Is Hunger More Dangerous than having Malnutrition or Consuming Unsafe Diet?

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Abstract

Malnutrition is referred to a body condition that lacks nutrients required to nourish a body to maintain Healthy Body Activities at its optimum, whereas nutritional requirement may vary from individual to individual depending on the genomic and epigenetic profile in addition to gender age etc [1-3]. Hunger refers to eat lesser for scarcity of Food but its impact is not much different from having food but lacking the needed nutrients e.g. junk food, energy drinks etc. Safe food is commercially sterile and is free from hazards e.g. microbial hazards e.g. free from disease causing microbes or carry them in numbers ineffective to cause disease, biological hazards e.g. presence of insect larva etc. biochemical hazards e.g. toxins allergens etc chemical hazard e.g. harmful chemical compounds etc whereas physical hazard refers to presence of any physical body e.g. hair glass pieces etc. Food Safety has acquired new dimensions in recent years since first approved Genetically Modified Crop (GM Crop) and Genetically Modified Organisms (GMO) based Products have arrived in the Market whereas their use is found to be associated with increased risk of occurring illnesses that includes allergies premature aging cancer etc [4]. As a thumb rule safest food is generally freshly prepared from locally available fresh ingredients in small quantity with minimal processing and without having added any NON Generally Recognized as Safe (GRAS) ingredients and is consumed instantly. Use of Non GRAS ingredients and prolong storage strategies have enhanced the risk of causing illnesses with having highly diverse nature of poor health manifestations that has added up to new emerging challenges that food regulatory bodies are supposed to deal with in near future. World Food Day is celebrated to mark the Day of Establishment of Food and Agriculture Organization (FAO) under the Umbrella of United Nation that is involved in providing regulatory guidelines for all stakeholders involved in Food Supply Chain beside dealing with other issues related to Food and Food Driven Nutrition across the World [3-8]. This review paper is written upon the theme of World Food Day 2019-Achieving Zero Hunger.

Keywords: Hunger; Malnutrition; Unsafe Diet; Epigenetics, Illnesses Regulatory bodies

Food regulatory bodies and their Challenges

As also mentioned earlier Food and Agriculture Organization (FAO) works under the Umbrella of United Nation that is involved in providing regulatory guidelines for all stakeholders involved in Food Supply Chain beside dealing with other issues related to Food and Food Driven Nutrition across the World. Food and Drug Administration (FDA) works under United States Department of Health and Human Services also provides regulatory guidelines for food and other Biological Products more specifically defining the limits of parameters considered as standards for a given biological product including food product manufacturing chain particularly for food supply chain adopting a given technological approach acceptable for evaluation and assessment of Quality and Safety status of a given Product compliance across United States of America [5,6].

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FAO and FDA encounter with different challenges; one of them is to appropriately transform basic science food based knowledge into appropriate guidelines well tailored as per requirement of human population dwelling in a given region under the given conditions. Timely flow of authentic knowledge with having translated into guidelines keeping in view the different variables those are diverse in nature and can differently effect the human population’s health profile from region to region is one of domain where both FAO and FDA have been unsuccessful in creating needful impact and that is evident by the fact as reflected in increased illness incidences as well as variety when global population shifted from consuming animal fat to processed fat e.g. margarine [3,5,7]. Other contributing factors include financial factors, power impact, lack of appropriate understanding on knowledge marketability, tactics, market demand driven research focus driven compromises made while transforming scientific knowledge into guidelines [8].

In area of food knowledge being highly diverse hence is extremely multi-disciplinary and exceptionally dynamic in nature knowledge progression is acquiring new dimensions on weekly basis. For this reason, findings those are in compliance for one population dwelling in a given region under a given set of conditions do not necessarily stay valid for same population living in any other region. One of existing challenge is to validate food based scientific knowledge for a given query at given conditions for defined population regionally before translating it into guidelines and deducing standards applicable in any other given region on globe whereas cultural ethical and religious issues are equally important to handle in parallel [5,6,9].

For instance, the composition of chocolate and its manufacturing steps made for consumption in warm region would be different from those being prepared for cold region, whereas chocolates containing lard is not acceptable by Muslim and Jews similarly alcohol containing chocolates would not be acceptable for many Muslims to consume. Ethical issues involved include the disapproval for consumption of products by companies whose policies are not in compliance with child labour law. For GM or GMO, the religious concern can be halal kosher or non halal source of genetic material donor or acceptor host organism [4,9].

**Healthy options**

As also mentioned earlier as well, nutritional requirement does vary from individual to individual depends on gender age physiological stage e.g. pregnant and lactating women require more nutritious food etc. can be different from region to region whereas weather, health status, genomic and epigenetic status also effect the nutrients requirement of the individual e.g. diseased individual requires different diet from healthy individuals [3,9,10]. Different food preparations with compliance to condition of using locally available ingredients to prepare food item freshly prepared are being used to cure the diseased individuals whereas regular intake of several such preparations are being used to ensure health status at its optimum with having delayed aging [9,10]. In parallel to this a huge range of preparations is available in the market, most of them are extensively processed products having added with chemical compounds of non-biological origin imposes upon them altered stereochemistry making preparations more prone to minimal absorption, even more prone to undergo auto-degradation and to provoke undesirable rather adverse reaction, side effects and immunological reactions e.g. hypersensitivity reactions including allergy and autoimmune diseases [3]. These products include different energy drinks, food supplements etc. Similarly, a huge range of fortified food and food ingredients are also available in market, most of them are wrongly marketed for their benefits. For instance, cholesterol is not present naturally as plant’s fat e.g. vegetable oils but at many places in market vegetable oils are being sold with having a label free from cholesterol, giving an impression to consumer that given vegetable oil is processed to remove cholesterol or not having cholesterol is a distinct feature associated with the vegetable oil being marketed for sale. Fortified products e.g. vitamin supplemented food products lose their vitamin enriched beneficial potential on prolong storage at room temperature, instantly on high temperature, rather storage at room temperature at times even at low temperature initiates undesirable indigenous reactions adversely effecting the quality and safety of food ingredients and food products hence marginal benefits associated vitamin enriched products in fact carry additional risk for adversely effecting the quality and safety of food product with having shorten the shelf life. For instance vitamin A and D fortified oils lose their vitamins added benefits on longer storage at room temperature in addition to facilitate the oxidation reaction that increases the rancidity, consumption of rancid fat and oil is generally associated with having enhanced risk for causing metabolic syndrome such as hypertension diabetes etc. and others including allergy and cancer. Most of domestic cooking is done in oil particularly in South Asia that involves prolong heat exposure hence technically makes fortified cooking oil devoid of any additional benefits for vitamin fortification beside adding on to its cost. Addition of micronutrients e.g. minerals in food ingredients and other...
food products generally promotes the oxidation reaction causing similar consequences as discussed earlier as well. Enrichment with micronutrients is generally associated with acquiring enhanced hydrophilic natured food matrix e.g. increased water absorbing capacity attained by given food product making it more prone to spoilage mediated by indigenous enzymes and microbial activity in addition to losing readiness of its digestion and absorption within Human body.

Food Aid generally provided by UN and other donor Agencies are mostly composed of fortified food items and micronutrient supplemented food ingredients and food products. Technologically Advanced and Developed Countries are dependent on other Countries, most of them are developing Countries for fulfilling their food requirements. However under-utilization of agricultural land, lack of infra-structure of institutes mis-management and produce losses are generally the main challenges, that under developing agricultural countries are supposed to deal with. It is the utmost need of time for all countries to develop indigenous plans utilizing their own resources for meeting needs of consumers knowing their nutritional requirement to guide them to prepare food domestically tailored for them accordingly also at cottage industry level commercially (preferably freshly prepared at small scale). For instance a country that can grow beetroot large quantity can fulfill their micronutrient requirement by eating beetroot onion tomato and spinach cooked in oil/ghee/butter with having additional cooking after adding meat broth followed by adding fresh lemon juice just before consumption. Absorption of essential micronutrients from above mentioned food preparation in Human body is far more effective than consuming a fortified diet carrying the same micronutrients but without any mentionable risk to Health. Similarly, Flaxseeds Chia Seeds Hemp Seeds Sesame Seeds Pumpkin Seeds Sunflower Seeds etc. are good source and cheaper source of food providing a wide range of Nutrients. Dried fruits like raisin etc. are cheap source of minerals fibre vitamins with having a large range of beneficial biochemical factors including antioxidant chemical species and other vital chemical species. Fruits dipped in syrup and honey carry comparable health benefits. Salted Sun dried fish and Salted Sun meat have been in use since early days when scarcity of food was the only concern whereas metabolic syndrome and illnesses like cancer mental illness were not as common as these are nowadays. Naturally Fermented food including pickles sauerkrauts and dairy products like yogurt cheese provide good source of Nutrients with excellent absorption potential with having long Shelf Life. Naturally Fermented Pickles and Sauerkrauts can be stored at room temperature for long time without adding any preservative.

Daily diet-traveler-poor s food options

People are at higher risk of suffering from illness, when they are poor or while travelling to a distant place. The most commonly occurring diseases are food borne diseases.

There are a few tips that can help to have a healthy life and safe journey. Water needs to be boiled for 20 minutes and stored in glass or steel container having airtight lid to keep it covered until use (Portable Water). Portable water is a must to carry while travelling along with raw form or semi prepared food items those are good to consume daily. Salads having chopped vegetables washed with potable water and immersed in sauce comprising of salt pepper and natural vinegar is a safe diet for a travelling period extended upto 12 hours. Within a facility to store the food in cold box carrying ice, the salad can be safely stored for 24 hours. Avoid adding sauces and salad dressings as they can increase the risk to cause food borne diseases by providing a suitable environment for food illness causing germs to grow beside adding on unhealthy form of fat and other synthetic chemical ingredients in diet. Avoid junk food as they are merely calories without any nutritionally valuable components those are required by the body to cope with the daily routine work or stress of travelling and to get adjusted in a new environment existing at the destination.

Add on full boiled eggs with naturally fermented cheese in form of prepared sandwiches without having added any sauce that can be safely stored in ice box for 18 to 20 hours travelling and healthy enough to consume while staying at home. For longer duration full boiled eggs and cheese can be carried in ice box separately to prepare sandwiches whenever needed. Fermented yogurt can be easily prepared domestically [10]. Packed sealed naturally fermented yogurt can make the journey safer and healthier as it is full of calcium, beneficial microbes and nutritional ingredients that nourishes the body and at the same time prevent it from food borne diseases by boosting the immunity.

Avoid using beef chicken fish patte for making sandwiches to store for longer duration as the risk for causing illness is increased several folds, fish being most sensitive commodity to handle can further make such food products unfit for prolong storage or traveling.
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An important tip discard the leftovers in trash bin reserved for food only. Other tip is, microwave heating does not make any food item safer mainly because the heating is not uniform throughout the body of food commodity and hence carry spaces where microorganisms can easily grow. Prefer flame heating in cooking over cooking by use of microwave. Prefer to carry disposable crockery and use glassware over plasticware.

Having some dry nuts during the journey helps to have tummy full feel for longer time along with its added benefits. Always eat Good Quality nuts to avoid any adverse reaction on eating them (food allergy and food intoxication/poisoning e.g.Aflatoxin).

Add taste to a mixture of chopped fruits e.g. apples, guava, oranges, banana, melon, whatsoever available other than grapes and papaya by adding salt, grinded sugar, black pepper, lemon juice.

The sealed packed food items those require refrigeration cannot be the ideal option for more than 3 - 5 hours travelling. Another important thing is, canned foods are recommended to heat upto boiling to make the food content free from botulinum toxin, that causes food borne illness, produced by a germ that has high probability to grow under canned condition without causing considerable alteration in taste and appearance of food.

Avoid taking fat rich (greasy) food during the journey or little before starting it as it is comparatively difficult for body to digest it and hence it requires longer time with comparatively higher risk of causing indigestion.

Spices are fine to to consume within lower limits, that is sufficient to add taste but not to make it hot enough to cause any indigestion. Food items those are rich in nutrients as well as have high calories value are unfit for carrying them for travelling purpose. Unfortunately, most of dishes in Pakitani cuisine are included in this category.

Fish, prawn, liver, haleem biryani, nihari, most of the salad dressings and sauces, ice cream, cake etc are included in high risk food category. In fruits avoid taking papaya and grapes during journey.

While picking juices and milk take the sealed packet of smallest available packaging size preferably not more than 250 ml each. Avoid taking milk whitener, dry or condensed milk, instant powder juice specially all those that are available in more than one serving size.

Use hand sanitizer before having food during journey.

Achieving zero hunger-FAO s theme for 2019

Being Hungary for scarcity of Food has been matter of concern since early days and enhanced occurrence of incidence of infectious diseases used to be among main threads encountered by Human beings in response of scarcity of Food when agricultural products and livestock based diet was the only form of food that used to be consumed by most of the people across the Globe. Prevailing situation is not much different even these days in isolated populations localized in poorly technically modernized rural areas in developing regions on Globe particularly those having low literacy rate with having low income are mainly dependent on locally available husbandry for their diet. The consequence of malnutrition occurring due to consumption of processed food including fortified food supplements energy drinks fuse drinks carbonated drinks etc. are different from those occur by scarcity of food items particularly those based on locally available agricultural produce and livestock, former cause metabolic syndrome cancer Heart kidney etc. diseases allergy autoimmune diseases mental illness unlike infectious diseases metabolic syndrome and related disease are usually un-curable though can be treated with sustainable medicine intake to attain acquired body fitness but at the cost of side effects associated with different treatments [3,10]. Hence it's not merely the matter of Zero Hunger but it is more about Healthy Food good enough to provide nutrients with having increased digestibility and absorption potentials without causing hypersensitivity reactions and intoxication whereas quantity of food has become matter of secondary significance [9]. A Healthy diet is usually composed of locally naturally cultivated Husbandry based freshly minimally cooked food prepared in small quantity and/or natural fermentation based pickles sauces sauerkrauts vinegar etc. [5,9,10]. Sun Dried Salted Meat and Sun Dried Salted Meat Fish are the other safer options whereas Canned Food carrying Fruits in syrup and Vegetables in Brine are safer to consume after heating until boiling [5]. Decreasing in the diversity of Crops, as a consequence of massive industrialization is the underlying reason for Green House effect reflected as Global Warning effecting environment in terms of both by transforming Biotic and Abiotic Components has been leading to evolution of Altered Eco-System, that would not necessarily be supporting in future the growth of Genetically Modified Organisms (GMO) or Genetically Modified Crops (GM Crops) and other Genetically Modified Products etc or even previously successfully growing Native Cultivars. Natural Culture e.g. Native Species always carry an edge over Hybrid Breeds by virtue of their diversity driven at epigenetic level with having the same genetic profile existing in a given population of Native Crops or Micro-organisms conferring upon both of them the flexibility required to get adapted to survive in newly emerged Eco-

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System (1,2,5,11). We can foresee a Global Famine due to Global Warming as most of Cultivars particularly Genetically Tailored Hybrids those developed in Laboratories for instance GMO and GM Crops might not grow in newly evolved environmental conditions in future as a result of Global Warming a similar situation with micro organisms, a primitive form of living Cell that shares certain characteristic with Plant Kingdom, occurs after growing their several generations outside their native environment e.g they lose a few phenotypic characteristics on repeatedly growing outside their native environment that they acquire back on growing after several generations in their native environment for having connected by epigenetically driven evolution across cell populations having enhanced flexibility for adoption to newly emerged environment such epigenetic connectivity among genes network seems to be missing across genetically tailored hybrid cells/populations for instance GMO and GM Crops very likely same happen as in microbes on growing outside their native environment for long time and that is a dreadful nightmare for us as experts on this domain of Science [1,2,4,5,11].

As already mentioned earlier we need to look forward to develop Human Resource in every region across the Globe under the Umbrella of UN capable to develop indigenous plans utilizing their own resources for meeting need of consumers knowing their nutritional requirements by providing them food tailored for them accordingly [9,12].

Conclusion

World is experiencing Global Warming as a consequence of it, we as experts can foresee a Global Famine in near Future very likely sparing most of Genetically Modified Organisms (GMO) and Genetically Modified Crop, (GM Crops) making them unable to grow in Newly Emerged Environmental Conditions. We need to modify existing Global Policy and Practices focusing more on natural means of breeding rather than wasting time resources and efforts on developing new GMO and GM Crop put them Field Trials while wiping off Natural Resources of Forest and Agricultural Fields, reservoir of Native Species being Naturally Selected in gradually transforming Eco-system in response of Global Warming also for establishing New Industrial Zones. We need to launch Globally Integrated Plans under Umbrella of UN and FDA designed on Absolute Merit for translating Scientific Knowledge to transform into Guidelines on Food for given population keeping in view specific variations on Scientific Findings for having difference in Regional Conditions, Cultural and Ethical/Religious Practices that given populations of Consumers are exposed to across the Globe. As already mentioned earlier as well our key focus should be on developing Human Resource in every Region across the Globe under the Umbrella of UN and FDA involving the Regional Regulatory Bodies as well capable to design plans to evolve Indigenous Systems based on utilizing their own Resources for meeting needs of Consumers knowing their Nutritional Requirements and Expectations as Consumers, by providing food tailored for them accordingly while avoiding Massive Industrialization to promote Cottage Industries [5,9,12].

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