



Food Insecurity and Mental Health : An Analytical Study

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Abstract: Food insecurity exists when people do not have adequate physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life. Food insecurity is primarily a nutritional risk that affects diet and in turn can lead to various forms of malnutrition, including under-nutrition, paradoxically, over-nutrition in the form of obesity. While food insecurity is a nutritional state that influences diet and body weight, it also holds consequences for psychological well-being. Food insecurity encompasses issues of psychological acceptability, such that an individual may experience feelings of deprivation or restricted food choice and anxiety about food supplies as result of being food insecure. Potential solutions include the provision of social safety nets, the use of digital technologies and creating sustainable food distribution systems. A multidisciplinary strategy is essential to disrupt the cycle, enhance resilience, and foster global health equity.

Key words: food insecurity, nutritious food, psychological well-being, social safety nets and mental health.

Introduction

There is a saying that a hungry man is an angry man. Food insecurity, a robust social determinant of health, is defined as having inadequate or insecure access to food due to financial problem. The incident of food insecurity includes not only food shortages and hunger but also anxieties about having not enough money to buy food or having to cut or skip meals due to food scarcity. On the other hand, according to FAO, food security exists when all people consistently have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Food availability refers to the steady and unbroken supply of enough quantity and quality to support a healthy lifestyle. Food availability also considers sociocultural acceptability and food safety, ensuring that food is

provided in a manner that respects human dignity and is devoid of microbial or toxic substances that could endanger human health.

Food availability is a crucial aspect of food security and has often been the focus of many initiatives to increase global food production. It also includes building efficient transportation systems to ensure that food is available even in remote areas from their sources. Food availability is closely related to food access; however, availability does not necessarily predict access. Food availability makes sure that an adequate quantity of safe, nourishing, and socially acceptable food is within an individual's reach.

The concepts of stability and sustainability were included much later in the definition of food security. Stability refers to the ability of food agro-industry to withstand man-made or natural shocks or disruptions and food's availability, access, and utilization. Sustainability describes the need for efforts and measures to ensure the long-term ability of food systems to provide adequate food while preserving the environment, natural resources, and agro-ecosystems.

The problem of food insecurity affects many level in the society; however, the evidence shows it is more common in the elderly. The rising global trend in food insecurity since 2014, despite increases in global wealth and food production, suggests the problem is exacerbated by rising economic inequality between the rich and the poor.

As per the World Health Organization (WHO), mental health is described as "state of mental well-being that enables people to cope with the stresses of life, realise their abilities, learn well, and contribute to their community." Chronic food insecurity contributes to psychological distress and depression, creating a self-perpetuating cycle that hinders access to adequate nutrition and undermines mental well-being.

This bidirectional dynamic is further influenced by socio-economic disparities, gender inequalities, and systematic challenges such as conflict and climate change. Addressing this nexus is vital for achieving Sustainable Development Goals on Zero Hunger and Good Health and Well-Being. The SDGs' has two goal is to end hunger and achieve food security by 2030.

Attaining this goal requires adequate food availability through sustainable agriculture and ensuring access to food for all individuals. There is detrimental impact of food insecurity on mental health, with the significant prevalence of mental illness resulting from it elevating it to a public health issue demanding immediate intervention. Food security and mental health are intimately intertwined, with their intersection posing critical challenges and opportunities for sustainable development globally.

Even though food insecurity is primarily concerned with nutrition and diet and directly impacts body weight, it also has well-noted impacts on human psychological well-being. Conditions of food insecurity encompass issues of psychological acceptability, leading to feelings of deprivation and anxiety over food supply. As a result, food insecurity can negatively influence psychological health.

Methodology

This study employs a comprehensive and systematic methodology to investigate the intersection of food insecurity and mental health across various regions and socioeconomic contexts. The methodology comprises of a vast literature review. The methodology is basically doctrinal by use of websites, articles and journals.

Literature Review

A thorough literature review was conducted to establish a foundational understanding of the existing research on food insecurity and mental health. The review focused on identifying key themes, trends, and gaps in the literature. The following databases were utilized:

PubMed- For peer-reviewed articles related to public health and epidemiology.

Google Scholar- For a broad range of scholarly articles, including grey literature.

Scopus- For comprehensive coverage of interdisciplinary studies.

Objectives

1. To identify the relation between food insecurity and mental health.
2. To study the impact of food insecurity in mental health.

Food Security Definition

The initial focus, reflecting the global concerns of 1974, was on the volume and stability of food supplies. Food security was defined in the 1974 World Food Summit as: “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices.”

In 1983, FAO expanded its concept to include securing access by vulnerable people to available supplies, implying that attention should be balanced between the demand and supply side of the food security equation: “ensuring that all people at all times have both physical and economic access to the basic food that they need”. In 1986, the highly influential World Bank report “Poverty and Hunger” focused on the temporal dynamics of food insecurity. It introduced the widely accepted distinction between chronic food insecurity, associated with problems of continuing or structural poverty and low incomes, and transitory food insecurity, which involved periods of intensified pressure caused by natural disasters, economic collapse or conflict. This concept of food security is further elaborated in terms of “access of all people at all times to enough food for an active, healthy life”.

The 1994 UNDP Human Development Report promoted the construct of human security, including a number of component aspects, of which food security was only one. This concept is closely related to the human rights perspective on development that has, in turn, influenced discussions about food security.

At the 1996 FAO Rome World Food Summit, food security was defined as a condition that exists when “all person, at all times have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. Therefore, we can say that food security involve are as follows: physical availability of food, economic and physical access to food, and adequate food utilization that is function of the ability of the body to process and use nutrients as well as of the dietary quality and the safety of the foods consumed.

This definition is again refined in The State of Food Insecurity 2001: “Food security is a situation that exists when all people, at all times, nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

Food security can be describe as a phenomenon relating to individuals. It is the nutritional status of the individual status of the individual household member that is the ultimate focus, and the risk of that adequate

status not being achieved or becoming undermined. The latter risk describes the vulnerability of individuals in this context. Vulnerability may occur both as a chronic and transitory phenomenon.

Food Insecurity

Food insecurity is one of the factors contribution to the increase in food poverty and malnutrition in middle and low standard of living communities, which during epidemics such as COVID-19 can affect the nutritional conditions of a large population of the world.

Food insecurity is defined as the persistent concern about access to sufficient and affordable food at all times. Food insecurity causes stress in people. One of the most important reasons for people's stress is where and how to get enough food. Poverty, low-income family health, poor livelihoods and households management strategies can lead to food insecurity. Food insecurity can be mild, moderate or severe.

Some important factors of food insecurity can include conflict, poverty, climate change, economic downturn, and ecosystem disruption. Therefore the ability of a country to create food security depends on the available resources, policies, cultural and natural capacity of the country, and the extent of practical use of these resources.

The United Nation's second Sustainable Development Goal, Zero Hunger, aims to end world hunger by 2030. The World is not on track to reach this goal- although some progress have been made in regard. In 2023, 2.3 billion people were moderately or severely food insecure. That means that they had no regular access to adequate food. Nearly 11% of the population or more than 864 million people were severely food insecure, meaning they ran out of food at times during the year or even gone an entire day or more without eating.

Food Insecurity and mental health

Food insecurity is defined as not having physical, social and economic access to sufficient, safe and nutritious food that satisfies their dietary needs and food choices for a productive and healthy life. Food insecurity is a major global public health issue that severely impacts mental well being. The connection between food security and mental health plays a crucial part in achieving both Sustainable Development Goals 'Zero-Hunger' and 'Good Health and Well-being'.

While food insecurity is a nutritional state that influences diet and body weight, it also holds consequences for psychological well-being. Specifically, food insecurity encompasses issues of psychological acceptability, such that an individual may experience feelings of deprivation or restricted food choice and anxiety about food supplies as a result of being food insecure. A global study that the link between food insecurity and mental health demonstrated a strong dose-response relationship between poor mental health and food insecurity. According to the study, the increasing severity of food insecurity can be linked with a steady decline in mental health.

The World Health Organization defines mental health as "a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community". Food insecurity is associated with poorer mental health outcomes and specific psychological

stressors across global regions independent of socio-economic status. It is linked to early growth delays, impaired cognitive development, and lower scores on mental health measures, primarily because it leads to micro-nutrient deficiency.

Adequate nutrition is essential for the correct development of the fetal brain during prenatal and neonatal development, according to research on mental health and cognitive development. Food insecurity, mainly due to its role in micro-nutrient deficiency, is correlated with early growth faltering, altered cognitive development, and poorer scores on the mental health indices. Children in food-insecure households are also typically exposed to parental aggression and psychological stress, leading to negative child behaviours..

Women are disproportionately affected by food insecurity, leading to increased vulnerability to mental stress. Mental health issues in mothers and children are more prevalent when mothers experience food insecurity- a stressor that could be alleviated through social policy interventions. Children in food deprived households often experience aggressive behaviour and psychological stress from their parents, resulting in negative behaviour in children.

Severe child hunger is a critical public health issue with implications for both physical and mental health, including an increased likelihood of developing post-traumatic stress disorder. Research highlights its independent association with chronic illnesses, anxiety, depression and even when considering environmental maternal and child related factors. Moreover, severe hunger is strongly linked to homelessness, low birth weight, and exposure to traumatic life events, which increases vulnerability among affected populations.

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Food insecurity and poor nutrition quality can weaken the immune system, impacting the variety and balance of the gut microbiota. Stress changes the composition of the gut microbiota and may cause dysbiosis. Severe child hunger is a critical public health issue with implications for both physical and mental health, including an increases likelihood of developing post-traumatic stress disorder. Moreover, severe hunger is strongly linked to homelessness, low birth weight, and exposure to traumatic life events, which increases vulnerability among affected populations.

An study on adolescents, insufficient food was closely linked to both depressive disorders and suicidal symptoms based on national data analysis. The study also characterized recovery during re-feeding by a slow but gradual elimination of the symptoms. The study has also posited possible biological mechanisms by which food insufficiency is associated with a depressed mood. Chronic dieters or individuals with restricted diets often tend to have heightened emotional responsiveness and increased irritability and distraction.

Stress can result from not having access to enough food because of the uncertainty and anxiety surrounding one's basic need for nourishment. This stress results from anxieties about where one will get their next meal, which causes emotional strain and anxiety about the availability and quality of food and one's own and one's family's well-being. Insufficient protein can affect mood, cognition and energy levels due to its impact on

neurotransmitter production and nutrient deficiencies like low iron, leading to mood swings, cognitive decline, fatigue and irritability.

Sustainable Solutions, Global Efforts, and Policy Recommendations

To address food insecurity effectively, inclusive interventions that target socio-economic disparities must be implemented to facilitate equitable access to nutritious food. Such efforts are crucial not only for enhancing mental well-being but also for addressing broader societal challenges.

Food insecurity represents a public health concern that necessitates large-scale interventions. It is estimated that achieving food security for individuals currently facing severe food insecurity could lead to 8.9 to 16 percent reduction in the prevalence of six adverse mental health outcomes. These outcomes include recent depressive thoughts, major depressive episodes within the past year, anxiety disorders, mood disorder, poor mental health status, and suicidal thoughts over the last year. Providing adequate, nutritious food is crucial for addressing malnutrition, directly supporting mental health in multiple dimensions. Sufficient dietary intake ensures that individuals receive essential nutrients, including vitamin B, iron, and Polyphenols, which are vital for optimal brain function. These nutrients contribute positively to mental health and cognitive performance at various stages of life and emphasise the role of nutrition in preventing and managing age-related cognitive decline.

Meanwhile, India's electronic Public Distribution System incorporates technology to streamline the distribution of subsidize food grains to beneficiaries, leading to more efficient food distribution and improved targeting of at-risk communities. We can do urban community gardens and farms, which can be used to provide accessible, locally sourced produce while promoting community engagement and utilising green spaces to improve health. This support sustainability and overall well-being. Community gardens are found to have psychological, social and physical health benefits, thus highlighting their potential for promoting public health in urban settings.

The One Health approach, defined as “an integrated and unifying framework to sustainably balance and optimize the health of humans, animals and ecosystems”, also provides a scientifically good and interdisciplinary strategy for tackling complex global challenges. The One Health approach could emphasise the intricate relationships among environmental changes, the emergence of zoonotic diseases and agricultural practices by highlighting critical connections between climate change, food security and mental health.

The digital platforms and mobile applications provide mental health services, including stress reduction, therapy, and mindfulness practices, often integrated with nutritional information. Additionally, developments in secure mental health applications have focused on enhancing emotion regulation skills within a trans-diagnostic framework. Furthermore, studies evaluating strategies to improve the implementation of school based policies and programmes related to children's diet, physical activity, and obesity have revealed a wide range of effect sizes.

Approaches should be made to enhance the nutritional quality of food served in schools, implementing effective canteen policies, and scheduling regular physical education sessions. Efforts to address deficiencies in medical nutrition education have proposed a collaborative framework to advance competency-based nutrition curricula, inter-professional education and research in health professional training.

To break the cycle between food insecurity and mental health, interventions need to directly target mental health issues. It is crucial to combine initiatives targeting both elements to promote sustainable development and meet the 2030 Agenda. Cooperation among countries, through multilateral organization like the Food and Agriculture Organization (FAO), World Trade Organization (WTO) and G20 etc., can strengthen humanitarian efforts and deal with food supply chain disruptions. Incorporating mental health assistance into current community initiatives, particularly in areas facing widespread food insecurity, can offer a holistic strategy. This calls for cooperation among mental health professionals, community leaders and policymakers.

Conclusion

The co-existence of food insecurity and mental health problems is highly detrimental. Food insecurity makes it difficult for individuals to manage chronic mental health problems, while mental health problems, while mental illness can impede their ability to become food secure. The self-reported food insecurity indicators, including the reduction in the size of meals, not eating food of one's choice, not eating enough food, remaining hungry for a whole day and losing the body weight, are strongly associated with major depression and anxiety. The national food security programmes should be enhanced as an effort to improve mental health status and quality of life among people.

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