	Total Products n %		**Statement on Sweeteners %**	**Traffic Light Label %**	**Nutrition Table %**
Sugar-sweetened beverages	125	14.8	65.2	35.8	100
Breakfast cereals and granola	208	5.2	4.7	94.3	100
Sausages	30	2.5	0.0	100	100
Cookies and crackers	54	14	4.9	100	100

AIRO JOURNALS
Free / Unpaid
Peer Reviewed
Multidisciplinary
International
ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

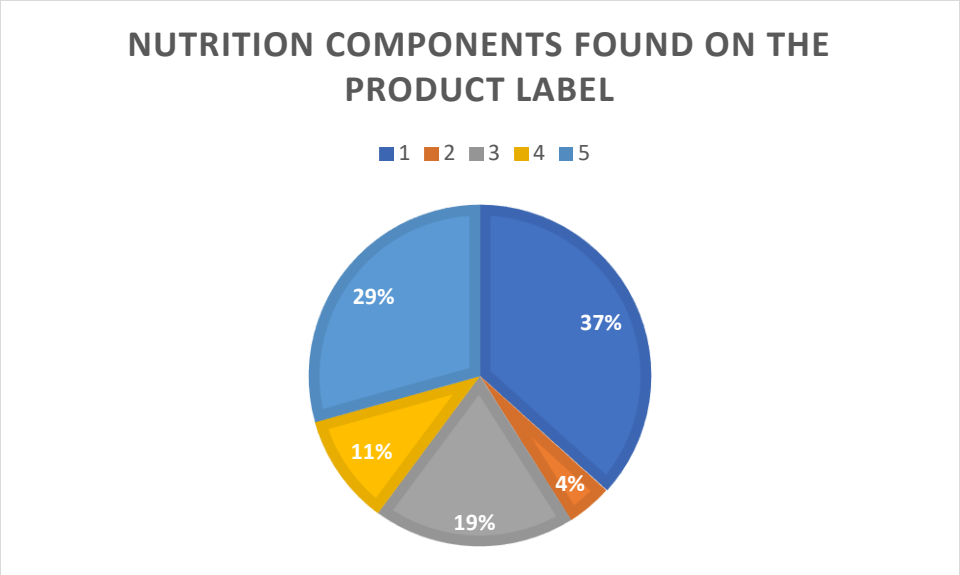


Figure 1: Nutrition Components Found on The Product Label by Category of Food

Indicators reported in the TL and predicted indicators are compared in Table 2. For both sugar-sweetened beverages and sweet snacks, the sugar indicator showed a greater share of items classified as "medium" than expected (reversed for the "high" indicator for sugar-sweetened beverages and sweet snacks.

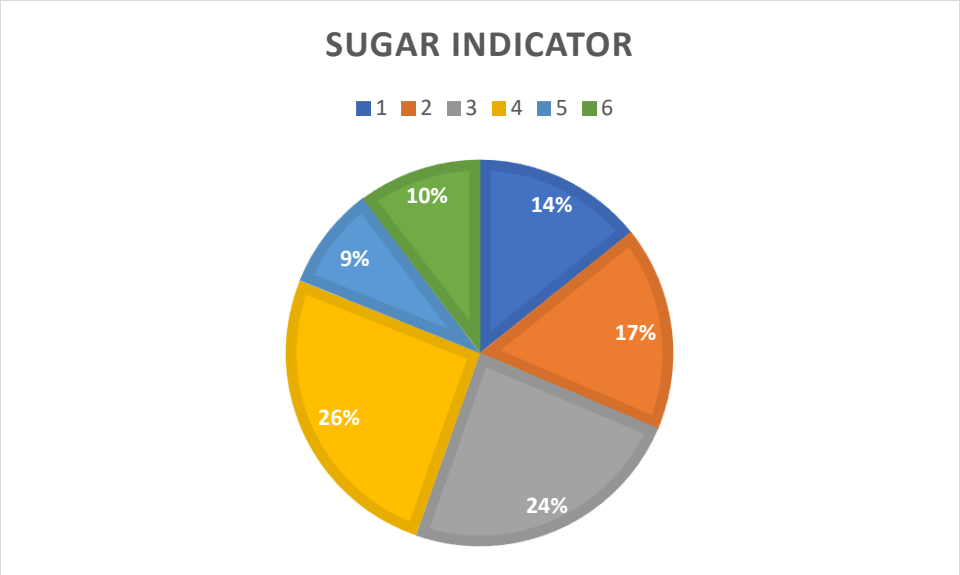
Table 3: Proportion of TL indicators reported on the label and indicators expected by product category

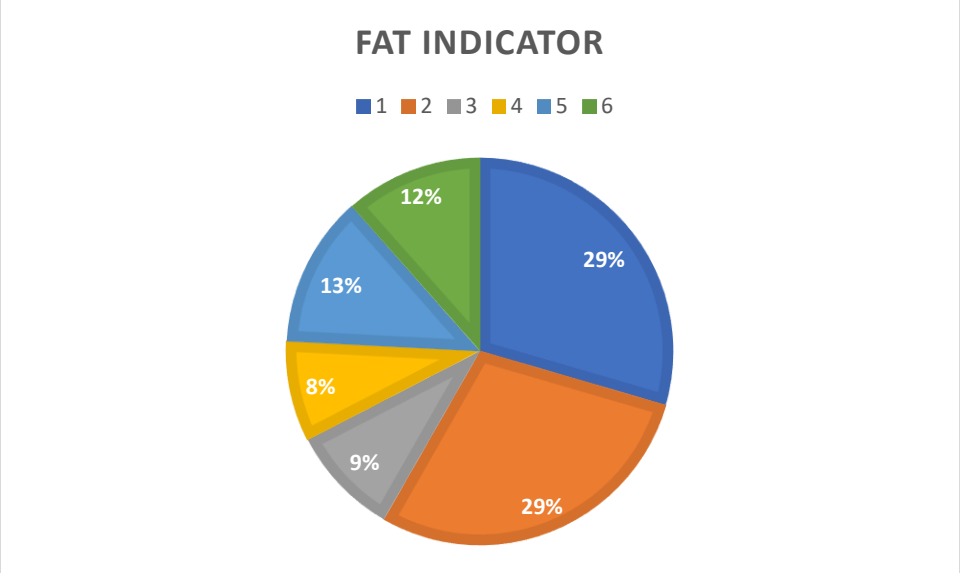
	Low		Medium		High	
	Indicator Reported %	**Indicator Expected %**	**Indicator Reported %**	**Indicator Expected %**	**Indicator Reported %**	**Indicator Expected %**
Sugar Indicator						
Sugar-sweetened beverages	25.4	30.2	42.6	45.1	15.1	18

AIRO JOURNALS
Free / Unpaid
Peer Reviewed
Multidisciplinary
International
ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

Breakfast cereals and granola	9.7	11.4	24.3	26.8	62.3	59.1
Sausages	100	100				
Total Fat Indicator						
Sugar-sweetened beverages	76.5	74.6	23.8	21.7	32.8	29.9
Breakfast cereals and granola	36.8	32.1	67.2	65.3	3.3	8.3
Sausages	5.4	5.4	79	82.4	14.2	8.2
Salt Indicator						
Sugar-sweetened beverages	99	97.2	0.8	2.5	0.0	0.0
Breakfast cereals and granola	38.2	42	53.8	53	3.3	3.3
Sausages	0.0	0.0	0.0	12.4	96	82.1

AIRO JOURNALS
Free / Unpaid
Peer Reviewed
Multidisciplinary
International
ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering





AIRO JOURNALS
Free / Unpaid
Peer Reviewed
Multidisciplinary
International
ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

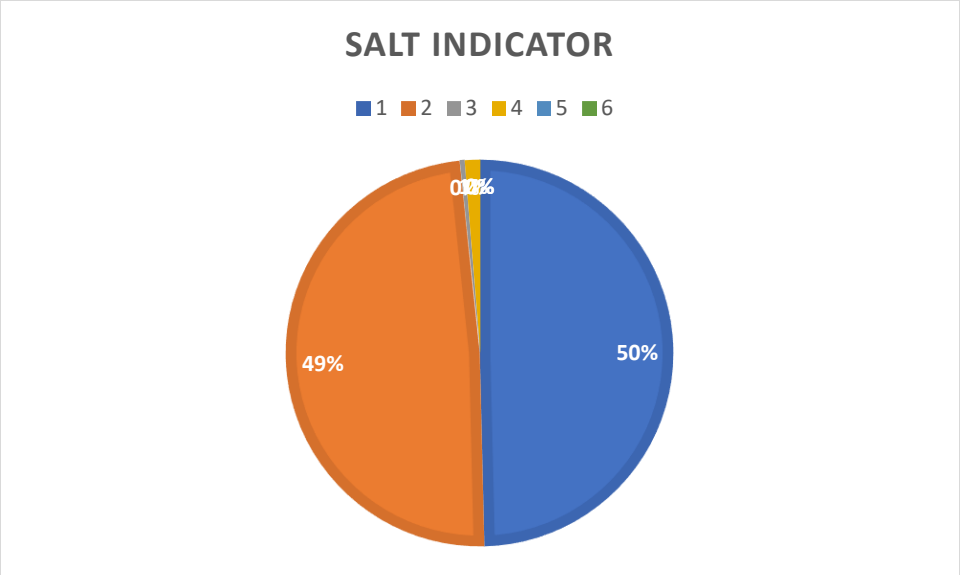


Figure 2: Sugar, Salt and Fat Indicator in Different Product Category

Discussion

The findings of this research show that the concentrations given on the traffic light label of processed and UPPs in Ecuador are inconsistent, especially for sugar content, and that these reported levels are lower than what should be utilized. We detected the line "contains non-caloric sweetener" in all product categories with the exception of sausages, canned goods, and salty snacks; this was one of the identified nutrition-related labeling components. This discovery merits special attention since it implies that most manufactured items with a sweet taste really include sweeteners. Our findings are in line with those of a Mexican research that assessed the nutritional value of sugar-sweetened drinks and found that 48.2% included sweeteners. Based on these findings, we may conclude that drinkers in Ecuador are more likely to be subjected to this class of compounds. However, the rules must be revised to include a need for reporting this amount. Some research have identified cytotoxic and metabolic consequences from using sweeteners, while others have not, leading to conflicting findings in two reviews of this topic. The assessments acknowledge that sweeteners may help people lose weight, but they stress the need for long-term research to fully understand the impact of sweeteners on human health.

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

Variations in the concentrations of the markers for each nutrient were found in this investigation. Especially prevalent in sugar-sweetened drinks for the sugar indication was the reporting of a "medium" value when a "high" value was more accurately reflected. Researchers in Spain looked at the amount of sugar in 28 different product categories and discovered that 10 of them had excessive amounts of sugar compared to the European Union's tolerance criteria.

Most of the candy and marshmallow packets in this research were see-through, making it difficult to make out text on the packaging in photographs. As a result, the investigation did not cover these items, and instead focused on photographing other food categories within the constraints of the time allotted by each shop.

This study has a number of limitations, including its description of the uniformity of the TL nutrition label on processed and UPPs, but further research is required to understand consumer behavior while reading the label.

5. Conclusion

There were discrepancies between the predicted and reported values for fat, sugar, and salt markers in the TL of the processed and ultra-processed goods. As a result, it is crucial that the technical bodies responsible for the control and sanitary surveillance of these products implement new and robust nutritional information policies to ensure that manufacturers comply with the provisions of the laws and regulations implemented in the countries on the regulation of the nutritional labeling, with the appropriate sanction being exercised on them in the event of noncompliance.

For the purpose of informing consumers, nutritional labels represent the food's nutritional qualities (Guidelines on Nutrition Labelling, 1985). The nutritional content of foods may be learned from the lists of nutrients that are often included on the back of packages. Nutritional information is required to be displayed on product labels in many nations so that buyers may make educated decisions. Claims or nutrition marketing refers to the practice of promoting a product by emphasizing its nutritious content in an increasingly competitive market. Marketers provide useful information to customers by labeling items with the nutrient(s) qualities. However, the success of a campaign is heavily dependent on how consumers interpret nutritional data. Consumers'

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

processing levels, or the extent to which they think about and evaluate the information presented to them, are influenced by a number of factors intrinsic to the consumers themselves.

References

1. *Ahmadi A, Torkamani P, Sohrabi Z, Ghahremani F. Nutrition knowledge: Application and perception of food labels among women. Pakistan Journal of Biological Sciences. 2013;16(24):2026–2030.*
2. *Bialkova S, Grunert KG, Juhl HJ, Wasowicz-Kirylo G, Stysko-Kunkowska M, van Trijp HCM. Attention mediates the effect of nutrition label information on consumers' choice. Evidence from a choice experiment involving eye-tracking. Appetite. 2014;76(0):66–75. doi: http://dx.doi.org/10.1016/j.appet.2013.11.021.*
3. *Brandt, M., Moss, J., & Ferguson, M. (2009). The 2006–2007 Food Label and Package*
4. *Brucks, M., Mitchell, A. A., & Staelin, R. (1984). The effect of nutritional information disclosure in advertising: An information processing approach. Journal of Public Policy & Marketing, 3, 1-25.*
5. *Freire, W.B.; Ramírez Luzuriaga, M.J.; Belmont, P.; Mendieta, M.J.; Silva-Jaramillo, K.; Romero, N.; Sáenz, K.; Piñeiros, P.; Gómez, L.F.; Monge, R. Tomo 1: Encuesta Nacional de Salud y Nutrición de La Población Ecuatoriana de 0 a 59 Años. ENSANUT-ECU 2012; Ministerio de Salud Pública/Instituto Nacional de Estadísticas y Censos: Quito, Ecuador, 2014. [Google Scholar]*
6. *Instituto Nacional de Estadísticas y Censos (INEC). Available online: https://www.ecuadorencifras.gob.ec/salud-salud-reproductiva-y-nutricion/ (accessed on 3 July 2020).*
7. *Instituto Nacional de Estadísticas y Censos (INEC). Available online: https://www.ecuadorencifras.gob.ec/documentos/web-inec/Sitios/Defunciones/ (accessed on 20 July 2020).*
8. *Intodia, V. (2011). Mandatory nutrition labeling and implications for food companies in India. Asian Journal of Food and Agro-Industry, 4(4), 255-260.*

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

9. *Kim, S. Y., Nayga, R. M., & Capps, O. (2001a). Food label use, self-selectivity, and diet quality. Journal of Consumer Affairs, 35(2), 346-363.*
10. *Legault, L., Brandt, M. B., McCabe, N., Adler, C., Brown, A. M., & Brecher, S. (2004). 2000–2001 food label and package survey: An update on prevalence of nutrition labeling and claims on processed, packaged foods. Journal of the American Dietetic Association, 104(6), 952-958.*
11. *Monteiro, C.A.; Cannon, G.; Moubarac, J.-C.; Levy, R.B.; Louzada, M.L.C.; Jaime, P.C. The UN Decade of Nutrition, the NOVA Food Classification and the Trouble with Ultra-Processing. Public Health Nutr. 2018, 21, 5–17. [Google Scholar] [CrossRef][Green Version]*
12. *Mora-Plazas, M.; Gómez, L.F.; Miles, D.R.; Parra, D.C.; Taillie, L.S. Nutrition Quality of Packaged Foods in Bogotá, Colombia: A Comparison of Two Nutrient Profile Models. Nutrients 2019, 11, 1011. [Google Scholar] [CrossRef][Green Version]*
13. *Nocella, G., & Kennedy, O. (2012). Food health claims–What consumers understand. Food Policy, 37(5), 571-580.*
14. *Shine, A., O"Reilly, S., & O"Sullivan, K. (1997a). Consumer attitudes to nutrition labelling. British Food Journal, 99(8), 283-289.*
15. Survey (FLAPS): Nutrition labeling, trans fat labeling. Journal of Food Composition and Analysis, 22, S74-S77.

Author's Declaration

I as an author of the above research paper/article, hereby, declare that the content of this paperis prepared by me and if any person having copyright issue or patent or anything otherwise related to the content, I shall always be legally responsible for any issue. For the reason of invisibility of my research paper on the website/amendments/updates, I have resubmitted my paper for publication on the same date. If any data or information given by me is not correct I shall always be legally responsible. With my whole responsibility legally and formally I have intimated the publisher (Publisher) that my paper has been checked by my guide (if any) or expert to make it sure that paper is technically right and there is no

ISSN: 2321-3914
Volume 1 Issue 3
March 2023
Impact Factor: 10.2
Subject Engineering

unaccepted plagiarism and the entire content is genuinely mine. If any issue arise related to Plagiarism / Guide Name / Educational Qualification/ Designation/Address of my university/college/institution/ Structure or Formatting/ Resubmission / Submission /Copyright / Patent/Submission for any higher degree or Job/ Primary Data/Secondary Data Issues, I will be solely/entirely responsible for any legal issues. I have been informed that the most of the data from the website is invisible or shuffled or vanished from the data base due to some technical fault or hacking and therefore the process of resubmission is there for the scholars/students who finds trouble in getting their paper on the website. At the time of resubmission of my paper I take all the legal and formal responsibilities, If I hide or do not submit the copy of my original documents (Aadhar/Driving License/Any Identity Proof and Address Proof and Photo) in spite of demand from the publisher then my paper may be rejected or removed from the website anytime and may not be consider for verification. I accept the fact that as the content of this paper and the resubmission legal responsibilities and reasons are only mine then the Publisher (Airo International Journal/Airo National Research Journal) is never responsible. I also declare that if publisher finds any complication or error or anything hidden or implemented otherwise, my paper may be removed from the website or the watermark of remark/actuality may be mentioned on my paper. Even if anything is found illegal publisher may also take legal action against me.

Neha Sharma
Dr. Jayanti Tripathi