The Bread Dilemma: Is it Truly a Healthy Dietary Choice?

Revision-1

Mohd Saqib

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1 Introduction :

Bread, in its diverse varieties, has remained a dietary staple in numerous parts of the world for thousands of years. In Figure 1, the data indicates a consistent global consumption of bread, suggesting that people continue to include bread as a staple in their daily diets[1]. The steadfast trend observed in bread consumption implies that individuals worldwide maintain a regular and frequent incorporation of bread into their meals. This enduring preference for bread signifies its enduring popularity and widespread appeal as a dietary component across diverse cultures and regions.

Country	Consumption, kg	Trend with the previous year
Turkey	104.0	-10.00%
Bulgaria	95.0	Stable
Ukraine	89.0	-7.5%
Italy	68.0	Stable
Russia	62.0	-1.0%
Denmark	45.0	Stable
Finland	42.0	Stable
France	57.0	Stable
Germany	56.0	Stable
Slovenia	55.0	+2.0%
Belgium	55.0	Stable
Netherlands	52.0	Stable
Spain	42.0	Stable
Great Britain	32.0	-1.0%
Avarage	59.4	

Figure 1: The bread consumption per capita per year in countries (2013).

Why people tend to eat bread a lot in countries as shown in Figure 1 can be predicted from the Figure 2, as the majority of bread types emerge as commendable sources of proteins, meeting approximately 15-25% of the daily dietary requirements. This observation is indeed promising, highlighting the nutritional value that many bread varieties contribute to one's daily protein intake. Similarly, Figure 3 illustrates that a significant portion of the breads analyzed stands out as rich sources of dietary fiber. This

dual revelation emphasizes the multifaceted nutritional benefits that various bread options offer. These findings not only underscore the positive aspects of incorporating bread into one's diet but also contribute to promoting informed dietary choices for individuals seeking protein and fiber-rich alternatives .These reasons shows that why people tend to eat bread a lot worldwide.

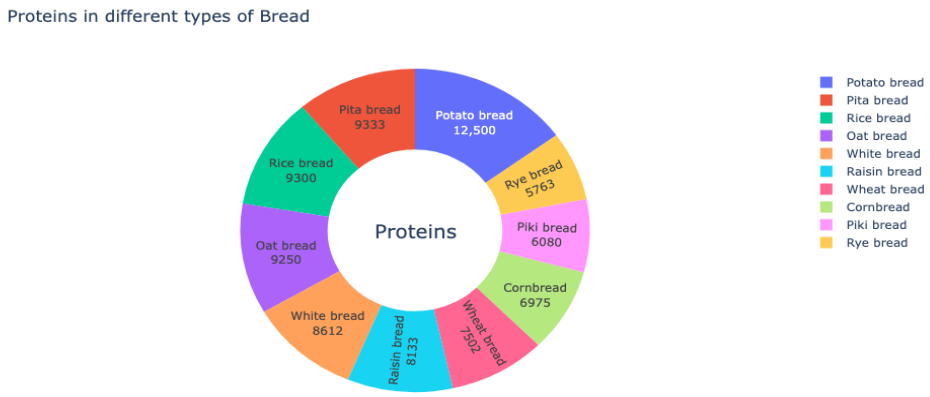

Figure 2: Protein content (mg) in different bread per 100 gm

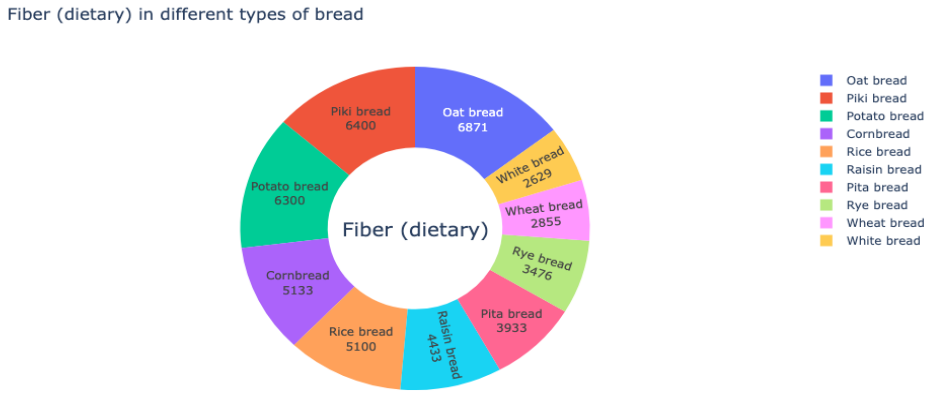

Figure 3: Fiber content (mg) in different bread per 100 gm

In today's era, common diseases such as blood pressure and diabetes are on the rise, with their prevalence linked to the consumption of everyday foods, among which bread stands out. On average, individuals incorporate bread into their daily meals, whether it be in breakfast, lunch, or dinner.However, does this good source of protein and fiber render bread inherently healthy? Most of the people eat the bread by just looking as good source of protein, fiber, carbs by neglecting the other compound content. Evaluating the healthiness of bread involves considering various parameters, with a focus on richness in protein content and to specific criteria, such as sodium levels ideally ranging between 150-200 mg per 100 grams and minimal added sugar ,Low fat ,rich in fibre [2].

Research on bread's sodium content indicates an average range of 400-450 mg per 100 grams is found [3]. To put this into perspective, the average slice of bread weighs around 40-45 grams. Consuming four slices, a common serving as a breakfast giving sodium as (1 gm) , fulfills approximately 50% of the daily sodium requirement of (2 gm). This is noteworthy, especially considering that a significant portion of daily sodium intake, typically 60-70%, is derived from water and other foods.By consuming a lot amount of sodium over a longer period of time could lead to adverse health effects like Blood pressure ,Kidney diseases and many more health effect[4].It is urgency to lower the content of the sodium in bread because every individual eat bread as daily staple which make it more urgent to lower the content .If this step not taken then over a time there will be a lot of patient of high Blood pressure and kidney diseases.

Similarly, for Sugar the content should be low because the human body does not require extra sugar; it obtains the necessary daily sugar from glucose during the breakdown of energy from foods. Therefore, if the sugar content is found to be high, there is an urgency to decrease the sugar level because consuming a sugar for longer of period of time can cause to diabetes,Suppression of immune system and many more adverse effect on individual[6].

In this project we are doing the analysis on 10 different type of bread and accordingly we are going to find out the outcomes of sodium and sugar content with respect to the research paper already done.If content of sodium comes out to be greater then the required then there is an urgency to lower the contents and it matches to the outcome of research paper[3].

2 Aim :

- To comprehensively analyze the sodium, sugar, protein ,fiber content in various types of bread and there health effect.
- To make the understanding related to the research and make a conclusive evidence regarding the bread are healthy or not.

3 Audience:

- **Bread manufactures/company :** Manufactures can analyze and look what changes must be done to make the bread more healthy which eventually increase the sales.
- **Health-conscious Individuals:** Person who want to explore detailed information about the nutritional content of different type of bread.
- **Nutritionists and Dietitians:** Professionals in the field of nutrition who can use the tool to analyze and compare nutritional profiles, aiding them in providing personalized dietary recommendations to their clients.

4 Task

- Our task is to delve into the wealth of data, perform an in-depth exploratory data analysis (EDA), and uncover meaningful insights that could empower manufactures,individuals, nutritionists, researchers, and

food enthusiasts alike.This project provides breakdown of different type of breads. By looking at the content of sodium and sugar content tell whether these outcomes matches matches with research paper or not.

Action :

- **Sodium content in different bread:** In Figure 4, it is evident that the average sodium content in each type of bread exceeds 375 mg per 100 gm, with the exception of Piki Bread,these outcomes aligns with the findings of the research paper[3]. This observation suggests that the majority of bread varieties exhibit high sodium content. Consuming these bread types over an extended period may elevate an individual's risk of developing high blood pressure and other associated diseases. Therefore, it is crucial for manufacturers to recognize the urgency in reducing sodium content, following the example set by Piki Bread, in order to enhance the overall healthiness of bread products. This strategic adjustment could contribute significantly to promoting healthier dietary choices and mitigating potential health risks associated with prolonged bread consumption.

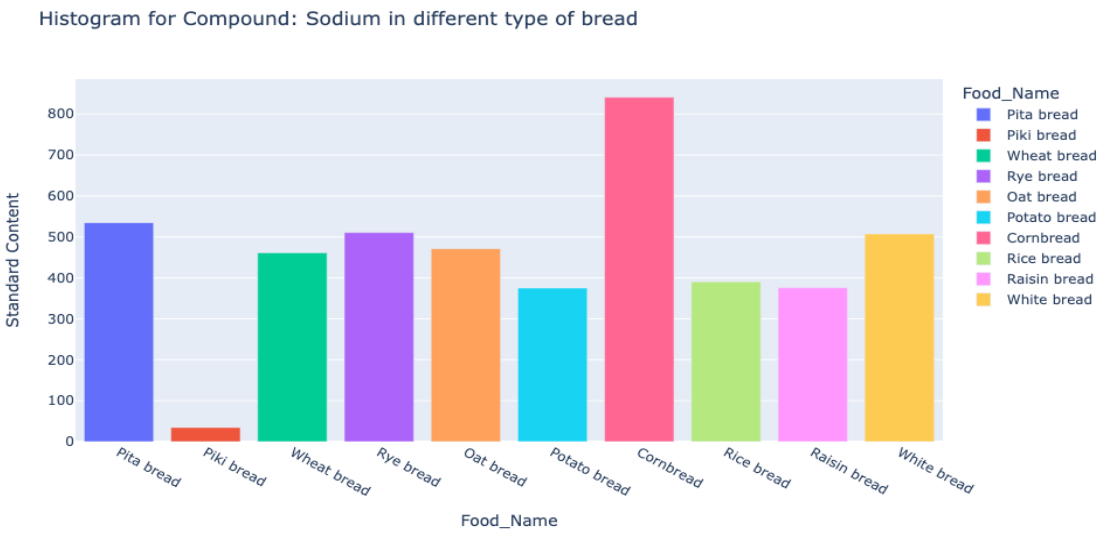

Figure 4: Content of Sodium (mg) across different bread per 100 gm

- **Sugar content in different bread:** In Figure 5, it can be inferred that every bread variant contains some additional sugar, especially in notable amounts as observed in cornbread, potato bread, and oat bread. These particular bread types, with their elevated sugar levels consuming it for a longer period time , pose a higher susceptibility to diseases like diabetes . For manufacturers, a strategic approach would be to consider reducing sugar content as much as possible. Given that the human body does not necessitate excess sugar, minimizing its addition to bread can prove beneficial. Adopting such a practice aligns with promoting healthier dietary habits and mitigating the potential risks associated with heightened sugar consumption. Hence, an emphasis on minimizing sugar content in various bread varieties can contribute significantly to fostering overall well-being.

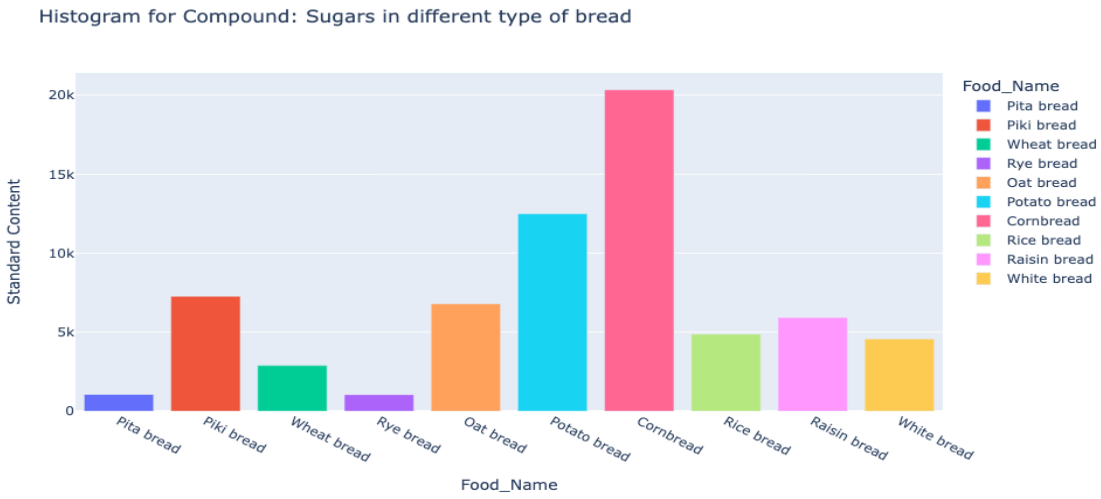

Figure 5: Content of Sugar (mg) across different bread per 100 gm

5 Conclusion :

Our analysis matches with the research paper which tells that there is an urgency to lower the sodium content. Stating that if manufacturers reduce the sodium and sugar content, bread can align more closely with daily dietary requirements is a straightforward proposition and become a eatable foods with hardly any health effect. The primary concern revolves around elevated levels of sodium and sugar found in certain bread varieties, which could potentially lead to health issues like high blood pressure and diabetes. It becomes imperative for manufacturers to prioritize a reduction in sodium levels by incorporating herbs or spices to enhance flavor without compromising nutritional integrity[5]. Similarly, minimizing sugar content is crucial for the production of healthier bread options.

Determining the healthy bread is a challenging task, as every bread is somehow either high in sodium or sugar content. However, from a broader perspective, both Piki bread and Rye bread emerge as eatable choices, offering a nutritional profile within acceptable ranges. Their composition aligns with the goal of promoting health-conscious dietary habits. In essence, encouraging the adoption of bread varieties with reduced sodium and sugar content underscores a collective effort towards fostering a healthier consumer diet.

References

1. Bread choice and consumption trend
2. Healthy bread details
3. Sodium content in bread
4. Bread and Health effect
5. Sodium reduction technologies on bread
6. Effect of sugar intake towards human health