

# Health Implications of Production and Consumption of Coffee

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**Abstract:** *The study outlined the effect of health on Coffee farmers and consumers. Numerous health benefits of Coffee consumption were identified despite several side effects when consumed in large quantity overtime. It was observed that benefits of coffee consumption outweigh the negative implication. Therefore, Coffee consumption should be encouraged as it is useful in treating some illnesses that would otherwise cost fortune when treated with conventional drugs. Also, with the reported occurrence of caffeine a safe, clean processing and preservative method should be encouraged. Government should also motivate more research on coffee utilization in drug industries because of presence of caffeine, in order to stimulate production as this would also help boost the gross domestic production (GDP). Health and safety training should also be encouraged through extension agents to lecture farmers on personal protective techniques (PPT), as this will improve the health of Coffee farmers for efficient production.*

**Keywords**— Coffee; Production; Consumption; Health Implication

## 1. INTRODUCTION

Coffee is one of the world's most regularly consumed beverage which contains caffeine. It also, contains a complex mixture of chemicals that provide important amounts of chromogenic acid and caffeine [1]. Coffee is one of the most important agricultural commodities in the international trade. Arabica coffee and Coffee Robusta are the two major species used in coffee production, although Arabica coffee is Ethiopian origin which is the most significant in the world coffee market providing approximately about 66-70% of commercial production [2].

According to Pourshahidi et al. [3] coffee is consumed by millions of people every day. The purpose of this study is to between coffee consumption and a wide range of chronic diseases and health hazards, in addition to total death, lots of cancers, cardio metabolic risk, liver disorders, and neurological situation. review on the health implications of production and consumption coffee considering a check on the relationship

## 2. METHODOLOGY

Desk research was articulated using published literatures to achieve the objective of the study which includes an outline of the health benefit associated with Coffee consumption and the negative impact of Coffee consumption and production. The study purpose has been ascertained due to many different bioactive constituents of Coffee, as well as caffeine (methyl xanthine), chromogenic acids (polyphenol), and other phenolic, among these, may also potentially have additive or synergistic effects on human health.

## Health and Coffee production

Coffee is one of the most popular cash crops grown in Nigeria. Nationally, the crop accounts for about 5% of total exports (generating export earnings averaging US\$ 100 million per annum) and provides employment to more than 400,000 farmers [4]. According to Lyimo and Sulumo [5] Arabica Coffee and Coffee Robusta are the two varieties of Coffee widely produced. But Arabica Coffee in terms of area and yields in the economy is the variety widely produced, its productivity is about 200-750 kg/ha compared to the potential yield of over 3t/ha of most varieties under best management practices (Lyimo & Sulumo, [5].

Coffee production health implications and high regulated prices have left Coffee farmers running into losses in coffee business. Low Coffee yields and health hazards could be attributed to climatic, edaphic, biotic and socio-economic related constrains [6]. According to Hella [7] despite many available technologies existing in the coffee world that could be adopted for better production among farmers, such as access to health trainings and the use of personal protective techniques (PPT) in carrying out their farming activities. Coffee farmers continue to produce using unsophisticated equipment's that can pose them to danger, as it was discovered that only farmers between 60 years and above involve in coffee farming. According to Akinpelu et al. [8] good health and productive agriculture are important in the economy of any nation especially in the fight against poverty. Also, Ajani and Ugwu [9] health enhances work effectiveness and the productivity of an individual through increase in physical and mental capacities. As poor health will result in

loss of work days, decrease in innovativeness and ability to explore diverse farming practices.

Major health implications in Coffee production

- Respiratory problems: Coffee farmers develop respiratory issues due too much exposure to Coffee dust.
- Poisoning: Farmers develop long term health problem from pesticide use and exposure.
- Deaths: There is record of death of Coffee farmers due to snake and poisonous insect bites.
- Sickness: Coffee farmers fall ill due to stress and long working hours.
- Injuries: Farmers sustain injuries from cutting tools ranging from skin abrasions and minor cuts to severe wounds.

- Malaria: It was observed that Coffee farmers contact malaria and fell ill due to exposure to mosquitos.
- Hearing loss: Coffee farmer develop ear problem or impairment due to exposure to noisy machinery.
- Musculoskeletal injuries: Coffee farmers develop musculoskeletal injuries from repetitive and forceful movements, lifting and carrying heavy load.
- Accidents: Coffee farmers involve in accident due to unprofessional use of farm implements, like tractors, harrowers and other sophisticated implements thereby losing their savings to hospitals for treatments.

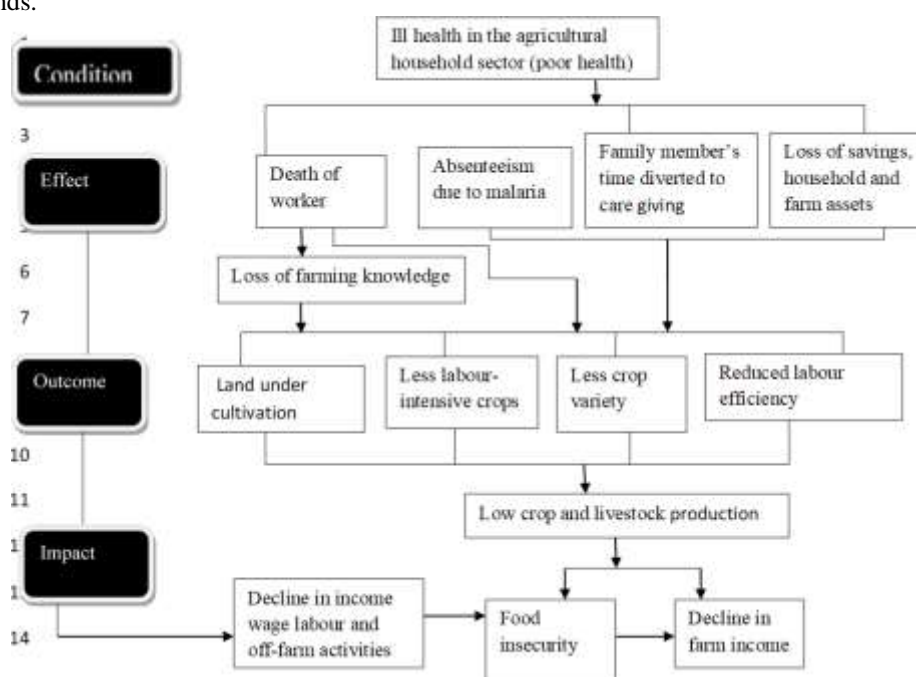


Figure 1: Conceptual Framework of the Impact of Illness/Diseases on Coffee Farmers.  
 Source: Kwadwo *et al.* [10]

Remedy to health implications of Coffee production

- Removal of food items from warehouse: Coffee farmers should be encouraged to remove food item from warehouse where Agro-chemicals are stored.
- Safer storage of Agro-chemicals: Proper and safe storage of Agro-chemicals should be encouraged in order to have safe environment to improve health of farmers.
- Application of personal Safety measures: Coffee farmers should be encouraged on personal protective measures, such as taking shower immediately after applying Agro-chemicals and washing cloths used after Agro-chemical application separately from family clothing.
- Creation of community committees: This is achieved where leaders from each of the copellanobonito's main communities disseminate

the lessons learned during the period to other Coffee producers.

- Labelling: Coffee farmers should be encouraged on proper labelling and proper disposal of Agro-chemicals.
- First aid and security policies: This should be encouraged in coffee farming for Coffee farmers especially after snake or dangerous insect bite.

Potential health benefits and implications of coffee consumption

Overall health claims of coffee and its association with diverse ailments and potential health benefit includes:

- Coffee lower Risk of type 2 diabetes: Coffee helps prevent type 2 diabetes and some other conditions

(O'keefe *et al.* [11]. According to Salazer-martinez *et al.* [12] people who drank four to six cups either caffeinated or decaffeinated coffee each day appeared to have a lower risk of metabolic syndrome, including type 2 diabetes.

- Coffee reduces risk of Parkinson's disease: Various studies have shown that caffeine, which is present in coffee and many other beverages, may help protect against Parkinson's disease (Dorea & Da costa [13]. According to Onatibia *et al.* [14] one man who drink over four cups of coffee per day might have a five-fold Lower risk of Parkinson's than those who do not in addition, the caffeine in coffee may help control movement in people with Parkinsons.
- Coffee reduces risk of liver cancer: Italian researchers found that coffee consumption lowers the risk of liver cancer by 40% [15]. Also, it has been indicated in literature that coffee intake probably reduces the risk of liver cancer [16].
- Coffee lowers risk of liver diseases: There was no evidence to suggest that coffee intake was different among people with or without PBC. Also, one 2014 study suggested a link between coffee consumption and a lower risk of dying from non-viral hepatitis-related cirrhosis. The researchers suggested that drinking two or more cups of coffee everyday might reduce the risk by 66% [18].

Risks of coffee consumption.

- Drinking too much coffee can also have some adverse effects on human health.
- Bone fractures: Some studies have found that women who drink a lot of coffee may have a higher risk of bone fracture. Men with a higher coffee intake, on the other hand, appear to have a slightly higher risk of bone fracture.
- Pregnancy: The researchers added that coffee consumption may not be safe during pregnancy. In fact, there are some evidences to suggest a link between high coffee consumption and pregnancy loss, a low birth weight, and preterm birth.
- Endometriosis: There may be a higher risk of endometriosis among women who drink coffee, but there has not been enough evidence to back up the claim
- Anxiety: Consuming high amount of coffee may increase risk of anxiety especially among people with panic disorder or social anxiety disorder. Less commonly, it may trigger anemia and psychosis in those who are susceptible.
- Mental health: Also in literature, it has been concluded that a higher intake of caffeine during adolescence can lead to permanent changes in the brain. The scientists behind the study expressed concern that this could increase the risk of anxiety or related conditions in adults.

#### Conclusion /Recommendation

The paper examined health implications of production and consumption of coffee. It was observed that the main active compound in coffee is caffeine and given the numerous health implications of coffee pose when consumed in large quantity over time. Since positive benefits of coffee consumption outweighs the negative implications, controlled consumption should be encouraged through extension agents. Government should motivate more research on coffee utilization in drug industries in order to stimulate production as this would boost Gross Domestic Production (GDP). Health and safety training should also be encouraged through extension Agents to Coffee farmers as this will improve farmers' livelihood for efficient production.

#### 3. ACKNOWLEDGMENT (HEADING 5)

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#### Disclosure of conflict of interest

The authors declare that they have no conflict of interest while carrying out the study.

#### 4. REFERENCES

- [1] Higdon, J. V., & Frei, B. (2006). Coffee and health: a review of recent human research. *Critical reviews in food science and nutrition* 46: 101-123.
- [2] Davis, A., Gole, T., Baena, S., Moat, J., & Fenton, B. (2012). The impact of climate change on indigenous arabica coffee (coffee Arabica): predicting future trends.
- [3] Pourshahidi, L. K., Navarini, L., Petracco, M., & Strain, J. (2016). A comprehensive overview of the risks and benefits of coffee consumption. *Comprehensive reviews in food science and food safety* 15, 671-684
- [4] Baffes, J. (2004). Tanzania's coffee sector: Constraints and challenges in a global environment; 2004.13.
- [5] Lyimo SD, Sulumo PF. Farmers' assessment of improved coffee hybrids in southern highlands of Tanzania in 2004/2005 crop season. Paper presented to the Coffee Release Committee Meeting held at TaCRI Lyamungu on the 2nd of September; 2005. Available: [www.dev.tacri.org/uploads/media/Released\\_varieties\\_01.pdf](http://www.dev.tacri.org/uploads/media/Released_varieties_01.pdf)
- [6] Otieno, H. M. O. (2018). Impacts and management of termites (Isoptera: Termitidae) among smallholder farmers in East Africa. *Journal of Agriculture and Ecology Research International*, 16, 1-12. DOI: 10.9734/JAERI/2018/44842
- [7] Hella, J. P. (2013). Study to establish return to investment in agricultural extension service in Tanzania. A Consultancy Report to AGRA through MAFSC..
- [8] Akimpelu, A. O., Amamgbo, L. E. F., Olojede, A. O., & Oyekale, A. S. (2011). Health implications of cassava production and consumption. *Journal of Agricultural and social research*, 11(1), 118-125.
- [9] Ajani, O. I. Y., & Ugwu, P. C. (2008). Impact of adverse

- health on agricultural productivity of farmers in Kainji Basin North-central Nigeria using a stochastic production Frontier Approach. *Trends in Agricultural economics*, 1(1), 1 – 5.
- [10] Kwadwo, A. O., Chiang, C., Thangata, P., & Kwaw, S. A. (2011). Interaction between health and farm-labour productivity. *International Food Policy Research Institute. Washington, DC*. 2011.
- [11] O'keefe, J. H., Bhatti, S. K., Patil, H. R., Dinicolantonio, J. J., & Lucan, S. C. (2013). Effects of habitual coffee consumption on cardio metabolic disease, cardiovascular health, and all-cause Mortality. *Journal of the American College of Cardiology* 62: 1043-1051.
- [12] Salazar-martinez, E., Willett, W. C., Ascherio, A., Manson, J. E., & Leitzmann, M. F. (2004). Coffee consumption and risk for type 2 diabetes mellitus. *Annals of Internal Medicine* 140: 1-8
- [13] Dórea, J. G., Da costa, T. H. M. (2005). Is coffee a functional food? *British Journal of Nutrition* 93:
- [14] Oñatibia-astibia, A., Franco, R., & Martínez-Pinilla, E. (2017). Health benefits of methylxanthines in neurodegenerative diseases. *Molecular Nutrition*
- [15] Nkondjock, A. (2009). Coffee consumption and the risk of cancer: an overview. *Cancer Letters* 277: 121-125.
- [16] Saab, S., Mallam, D., Cox, G. A., & Tong, M. J. (2014.) The impact of coffee on liver diseases: a systematic review. *Liver International* 34: 49
- [17] Joseph, N. (2019). Health line Media UK Ltd, Brighton, UK, and a Red Ventures Company. All rights Reserved. *MNT is the registered trademark of Health line Media.*