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Consumption of Unsafe Processed Foods in Tanzania: An Appraisal of Influencing Factors and Efficacy of Regulatory Institutional Frameworks

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Abstract: This study appraised the consumption of unsafe processed food in Tanzania. It was conducted at Ilala Municipality in Dar es Salaam. Descriptive analysis was used in analyzing data using SPSS. Data were collected by using questionnaires interview, observation and documentations. Random sampling was used. More specifically, this study examined factors influencing unsafe processed foods, eating behavior and assessed the effectiveness of institutional framework in controlling the consumption of unsafe processed foods. The findings indicate that several factors influenced processed food eating behavior such as lack of time to cook at home, influence of friends and environmental factors. Findings show that Tanzania Food and Nutrition Centre (TFNC), Tanzania Food and Drugs Authority (TFDA) and Tanzania Bureau of Standards (TBS) are the regulatory authorities controlling the quality of food. Despite the powers they have to raid, seize, forfeit, condemn and destroy unfit products and devices, still there is deprived prevention and control. Marketing and consumption of un-safe foods is still widespread. Given the above, it can be concluded that the institutional framework (TBS, TFDA, and TFNC) are not effective enough when it comes to the control marketing and consumption of unsafe processed food. On the basis of the findings and conclusions of the study, the following recommendations can be made: Because knowledge regarding nutrition is poor among the food consumers, they should be conscientized on the dangers or health risk of buying and eating fake foods and products. The Government should consider seriously increasing the budget allocation to regulatory authorities and minimizing their dependence on the revenue generated through inspections, licensing and permits. Social workers should also be employed by these regulatory authorities to reach different groups of people through trainings and seminars channeling their activities and resources towards the resolution of a shared goal.

Keywords: Processed Food, Fake Food, Cookies, Substitutes, Consumers

1. Introduction

The world over, in urban setting, quick pace of life has resulted in people having less time to cook at home. Many people eat out [1]. This has led to the increased consumption of processed foods that more often than not are low in vitamin and high in fat, sugar and sodium. Studies show that in America, processed foods make up 70% of the diet. Similarly, in UK processed foods constitute 50%, while German, 46% and Island 45.8% [2]. In these countries, most groceries have processed foods such as cookies, cake, chocolates, cloaks, cereals and yoghurt which are composed of various chemicals, including sugar and salt to make them taste good and sit on shelves for a long time [3, 4].

In Africa, consumption of processed foods is also common in many countries including South Africa, Nigeria, Kenya, Ghana, Uganda and Tanzania to mention just a few. In these countries, there are notable incidents of people, in urban setting, consuming processed foods which are sometimes unsafe such as: milk powder without animal proteins, vegetable oil made of recycled oil unfit for human consumption, plastic rice as well as unsafe breast-milk substitutes [5-7]. More specifically, the following high risk

foods because of their high possibility of being contaminated or having chemical toxins are illegally used: - processed liquid milk, soy milk; mushrooms, yoghurt, cheese, butter, mayonnaise, chocolate, processed fish, processed meat, sandwich, sausage, tomato and chili sauce, blended honey, toffees, lollipop, soft drinks (e.g. soda, ready to drink beverages, malt drinks, flavored juice drinks, energy drinks, concentrates, punches, squashes and grain beverages [8]. Also, people eat chips, chicken and green vegetables with potential health risks. Despite having highly toxic polychlorinated biphenyls (PCBs), as pointed out by Ferdsult Engineering Services dealing with energy projects in Uganda, Kenya Power, the company that distribute power in Kenya and Monica Post a local publication in Zimbabwe, in countries such as Zimbabwe, Uganda, Kenya, and Tanzania there are cases where road side potato chips, cassava and fish are fried using mineral oil from the electric transformer [9-11]. Broilers eaten by many people are given contraceptives. Despite the penalties, sell of 'uncertified' raw milk is on the increase [38]. Green vegetables such as: Ipomoea batatas (*Matembele**[1]) eaten by people are having higher heavy metal content followed by hybridus (*Mchicha**), Solanum melongena (*Bilinganya**), and Abelmoschus esculentus (*Bamia**). All these are toxic to the body [11-13]. A research commissioned by the Confederation of Tanzania Industries (CTI) as presented by Prof. Honest Ngowi shows that over 50% of all imported foods, drugs and construction materials are fake and un-safe [14]. Although the full health impact of consumption of processed food is not known, it is certain that if their consumption is left uncontrolled, it will exacerbate the health challenges.

1.1. Background to the Study

A marked rise of consumption of highly processed foods which are mostly counterfeit has been registered in Tanzania between 1961 and 2014 [15, 16]. These foods are classified as ultra-processed [17]. The industrial manufacturing of these foods makes them durable, accessible, palatable and habit-forming. They are convenient and fast foods ready to be eaten with little or no preparation. Today, many Ultra Processed Foods (UPF) are being sold in grocery stores, gas stations, fast food restaurants, schools and workplaces. Realizing the above increase of consumption of fast foods which are sometimes un-safe, Tanzania has been implementing public nutrition interventions since 1940s [7]. Considerable progress is made in putting in place polices, strategies and mechanisms for addressing Nutrition matters in all its forms. Various initiatives developed include: Development of National Regulation for Marketing of Breast Milk Substitutes and Designated Products (1994) and signing of CODEX Alimentarius-a WHO/FAO initiative that sets global standards for safe food. Also, the National Standards and Code of Hygienic Practice for Foods; Drugs and Cosmetics Act, 2003; Drugs and Cosmetics (Treatment and Disposal of unfit food) Regulations, 2006; and National Nutrition strategy (2011) to ensure that only marketing and consumption of processed foods which are safe and nutritionally adequate [7] is allowed.

Despite the above interventions, there is still increased marketing and consumption of un-safe foods due to poor prevention and control. This is mainly caused by lack of political will and commitment. The effort put on controlling such as raid, destruction of captured items has often been limited in impact [18]. This is aggravated by the lack of sustained commitment, weak regulatory standards, systems, tracking mechanisms and support in the actual implementation of scale up plans in addressing this complex and long-term challenge which may create loopholes in which counterfeiters can thrive [6]. Maddening the situation, the alignment of TFDA, TFNC, TBS, the Local Government Authorities (LGAs) and all nutrition stakeholders with the National Nutrition Strategy through systematic coordination at District, Regional and National level is fragmented [19]. In a certain presentation, Prof. Honest Ngowi said, wrong view of free market economy, widespread fake foods, organized counterfeit dealers and poverty are another reasons which encourage rush to low price counterfeit [20]. These have triggered the conduct of this study.

1.2. Statement of the Problem

An increased consumption of unsafe processed foods is a growing health concern resulting to unprecedented diet-related diseases [21]. In Tanzania, eating processed foods which are full of chemicals and added sugar over time have continued to risk people's health. The more people eat the processed foods, the less they get of vitamins, minerals, antioxidants and various trace nutrients [7]. The demographic trend shows that due to the fragmented institutional framework there is limited control of unsafe food [21]. Various initiatives have been taken by the government in order to address the problem of increased consumption of processed foods which are unsafe. This includes Development of laws, rules and regulations for guiding extermination, condemnation, destruction and disposition of unfit foods. Most of these initiatives have legal orientation involving law enforcers and very few users and other stakeholders. As a result, the problem is still increasing.

Previous researches done on processed foods were basically on food security and food processing. These include: Eckblom [22], Mwita [23], and Mamiro et. al [24] to mention just a few. They were more on production of processed foods, health risks and less on controlling the use of unsafe foods. It is, therefore, from this perspective that it is important to carry out this study in order to assess the consumption of unsafe processed food with a view of appraising the influencing factors and efficacy of institutional frameworks in controlling consumption of unsafe processed foods in Tanzania.

2. Method and Theories

2.1. Method

Descriptive design was employed in this study. The study

1 * Swahili meaning- Swahili is Bantu language widely used as lingua franca in East Africa

also used a mixed research approach that combines qualitative and quantitative research approaches. Creswell et al. [25] emphasize that neither qualitative nor quantitative methods is adequate in itself to help in studying a phenomenon adequately. As such, using them together provides a more complete analysis and detail information about a situation. Mixed design was used to obtain a clearer picture from quantitative data which are clearly understood with the help of explanations from qualitative data. The mixed-methods approach was used because it includes both qualitative and quantitative approaches. Quantitative approach was used to test the theory of Wilson [26], while the qualitative approach was used to explore and understand the meaning of the problem being studied [27]. Participants were drawn from Ilala Municipalities which was purposively selected because it is a hub of business activities with a lot of small and big business. More specifically, the study was done in Upanga community where there are a lot of consumers and several Fast Foods points such as Hannan Fast Food, Ready Food and Rapid Pizzeria Barbeque, Fast Food and KFC. The area is vulnerable to processed foods causing health risk to consumers. So, it was potential for data needed. Notably, various raids, confiscation were regularly done but the consumption of un-safe food items was still continuing. From the above list of Fast Food points, an appropriate sample was drawn using a sample size calculator [28] where the level of confidence was 95%, the population was 500 people, margin of error was 10%. Accordingly, the sample size for this study was set at 80.

2.2. Theoretical Review

This study is guided by two theories- Theory of Planned Behavior (TPB) and Social Cognitive Theory (SCT). TPB is one of the widest acknowledged theories of individual health behavior. This model is an expansion of the Theory of Reasoned Action (TRA), which was invented by Fishbein and Ajzen in 1975 [29]. The application of this theory brings relationship between the behavior and attitudes. Drawing from this theory, this study examined the influence of the strong relationship of factors such as friends, family and colleagues in promoting behavior of eating processed food and control hazardous behaviors. As regards attitude, this study examined the degree to which respondents have positive or negative feelings or tendency towards eating processed food. They mostly preferred it because it was cheap, fast, and readily available. This study also used Social Cognitive Theory (SCT) which helped to assess the influence of individuals, health behavior, organization, community, physical environmental in ultra-processed food consumption.

3. Results

3.1. Participants' Characteristics

A total of 80 out of 100 respondents completed and returned the questionnaire (this is 80% response rate). The respondents' age ranged between 18 and 45 years, with a mean age of 38. Findings show that a half, that is, 40 (50%) of the respondents were aged between 36-45, while 21 (26.3%) respondents were aged between 26-35 and 19 (23.7%) respondents were aged between 18-25 (See Table 1). These findings show that the respondents were qualified to provide information that was relevant to the study. Most of them were youths, aged between 18-45 years and engaged in economic activities. This being a productive age, they were at risk of consuming processed food while at work.

Table 1. *Respondents' Profile.*

Respondents according to Age group		
Response	**Frequency**	**Percentage%**
18-25 Years	19	23.7
26-35 Years	21	26.3
36-45 Years	40	50.0
Total	80	100.0

Respondents according to level of education		
Respondent's Level of Education	**Frequency**	**Percentage**
Primary	-	-
Secondary	08	10
College	62	77
University	10	13
Total	80	100

3.2. Factors Influencing Processed Food, Eating Behavior

In order to assess factors contributing to processed food eating behavior, respondents were given several dynamics and asked to indicate how much they agreed or disagreed with such factors. There was a total of five dynamics. Findings from 55% of the respondents showed an associated time related behavior to healthful eating where less time to cook at home or office significantly influenced people to eat fast food. This was followed by influence of friends, colleagues and family as pointed out by 80% of the respondents. It was also revealed by 85% of the respondents that environmental factors exert great influence over people's eating habit. In this way sharing a meal nearby where employees work becomes obvious. Economic situation which people face, as reported by 75% of respondents, also strongly influenced their food eating habit and their nutritional or dietary choices. It was further observed, as pointed out by 70% of respondents, that dietary habits are derived from and shaped by believes and religious perception (See Also Table 2).

Table 2. *Factors influencing Processed Food, Eating Behavior.*

Response	**Frequency**	**Percent**
1. Lack of time to cook at home		
Agree	44	55%
Disagree	36	45%
Total	80	100%
2. Friends, colleagues and family		
High	64	80%
Little	16	20%
Total	80	100%
3. Environmental influence		
High	68	85%
Little	12	15%
Total	80	100%
4. Economic influence		

Response	Frequency	Percent
Great	60	75%
Less	20	25%
Total	80	100%
5. Belief and religious perception influence		
Great	56	70%
Little	24	30%
Total	80	100%

Drawing from the above, it is clear that eating is influenced by various factors including lack of time to cook at home, food cultures, associated knowledge–system, religious perception, and experiences acquired and passed on for generations. So, it is evident that many people choose to eat or avoid certain foods according to their culture, norm, values or religious beliefs. As regard lack of time, it is evident that both men and women engage in different activities (employed/self-employed) for life. This has resulted in their having less time to cook at home and led to the increased consumption of processed foods. Other studies have also reported similar findings. These include Escoto et al. [30] who noted that eating fast food is persistently contributed by lack of time to cook at home for people who work for long hours. As a result, they opt to eat fast food. Also, eating behavior is strongly influenced by social, economic and environmental influence [31]. Socially, young generation imitate the dietary pattern of adults especially their parents. More specifically, Katz [32] said that they learn what, when and how to eat by watching others of their kind. Sometimes, they are prone to eat too much or even wrong things to fit into others due to peer pressure. The environments in which they live, work, study, their ancestral origins and their economic situation also strongly influence their food eating habits. How much money we have can affect our nutritional choices by compelling one to eat at a fast food restaurant to avoid spending more money. How many times have you eaten at a fast food restaurant to avoid spending more than a few dollars? The food you buy is probably un-safe. There is a strong link between culture, food, and religion. In almost all religions in the world, food is one of the most important aspects of religious festivals. Muslims do not eat pork for the reason that a pig is an unclean animal to them. Some Christian denominations do not eat meat on Fridays except fish. Bread and wine is used in Christian Holy Communion, representing the body and blood of Jesus [33-35]. Food is extensively used to celebrate events such as end of harvesting season, marriage, coronation, initiations, etc. These food cultures, experiences and associated knowledge – system are passed on from one generation to the other.

3.3. Effectiveness of Institutional Framework in Controlling Consumption of Processed Foods

To establish effectiveness, the study also wanted to identify the quality control regulatory authorities responsible for quality control. The results showed that significantly higher proportion (61.2%) of the respondents affirmatively mentioned TFNC and TFDA. Other (38.8%) respondents pointed out TBS (See Also Table 3). On probing further, it was noted that these regulatory bodies do Licensing, Inspection and Surveillance to ensure compliance to legal and licensing requirements. They ensure that only marketing and consumption of safe and nutritionally adequate processed foods is allowed. More specifically, TFNC controls the quality of nutrition whereas TFDA controls quality and safety of food, drugs (including herbal drugs), cosmetics, and medical devices in the country. On the other hand, TBS is mandated to control quality of products and to promote standardization. The study, therefore, shows that there are regulatory authorities which control the quality of nutrition, inspection, surveillance to ensure there is compliance to legal, licensing requirements and that only marketing and consumption of safe and nutritionally adequate processed foods is allowed.

Table 3. *Institutional Frameworks controlling processed food consumption.*

Name of Regulatory Authority	Frequency	Percent	Rank
Tanzania Bureau of Standards (TBS)	31	38.8%	1
Tanzania Food and Drugs Authority (TFDA)	29	36.2%	2
Tanzania Food and Nutrition Centre (TFNC)	20	25.0%	3
Total	80	100.0%	

These findings are also shared by Kitabu [36] and The Citizen [14] quoting the then Tanzania Vice President Samia Suluhu Hassan, who said quality control in production ensures that all processors are complying with the standards and regulations put forth by regulating bodies such as TBS, TFNC and TFDA.

As regard the effectiveness of these regulatory authorities in controlling the consumption of unsafe processed foods, findings were established by using frequency counts and percentages.

It was revealed by the 85% of the respondents that TBS, TFNC and TFDA and Local Government Authorities have rules and regulations governing processing and consumption of fast food. Also, they have annual budget as revealed by 75% of the respondents. They have policies, strategies and mechanisms for dealing with processing and consumption of fast food in all its forms. Additionally, it was noted that Tanzania signed a CODEX Alimentarius -a WHO/FAO idea setting global and national standards for safe food. More specifically, as pointed by the District Health Officer:

To ensure only marketing and consumption of safe processed is permissible, our country (Tanzania) developed the Code of Hygienic Practice for Foods. In 2003, Drugs and Cosmetics Act was developed. This was followed by the development of Drugs and Cosmetics (Treatment and Disposal of unfit food) Regulations in 2006. To ensure that

processed foods are safe and nutritionally adequate, in 2011, the National Nutrition strategy was developed.

It was noted that Tanzania has been doing interventions aimed at implementing safe food consumption for the past eight decades, that is, since the 1940s [7]. Furthermore, TFDA, TFNC and TBS, as pointed out by 55% of the respondents do inspection on a regular basis. Inspectors are appointed at HQ and regional levels. The only flaw is some of the food processors are not inspected because they had no food processing premises. They carry out food processing at home thus avoiding inspectors' visitations which are sometimes provocative and harassing. Overall, the efficacy of inspections is low. This is reflected by the prevalence of fake processed foods.

3.3.1. Licensing

This study revealed that 90% of the respondents said that regulators make sure food processors have a license. This did not come as a surprise because according to the law TFDA, TFNC and TBS make sure that all manufacturers and distributors of pharmaceutical and food products have valid licenses/permits. They consistently inspect the premises before and even after licensing. The study further, as revealed by data from interview showed that the only limitation was the high charges for product registration and business licensing as well as cumbersome procedures.

3.3.2. Condemnation and Destruction of Un-fit Products

Findings revealed that 88% of the respondents said that TFDA, TFNC and TBS destroy unfit food products. 12% said that destruction is not regularly done. In interview, this study revealed that TFDA, TFNC and TBS have powers to seize, forfeit, condemn and destroy unfit products and devices. There was a time TFDA destroyed food items worth 3,000,000/= shilling in an effort to curb fake food products. As one officer said:

Some traders violate food and drug regulations by selling expired and banned commodities un-fit for human consumption.

Notably, various raids, confiscation were regularly done but the consumption of un-safe food items was still continuing. Despite the interventions as pointed out above, there is still poor prevention and control of the marketing and consumption of un-safe foods. There is increasing use of un-safe processed foods which have health related risks. These views are also share by Lukmanji et al. [37], who revealed that in Tanzania over nutrition-related diseases such as obesity, diabetes, and hypertension are rapidly increasing among the adult population, most conspicuously in urban centers, but also in rural areas. For example, estimates of diabetes prevalence increased from about 1% in the 1980s to about 5% in 2000. Likewise, the prevalence of hypertension in 1993 was estimated to be about 5%, but by 2000 it had reached 27% in rural populations and 39% in urban populations.

The regulatory standards, systems and tracking mechanisms create loopholes in which counterfeiters are able to thrive. Steve Allen, Senior Director of Pfizer Global Security once told *The Lancet:*

"*I saw [counterfeiting] first hand in Tanzania. Antimalarial products were being counterfeited. They had identical batch numbers, expiry dates, packaging. To all intents and purposes, seemed to be absolutely genuine, the blisters looked genuine, the tablets looked as if they were genuine, you would not be able to tell the difference. It was only after these tablets were tested in a laboratory in the UK that it was discovered they had no active ingredients at all*"

Controlling initiatives such as raid, destruction of captured fake foods and items are repeatedly limited in impact. There is a lack of political will, commitment and support in addressing this the problem. Systematic integration of TFDA, TFNC, TBS and LGAs at District, Regional and National level is fragmented.

4. Summary and Conclusions

The results of this study show that a significant proportion of respondents who completed the questionnaire reported having eaten processed food. About a quarter of the respondents reported being highly addicted. Respondents working away from home seemed being more affected than those who worked near home or whose offices provided them with accommodation. When all the factors or reasons for people to eat process foods were ranked to compute an overall factor, it emerged that about two third (65%) of the respondents seemed to be eating processed food, with the majority of the respondents being those who are working away from home and who work in the offices for many hours. Working away from home and eating processed foods were positively correlated, with the implication that people who consumed highly the processed foods may be the ones who are employed and work away from home than those who are working nearer home. Several factors seem to be influencing processed food eating behavior. These include less time to cook at home or office. Several other factors were examined with respect to their contribution to triggering eating behaviors among the people who were employed, including the influence of friends, colleagues and family. A significant number of respondents revealed that environmental factors also exert influence over people's eating habit. In this way sharing a meal nearby where employees work becomes obvious. Similarly, only a few respondents also reported that economic situation which people face also strongly influence their food eating habit and their nutritional choices. On the basis of the results of this study it can be concluded that dietary habits influenced by time related behavior and are derived from and shaped by beliefs and religious perception.

5. Recommendation

A study of large scale should be conducted on proper alignment of regulatory frameworks, the Local Government Authorities (LGAs) and all nutrition stakeholders with the National Nutrition Strategy through systematic coordination at District, Regional and National level to scale up the control of use of unsafe food.

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