FOOD CONSUMPTION BEHAVIOR IN UNDER-DEVELOPED COUNTRIES: INSIGHTS AND IMPLICATIONS

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ABSTRACT- Underdeveloped nations' food consumption habits are typified by a blend of traditional diets and new trends shaped by social, cultural, and economic variables. A battle to retain traditional eating habits while adjusting to contemporary dietary trends is typically reflected in these patterns, which can result in undernutrition and an increase in diet-related non-communicable diseases (NCDs). Nutrient deficiencies and diet-related health problems are major problems in underdeveloped nations. For example-dietary diversity and traditional patterns, nutritional challenges and health implications, they also highlight how focused efforts might bring about good transformation. A diversified strategy is needed to address these issues, one that includes boosting sustainable agriculture methods, strengthening nutritional education, and increasing food security.
KEYWORDS- Underdeveloped countries, food consumption pattern, communicable disease, poverty.

INTRODUCTION– Major international organizations usually use a variety of economic, social, and institutional characteristics to categorize underdeveloped nations. The four income groups that the World Bank employs are low-income (GNI of $1,145 or less), lower-middle-income ($1,146 to $4,515), upper-middle-income ($4,516 to $14,005), and high-income (above $14,005). These groupings are based on Gross National Income (GNI) per capita. These categories serve as a fundamental reference in evaluations of world development and are updated yearly. In addition, the Human Development Index (HDI), a composite metric that takes into account life expectancy, educational attainment, and GNI per capita, is used by the United Nations Development Programme (UNDP) to provide a more comprehensive picture of development than just income. Additionally, the UN has a list of Least Developed Countries (LDCs) that takes into account factors including low income, poor human capital (such as health and education), and a high degree of economic susceptibility to outside shocks. This list, which includes 44 countries as of late 2024, identifies the areas that most urgently require development aid and policy attention. When combined, these categories provide a sophisticated framework for comprehending and resolving global inequality**.** [3, 14]

A) Food consumption and production pattern of under developed countries-

The study by Paroda and team claims that since the Green Revolution, there have been major shifts in the patterns of food production and consumption throughout South Asia. The adoption of high-yielding cultivars, the extension of irrigation, and the increased use of fertilizers were the main factors behind the notable increase in cereal production, especially of rice and wheat, between the 1960s and 1980s, according to their analysis, which focuses on both historical and anticipated trends. But by the 1990s, the impetus had started to wane as a result of decreased public investment in agriculture, deteriorating input efficiency, and resource degradation. The area continued to have some degree of food self-sufficiency in spite of these obstacles. The studies found that eating habits have changed from conventional grain-based diets to more varied ones, including consuming more fruits, vegetables, dairy products, meat, and fish as a result of urbanization and higher wages. It is anticipated that the consumption of horticulture, livestock, and fishery goods will increase at a substantially quicker rate than the sluggish growth in the demand for grains until 2030.In order to fulfil changing food demands, the study comes to the conclusion that South Asia needs to move away from a cereal-centric approach and toward a more diverse and sustainable agricultural system, backed by strategic investments, technical advancements, and regulatory changes [30].

The food consumption patterns of underdeveloped nations can be characterized by a blend of modern dietary alterations, which often lead to nutritional challenges, and traditional diets. These patterns are influenced by socioeconomic, cultural, and environmental factors, and they vary significantly between rural and urban areas. Urbanization, globalization, and wealth growth are some of the factors that affect the availability and choice of

specific food types, and these factors also affect the change. A complicated interaction between cultural customs, economic shifts, and nutritional issues characterizes food consumption trends in underdeveloped countries. Dietary choices and food availability change as a result of urbanization and income growth in these countries, affecting overall nutrition and health outcomes. The United Nations (UN) defines a less developed country (LDC) as a country with the lowest socioeconomic development and the lowest global Human Development Index (HDI) rankings. The idea of LDCs first surfaced in the late 1960s, and on November 18, 1971, the UN created the first formal list of LDCs in Resolution 216. If a nation experiences any of the following difficulties, it is categorized as an LDC: Pervasive poverty, Poor human resources, as measured by metrics like adult literacy rates, healthcare, education, and nutrition and Economic susceptibility, as assessed by the following factors:-Variations in the output of agriculture; Uncertainty in goods and services exports; Reliance on non-traditional sources of income; High export concentration of goods; Economic size on a small scale; Natural disasters cause a sizable section of the population to be displaced [7]. This review paper focuses on the current and past situations of food consumption pattern of underdeveloped countries.

According to the study, underdeveloped nations face significant difficulties as a result of development plans' failure. There is little understanding of imperialism's effects as a result of these projects' primary concentration on macro-economic analysis and disregard for social relationships. A.G. Frank referred to the "development of underdevelopment" as a result of the extraction of resources for the advantage of Western nations. In order to protect their interests and resources, developing nations need to adopt a stronger and more autonomous approach to this problem [5]. A number of criteria can be used to categorize underdeveloped nations, such as the labour-land ratio that separates highly inhabited Asiatic countries from sparsely populated South American countries. The latter are frequently referred to as "export economies" because business dealings with other countries dominate the economy. There are significant ecological and cultural distinctions between these tribes. The United States and Western Europe have a big effect on Latin American countries, while Asiatic societies are more traditional. They also have different economic strategies; Eastern nations usually use "Planwirtschaft" (planned economy) to achieve quick economic growth, but Latin American countries have not adopted this tactic extensively [31].

B) Food Availability and Dietary Patterns-:

Per capita food availability for human consumption is calculated by deducting factors such as industrial utilization and food waste from a nation's imports and production. This measure, which is frequently evaluated using food frequency surveys and dietary recalls, provides information about patterns in the food supply and personal consumption patterns [12].

C) Analysing Global Food Consumption Trends in Various Cultural and Demographic Contexts: -

As a result of a complex interaction of factors, including cultural identity, socioeconomic position, urbanization, and globalization, food consumption patterns vary greatly across different demographics and cultural environments. Using data from several studies, this analysis offers a thorough examination of these differences, highlighting the global diversity in dietary habits and their implications for health, the environment, and policymaking. A diverse range of cultural, economical, and environmental factors impact food consumption trends. In order to address global health challenges, promote sustainable food systems, and guarantee food security, a greater comprehension of these trends is needed. Research findings can be used by policymakers and practitioners to create targeted interventions that will improve dietary quality and reduce health disparities [11].

Regional Variations in Dietary Patterns and Key Characteristics [11]

Region	Primary Dietary Characteristics	Citation
Western Countries	High intake of processed foods, animal products, and refined sugars	[6, 17]
Latin America	Predominant consumption of staple crops, fruits, and vegetables	[24, 28]
South Asia	Diet mainly composed of plant-based foods and spices	[24, 28]
Sub-Saharan Africa	Heavy reliance on starchy staples with limited access to animal-source foods	[6, 28]

Coastal Regions	High consumption of fish and seafood	[6]
Agricultural Regions	Diet dominated by starchy staples and traditional crops	[6]

D) Social Factors affecting food consumption pattern are-

a) **The Impact of Culture on Food Consumption-:** Cultural heritage has a key role in forming dietary habits and food preferences. Socioeconomic circumstances have a significant impact on eating habits, especially in low-income communities. Socioeconomic level, urbanization, globalization, cultural history, and unique culinary traditions all contribute to cultural differences in food intake and preferences. Food choices and eating habits are also influenced by religious beliefs and dietary practices, such as halal and kosher laws. The study draws attention to notable differences in food consumption patterns that are influenced by globalization, socioeconomic variables, and cultural heritage. In order to promote healthy eating while preserving traditional food practices, it emphasizes the significance of culturally sensitive approaches in addressing dietary patterns across varied groups [23]. This study emphasizes geographical differences and socioeconomic impacts while highlighting food portion consumption habits in developing nations. Portion management is required rather than optional in undeveloped areas due to food constraint, while rich nations deal with overconsumption. The study highlights the differences in income and gender, especially in nations like Saudi Arabia and India where economic variables have a significant impact on portion sizes. Instead of using a one-size-fits-all strategy, portion control programs should be customized to cultural and socioeconomic realities in light of these difficulties. In order to better understand food consumption patterns in developing regions, future research should investigate alternative techniques. This study should focus on nutrition, health, and policy-driven solutions to alleviate food insecurity and malnutrition [39].

b) **Food Choices and Socioeconomic Factors-:** This study focuses on the dietary transition in developing nations, where trade liberalization, urbanization, and income growth are gradually changing the agricultural-based diets that are still prevalent. Although there is a strong correlation between economic development and westernized dietary patterns that are high in processed foods and animal products, these patterns are less common in low-income areas where the main food sources remain grains, vegetables, and starchy staples. The fact that agricultural eating habits are still prevalent in low-income areas like India, sub-Saharan Africa, and others highlights how poverty, food insecurity, and cultural customs affect food intake. In comparison to high-income nations, the study also shows that dietary diversity is still low in these areas and that access to nutrient-rich foods is restricted. The study also emphasizes the feminization of agriculture, which is the process by which women are increasingly involved in the production of food in many developing nations. However, regional differences and income inequalities still have an impact on nutrition security and food choices. Overall, undeveloped countries continue to rely significantly on traditional food systems, necessitating focused food policies to increase dietary diversity, decrease food poverty, and improve public health outcomes. Urbanization and economic development also contribute to dietary shifts in emerging economies [12]. The study examines at how people around the world eat, and it finds that there are big disparities depending on factors like age, gender, and culture. It emphasizes that, in contrast to wealthy countries, low-income countries are more vulnerable to fluctuations in income and food costs. In addition, the global change in eating patterns is contributing significantly to the rise in obesity and chronic illnesses [26].

c) **Urbanization and Dietary Transitions-:** In Burkina Faso's fast urbanization is causing dietary changes that result in a "double burden of malnutrition," where undernutrition and overnutrition coexist, especially in semi-urban sectors. While Westernized diets are increasing the risk of obesity and non-communicable diseases in urban populations, undernutrition is still a problem in rural communities. The report emphasizes how urgently these issues must be addressed by focused public health initiatives, guaranteeing a well-rounded strategy for enhancing nutritional health in both urban and rural areas. It is advised to conduct longitudinal research to learn more about the long-term consequences of these dietary changes [8].

E) Structural Economic Barriers in Underdeveloped Regions: -

a) **Food Consumption Patterns in Africa (1998–2024) –** Africa's food consumption patterns changed between 1998 and 2024 as a result of ongoing poverty, urbanization, and geopolitical unrest, which had a

significant impact on dietary habits throughout the continent [13, 34, 35]. More than 54% of Africans lived on less than $1.90 a day in the late 1990s, with rural areas being particularly susceptible [1, 13]. South Africa did little better at 32.6%, while severe food insecurity and undernutrition plagued Nigeria, the DRC, and the CAR. Due to restricted availability to a variety of foods, traditional diets that were high in roots, grains, and tubers were the norm [16]. Although the continent-wide poverty rate decreased slightly to 40% by 2005 and South Africa's to 25%, 71.3% of people in the DRC were still living below the poverty line, and the CAR was still in crisis [21, 22]. The early trend toward processed foods, especially in cities, also occurred during this time. The trend picked up speed by 2010, when poverty fell to 34%, with South Africa at 16.5%. However, regional differences grew, particularly in Nigeria, while chronic malnutrition and conflict-ridden agriculture in the DRC and CAR continued [9, 15, 20, 27]. Dietary norms were altered as fast food consumption increased as cities grew [15]. Despite continuous progress, 41% of Africans were still living in extreme poverty in 2015, [35] and the consumption of high-fat, high-sugar, and high-oil diets had significantly increased. Although poverty in Africa decreased to 34% in 2019, widespread poverty persisted, especially in the DRC (72% below $2.15/day) and CAR, [9, 20] and the proliferation of ultra-processed foods increased obesity in urban areas [15]. The COVID-19 pandemic of 2020 undid previous progress, causing 490 million people to fall into poverty, upsetting food systems, and increasing disparities, particularly in South Africa, Nigeria, and areas that depend on aid like the DRC and CAR [20, 27, 35]. Rural poverty remained high by 2023–2024, despite signs of improvement, particularly in the DRC (74.6% of people live below $2.15 per day) and CAR, where poverty rates are 18–20% and 46%, respectively, in South Africa and Nigeria [20, 21, 22]. Because traditional staples continue to be consumed alongside processed, nutrient-poor diets brought on by demographic and economic changes, undernutrition and obesity coexist in many African nations, highlighting the growing "double burden" of malnutrition [15].

b) **Poverty and Food Consumption Patterns in Asian Countries-** Between 1998 and 2024, political unrest, violence, and economic volatility significantly influenced poverty and food consumption habits in a few Asian nations: Afghanistan, Nepal, Myanmar, and Yemen. As a result, there is a continuous fight for nutrition and food security. All four nations experienced extreme poverty in the late 1990s; in Yemen, 69.1% of the population lived on less than $5.50 per day, and in Nepal, 96.6% of the population lived on such a basis [37]. The region's food consumption was primarily based on traditional staples like rice, grains, and legumes, with little variation in diet. Despite foreign assistance, poverty rates were still high by 2005, especially in post-Taliban Afghanistan and post-conflict Nepal, and imports and processed foods started to slightly grow in urban areas [2, 38]. The poverty rate in Afghanistan was 54.5% in 2010, food insecurity in Yemen started to rise, and urban dietary diversification started to gain traction in Nepal and Myanmar [36, 38]. While Afghanistan hovered around 47%, Myanmar fell to 25%, and Nepal continued to lower poverty levels by 2014–2015, Yemen's poverty increased to 85.4% of the population living on less than $5.50 per day. In contrast to rural populations' reliance on basic foods, urban inhabitants in these countries now have easier access to imported and processed food. Many achievements were undone by the COVID-19 pandemic in 2020, which led to supply chain disruptions, economic downturn, and an increase in demand for food aid, particularly in Yemen and post-coup Myanmar. By 2022–2024, Yemen was still at risk of starvation, more than half of Myanmar's population lived in poverty, and Afghanistan was experiencing an economic collapse under the Taliban rule, with little data but deteriorating conditions [36, 37, 38]. Nepal, meanwhile, made significant progress, falling 20.27% below the national poverty line and 44.1% below $5.50 per day. Over these years, a dietary difference widened: rural populations continued to rely on charity and subsistence farming, while urban areas consumed more fast food and imports. This underscored the twin stresses of undernutrition and changing dietary standards under intricate socio-political dynamics.

F) Evolving Lifestyle Trends in Underdeveloped Countries

a) **Non communicable diseases-:** Non-communicable diseases (NCDs) need to be addressed in underdeveloped countries due to their increasing prevalence and significant financial impact on health systems. Low- and middle-income countries (LMICs) are seeing an increase in the prevalence of infectious diseases as well as diabetes, cancer, cardiovascular disease, and chronic respiratory problems. This dual

load puts a serious strain on already overworked healthcare systems by emphasizing the need for targeted treatments and preventative actions.

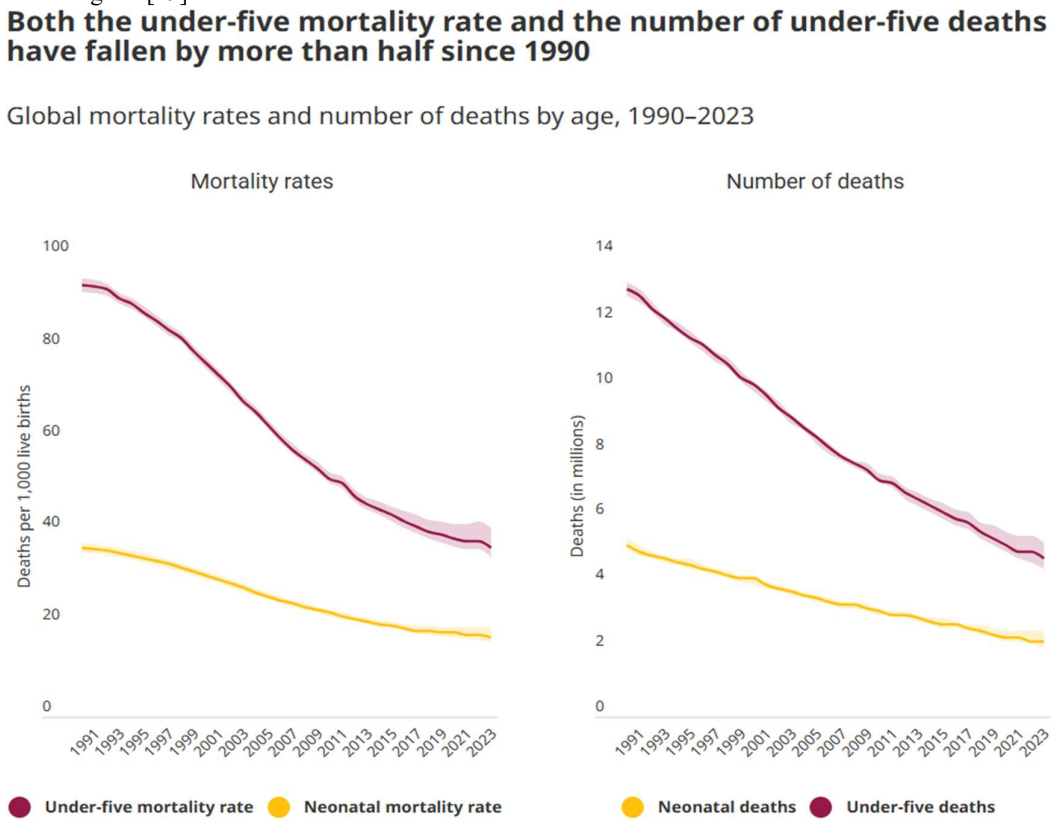
b) **Happiness index of under developed countries-** Since food consumption habits are strongly linked to nutritional security and general well-being, they have a substantial impact on the happiness index of people in developing nations. Families in these regions typically prioritize the basic nutrients needed for survival, whereas luxury items are harder to come by. This has an impact on both mental and physical health, which in turn affects happiness. The World Happiness Report 2025 reveals a clear contrast between developed and underdeveloped nations based on six key factors: GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and perceptions of corruption. Finland (Rank 1, Score 7.736), Denmark (Rank 2, Score 7.521), and Iceland (Rank 3, Score 7.515) are examples of developed nations that routinely receive high scores because of their powerful economy (GDP over 1.7), substantial social support (above 1.7), high life expectancy (above 0.82), and low levels of corruption. Conversely, underdeveloped nations with low GDPs (below 0.8), limited healthcare access, weak social networks, and little freedom—such as Malawi (Rank 144, Score 3.260), Sierra Leone (Rank 146, Score 2.998), and Afghanistan (Rank 147, Score 1.364)—have greatly lower happiness scores. The above findings demonstrate the close relationship between happiness and public services, governance, and socioeconomic stability—all of which are frequently deficient in less developed areas [18].

c) **Prevalence communicable diseases-** In underdeveloped nations, where they significantly increase morbidity and death, communicable illnesses continue to pose a serious threat to public health. The introduction of new pathogens, socioeconomic conditions, and insufficient healthcare systems all contribute to the burden of these diseases. Malaria, cholera, HIV/AIDS, TB, and other gastrointestinal infections are among the major infectious diseases that impact these areas. Giardiasis, cholera, and dysentery are among the communicable diseases that are common in developing nations. To avoid certain intestinal illnesses that are caught orally, travellers should practice good hygiene and stay away from raw foods, ice, and unheated water. Prevention requires education and awareness. Before visiting under developed nations, tourists should take precautions. For tropical diseases to be effectively treated, prompt diagnosis is crucial. [33].

d) **Malnutrition -** Malnutrition, which is characterized by a dual burden of undernutrition and obesity, is greatly influenced by the food consumption patterns in developing nations. Comprehending these trends is essential to creating successful solutions. The study emphasizes how inadequate food intake patterns, especially among women and children, contribute to malnutrition in developing nations. To successfully treat these nutritional inadequacies, a context-specific dietary approach combining both the public and commercial sectors is required. Malnutrition affects one in three individuals worldwide. To combat undernutrition, a donor-independent approach is required [29]. Nutrient shortages have been linked to serious diet-related health issues in under developed nations like Bangladesh. Although traditional eating habits still exist, developments brought about by industrialization and food technology have altered the nutritional makeup, making malnutrition problems in these areas worse. Notable distinctions between the eating habits of eastern and western nations. India and other underdeveloped nations deal with serious health issues related to vitamin deficiencies [25]. The WHO estimates that malnutrition accounts for almost 60% of fatalities among children under five, highlighting the substantial contribution of malnutrition to child mortality in underdeveloped nations. Protein-energy malnutrition (PEM) is linked to a death rate of 25–35% in Sub-Saharan Africa. With 48% of children under five suffering from chronic malnutrition, 43% underweight, and 1 in 5 wasted, the Indian subcontinent has concerning statistics that highlight the urgent need for better eating habits in order to address these problems. The study comes to the conclusion that protein-energy malnutrition (PEM) is a serious public health concern in developing nations, especially for children under five, who account for almost 60% of all deaths in this age range due to malnutrition. In Sub-Saharan Africa and the Indian subcontinent, where a significant portion of children suffer from chronic malnutrition and underweight conditions, the high death rates linked to PEM are especially noticeable [10].

e) **Child mortality**-There is notable regional variations in the child mortality rate, which is still a serious public health concern in underdeveloped countries. Environmental factors, healthcare availability, and socioeconomic position all have a significant impact on these rates. Key factors that contribute to child mortality in these countries are outlined in the sections that follow. More than half of all paediatric deaths are caused by pneumonia, along with other severe infections, birth asphyxia, preterm birth, and low birth

weight. It might be possible to prevent most of these avoidable fatalities by bolstering the current maternal, newborn, and child health programs. A multisectoral strategy is needed to avoid childhood mortality; particularly those caused by drowning. Emerging public health issues such as congenital abnormalities and birth problems require special attention and prevention [32]. In accordance with the Sustainable Development Goal (SDG) targets, South Africa is dedicated to lowering the death rate for children under five. To plan and track the delivery of healthcare services and health outcomes, policymakers and healthcare service managers need precise and comprehensive data on the number and causes of child mortality. The purpose of this study was to examine nationally representative data on the causes of death and under-5 mortality. We also looked at the systems that are currently in use to produce these kinds of data. Over the last ten years, there has been a significant decrease in child mortality. In 2015, the estimated newborn mortality rate was 27–33 deaths per 1,000 live births, while the estimated under-5 mortality rate was 37–40 deaths per 1,000 live births. Diarrhoea, pneumonia, and HIV infection continue to be the leading causes of death outside of the neonatal period, while around one-third of deaths in children under five occur during this time. The percentage of mortality from non-communicable diseases, congenital conditions, and non-natural causes has gone up [4]. The possibility that a newborn child will pass away before turning five years old, assuming the year's age-specific death rates apply. The Sustainable Development Goal target for this indicator is 2.5 deaths for every 100 live births. The mortality rate for children under five is still significantly higher in less developed areas than in more industrialized countries. Sub-Saharan Africa had 74 fatalities per 1,000 live births of children under five in 2020, according to data from the World Health Organization (WHO), which is around 14 times higher than the rates in North America and Europe. In addition, UNICEF data from 2023 shows notable differences within nations. Under-five mortality rates varied somewhat among the wealthiest households, from 2 to 94 deaths per 1,000 live births, whereas among the poorest households, they ranged from 3 to 139 deaths per 1,000 live births. Particularly large disparities in death rates between the richest and poorest people can be seen in countries like Guinea, Mali, and Nigeria [19].



Source: [19]

Note: All figures are based on unrounded numbers. The solid line represents the median estimate and the shaded area represents the 90 per cent uncertainty bound around the median value.

CONCLUSION- Food consumption patterns in underdeveloped countries reflect a complex interplay between long-standing traditional diets and emerging modern dietary habits. Many social, cultural, and environmental factors impact these changing trends, which frequently result in serious nutritional issues. The nature and effects of these dietary changes differ significantly between rural and urban populations, which emphasize the significance of context-specific strategies in resolving nutritional inequalities. In addition to the double burden of malnutrition—coexisting undernutrition and growing obesity—persistent poverty, urbanization, and political instability also lead to a higher prevalence of communicable and non-communicable diseases, placing a pressure on already vulnerable health systems. Happiness indices are lower than in industrialized countries, which are indicative of the detrimental effects of social injustices, economic instability, and limited access to healthcare on physical health and general well-being. Despite some advancement in dietary diversity and child health, these issues hinder growth and lower quality of life. In order to promote healthier diets, lessen inequities, and improve the well-being of these vulnerable people, addressing these interrelated concerns requires comprehensive, culturally sensitive, and multisectoral policies that improve healthcare, nutrition, economic situations, and social support.

STATEMENTS AND DECLARATIONS
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