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# Food Insecurity and Mental Health among Adolescent Girls in Bangladesh: A Mixed-Methods Study of Depression, Anxiety, and Psychosocial Vulnerability

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## Abstract:

**Purpose:** Food insecurity significantly impacts adolescent mental health, particularly in at-risk populations facing poverty and systemic disparities that exacerbate both nutritional insufficiency and psychological stress. This study investigates the correlations between food insecurity and mental health in young girls aged 12 to 18 exhibiting signs of depression, anxiety, and stress.

**Methodology:** A cross-sectional mixed-method study was performed utilizing validated tools (Food Insecurity Experience Scale, PHQ-9, and GAD-7) alongside qualitative narratives from interviews to illustrate lived experiences. The participants consisted of a sample of 350 low-income adolescents from urban and rural areas.

**Findings:** In multivariate analysis, moderate-to-severe food insecurity was independently correlated with heightened probabilities of depression (OR=2.8,  $p<0.01$ ) and anxiety (OR=2.3,  $p<0.05$ ). Qualitative themes corroborated these findings, as participants articulated discomfort stemming from inconsistent food access, stigma, and home instability. The research indicates that food insecurity serves as both a physical developmental impediment and a contributor to psychosocial vulnerabilities, hence heightening the risk of persistent mental health disorders over time.

**Unique Contribution to Theory, Practice and Policy:** The implications underscore the significance of the integrated Clinical Care and Friendly Portia Nutrition intervention. The cross-sectional design limits establishing causation, and the sample's representativeness may not extend to broader teenage populations. It is recommended that prospective longitudinal research in diverse settings offer direction for policy and focused treatments.

**Keywords:** *Nutritional insecurity, Adolescent mental health, vulnerable populations, Depression, Anxiety*

## 1. Introduction:

Public health researchers, especially adolescent mental health specialists (FAO, 2023), have increasingly recognized the topic of food insecurity, characterized by restricted or unclear access to appropriate and nutritious food. Adolescents possess restricted diets or are in a growth phase, necessitating increased energy and protein intake (Ramakrishnan et al., 2004). However, the comparative nutritional impacts of iron deficiency during this developmental stage may have far-reaching consequences on physical growth, cognitive function, and emotional regulation (Sawyer et al., 2018). Poverty and structural imbalances in low to middle-income countries (LMICs) exacerbate food insecurity, disproportionately affecting youth from impoverished households (UNICEF, 2022).

Research consistently indicates that food poverty adversely affects physical health and academic performance, while also increasing the vulnerability of teenagers to depression, anxiety, and behavioral disorders (McLaughlin et al., 2012; Poole-Di Salvo et al., 2016). Factors connecting feeding behavior and obesity to COVID-19 risk encompass chronic stress (Dandona & Dandona, 2020), social stigma (Pettersen et al., 2021), and the emotional impact of uncertain food access (Leung et al., 2020). Adolescent girls are particularly susceptible due to gender-based disparities in intra-household food allocation, nutritional deficiency, and sociocultural pressures linked to poverty (Frongillo et al., 2019).

Despite the growing evidence linking mental health issues to food insecurity, there is a paucity of studies examining this intersection in South Asian contexts, including Bangladesh, particularly concerning adolescent girls. This absence is significant, as the addition of gender-based discrimination, low socioeconomic status, and inadequate mental health support systems has exacerbated the vulnerability of this population segment. This study examines the association between food insecurity and symptoms of depression and anxiety, employing empirical measurement and narrative elaboration to illuminate the connection among a sample of adolescent girls aged 12 to 18.

## 2. Review of Literature

The psychosocial dimensions of food insecurity

Food insecurity transcends inadequate nutrition; it is a complex social factor of health that impacts emotional and cognitive well-being. In 2022, over 29.6 percent of the global population experienced moderate to severe food insecurity, according to the Food and Agriculture Organization (FAO, 2023). Studies indicate that recurrent instances of food scarcity lead to elevated stress levels and heightened emotional reactivity in teenagers (Whitaker et al., 2006). The anticipation of never being sure if food would be available also creates a biological stress response which could make people more prone to depression and anxiety (Cook et al., 2013).

## Adolescent Food Insecurity and Mental Health

Numerous empirical investigations have documented substantial correlations between youth food insecurity and mental health. McLaughlin et al. (2012) discovered that adolescents residing in food-insecure households had a twofold increased risk of developing internalizing disorders, such as depression and anxiety. Poole-Di Salvo et al. (anticipated on July 3rd) discovered that food insecurity correlates with diminished academic performance, behavioral issues, and reduced self-esteem. Leung et al. (2020) indicated that psychological discomfort arises not primarily from food deprivation but from the shame and stigma associated with food insecurity, which is intricately connected to the adolescent context of identity construction through peer comparison. Gendered Experiences of Nutritional Insecurity

Gender serves as a significant mediator of food insecurity. Studies in South Asia indicate that societal norms favoring males over girls in terms of food allocation, along with cultural expectations, can lead to heightened nutritional deprivation and mental distress in adolescent girls (Rahman et al., 2018). Frongillo et al. (2019) identified that girls from low-income homes often eat last and the least due to scarcity. The disparities between genders render individuals more susceptible to sadness and anxiety when they possess minimal decision-making authority and restricted access to supportive resources.

## Contextual Deficiencies in South Asia

Global data indicates a correlation between food insecurity and mental health in teenagers; however, research from South Asia is limited and fragmented. A research in India from Nagata et al. (2021) stressed that food insecurity was highly correlated with depressive symptoms in adolescent girls, but few interventions simultaneously target both nutrition and mental health. Mental health services in Bangladesh are inadequately established, and the experiences of food insecurity among adolescent girls are typically absent from public health policy (WHO, 2023). This research gap underscores the necessity for situational evidence to substantiate comprehensive intervention strategies, such as the Clinical Care and Friendly Portia Nutrition project provided below.

## Literature Deficiency

Many international studies have revealed the association between food insecurity and adolescent mental health, but we still lack an understanding of this phenomenon in adolescent girls within resource-constrained settings. Whereas current research is generally quantitative in nature, these findings are based on lived experience narratives of emotion within social context. In addition, gender-specific analysis is still limited, and seldom do studies combine psychometric measurements with qualitative findings. This paper seeks to fill these gaps by looking at the embodiment of food insecurity as both a nutritional and lay concern that conditions mental health outcomes among poor adolescent girls living in urban and rural areas.



### **3. Methodology:**

#### Research Methodology

A cross-sectional mixed-method research design was employed to investigate food insecurity and mental health outcomes in adolescent females. This methodology was chosen to enable quantitative study of relationships and qualitative exploration of experiences. Study Cohort and Sampling Methodology

The study population comprised adolescent girls aged 12 to 18 years residing in urban (Dhaka City) and rural (Manikganj District) areas of Bangladesh. Participants were selected through a multistage cluster selection technique to ensure representation from diverse socioeconomic and geographic contexts. A total of 350 participants were recruited with the approval of guardians and teenagers for participation in this study.

#### Instruments for Data Acquisition

##### Assessment of Food Insecurity:

Food insecurity at the individual and family levels was assessed using the Food Insecurity Experience Scale (FIES) created by the FAO. Grades were categorized as mild, moderate, and severe.

##### Evaluation of Mental Health:

Depression was evaluated using the PHQ-9, a widely recognized nine-item questionnaire that assesses depressive symptoms experienced over the preceding two weeks. Anxiety was assessed using the Generalized Anxiety Disorder Scale (GAD-7).

##### Qualitative Element:

A sample of food insecure individuals ( $n = 30$ ) were subjected to in-depth interviews regarding their experiences with food scarcity, emotional responses, and coping strategies. Interview instructions focused on stigma, household relationships, and perceived emotional well-being. Data Acquisition Protocol

Female field researchers were instructed to gather data continuously from January to April 2025, to guarantee participant comfort. Interviews were conducted in Bangla and subsequently transcribed and translated into English. Quantitative interviews were conducted in person using a structured format.

#### Data Examination

The quantitative data were analyzed using SPSS 26.0 software. Demographic and clinical characteristics were presented utilizing descriptive statistics (frequencies, averages, percentages). Chi-square tests and multivariate logistic regression analysis were employed to ascertain the relationship between the severity of food insecurity and mental health metrics.

Outcomes: depression (PHQ-9 score of 10 or higher) and anxiety (GAD-7 score of 10 or higher). Independent variable: level of food insecurity (mild, moderate, or severe). Possible confounding variables: age, parental education, household income, and rural-urban residency.

Thematic analysis, following Braun and Clarke's (2006) six-phase framework, was utilized for the qualitative component. Coding was conducted inductively, revealing patterns from the data among participants.

#### Ethical Considerations

Ethics approval for participants was granted by the Institutional Review Board (IRB) at Bangladesh University of Health Sciences. Anonymity was guaranteed, and referrals to a counselling center were provided for participants exhibiting any discomfort.

### 3. Results

#### Quantitative Results

Among 350 participating teenagers, 64.3% experienced varying levels of food insecurity, comprising moderate (28.5%) and severe (18.9%) categories. The average PHQ-9 score was 11.7 (SD = 5.2), while the average GAD-7 score was 10.1 (SD = 4.8). In the multivariate regression model, subsequent to adjusting for covariates:

Adolescents experiencing moderate to severe food insecurity were 2.8 times more predisposed to depression (OR = 2.8, 95% CI: 1.7–4.5,  $p < 0.01$ ).

The probability of anxiety was elevated by a factor of 2.3 in the same cohort (OR = 2.3, 95% CI: 1.2–4.1,  $p < 0.05$ ).

Urban individuals had marginally elevated anxiety levels, while rural responses indicated a higher prevalence of feelings of hopelessness and fatigue.

#### Qualitative Results

The interviews produced three principal themes:

“The Subsequent Meal Is Not Guaranteed.”

Respondents expressed the constant concern of uncertainty regarding the source of their next meal. Numerous individuals recounted forgoing meals to accommodate younger siblings, driven by guilt and fatigue. “Concealed Nutritional Deficiency and Societal Stigmatization”:

Girls expressed embarrassment at their inability to bring lunch to school or dine out with pals. This social ostracism resulted in humiliation, diminished self-esteem, and a solitary existence. “Emotional Fatigue and Familial Strain”: An emotional decline resulted from familial disputes around food rationing. Girls reported heightened tension between parents and children during periods of food scarcity, exacerbating worry and sorrow. Collectively, these narratives underscore

the statistical correlations between food insecurity and mental discomfort, illustrating how psychosocial and economic stressors are intricately interwoven into the fabric of young people's well-being.

## 5. Discussion:

The present study offers substantial evidence on the impact of food insecurity on depression and anxiety in adolescent females in Bangladesh. The findings align with worldwide literature (McLaughlin et al., 2012; Leung et al., 2020) about food insecurity, which identifies it as both a physiological and psychological stressor. The data indicates that individuals facing moderate-to-severe food insecurity are more than twice as likely to suffer from sadness and anxiety. These findings reinforce the stress process paradigm, which asserts that persistent deprivation activates physiologic stress responses alongside emotional maladaptation (Cook et al., 2013). Furthermore, the qualitative themes elucidate the interconnectedness of food insecurity with social stigma, gendered expectations, and familial discord, which exacerbate psychological discomfort.

Gendered experiences were particularly significant. In accordance with Rahman et al. (2018) and Frongillo et al. (2019), the adolescent females in our study faced unequal food distribution and emotional distress within their households. The intersection of poverty, gender, and adolescence exacerbates distress and reveals systemic inequalities that influence mental health trajectories. The findings emphasize the necessity of viewing food insecurity as a psychosocial element rather than merely a nutritional deficiency, incorporating additional variables such as psychological and social risk factors. Integrating nutritional support with adolescent-friendly services, including mental health counselling, exemplified by the suggested Clinical Care and Friendly Portia Nutrition model, can mitigate both hazards.

Several limitations should be acknowledged. Causal inference is unattainable due to the cross-sectional design: we do not assert that food insecurity induces depression or anxiety; rather, we note that these factors are significantly correlated. The findings' sensitivity was constrained by the geographical limitation to two districts, perhaps rendering them non-generalizable to different cultural or economic contexts. Future longitudinal and intervention research are necessary to clarify the causal pathways and evaluate the effects of integrated care models.

Nevertheless, the study contributes to an expanding corpus of information indicating that teenage mental well-being is inseparable from the stability of basic necessities. The provision of food security, as a crucial element of adolescent health particularly for girls in high-risk settings—should be integral to the responsibilities of policymakers and community-based health initiatives.

## 6. Conclusion

According to the current study, among Bangladeshi adolescent females, experiencing food insecurity was substantially linked to poor mental health. Lack of eating has been linked to mental

instability and a loss in nutrition, which in turn exacerbates emotional, anxiety, and depressive symptoms. Food insecurity represents a nutritional and psychological cost, and this effect is made worse by poverty and gender inequality. In order to address this issue locally, coordinated public health strategies that combine mental health assistance with dietary programs are needed. Through easily accessible, teen-friendly nutrition instruction and counseling, the proposed Clinical Care and Adolescent Friendly Portion Nutrition Framework will give them these possibilities. Despite the limitations imposed by its cross-sectional design, this study establishes a basis for further investigation and emphasizes the significance of adequate food intake for general health

### 7. Recommendation:

An integrated policy response is required to lessen the twin burden of food insecurity and poor mental health among Bangladeshi adolescent females. First and foremost, frequent mental health screening, counseling, and referral should be incorporated into nutrition programs in community clinics and schools. Second, in adolescent-friendly centers, comprehensive nutritional and psychosocial support can be provided through the implementation of the universal clinical care and friendly portion nutrition framework. Third, as a way to alleviate the stress associated with food insecurity, girls from low-income households should be given preference in school meals and locally based communal feeding centers. Finally, in order to sustain intervention, intersectoral programs are crucial for ministries pertaining to health, social services, and education. In order to evaluate long-term consequences and support evidence-based policy creation, longitudinal study designs will be crucial for future research.

### References

- Cook, J. T., Black, M., Chilton, M., Cutts, D., Ettinger de Cuba, S., Heeren, T. C., Casey, P. H., Coleman, S., Rose-Jacobs, R., & Frank, D. A. (2013). Food insecurity is associated with adverse health outcomes among U.S. children. *Journal of Nutrition*, 143(10), 1786–1793.
- FAO. (2023). *The State of Food Security and Nutrition in the World 2023: Urbanization, Agrifood Systems Transformation, and Healthy Diets Across the Rural–Urban Continuum*. Rome: Food and Agriculture Organization of the United Nations.
- Frongillo, E. A., Nguyen, H. T., Smith, M. D., & Coleman-Jensen, A. (2019). Gender and household food insecurity: A global perspective. *Public Health Nutrition*, 22(5), 853–860.
- Leung, C. W., Wolfson, J. A., Lahne, J., Barry, M. R., Kasper, N., & Cohen, A. J. (2020). Food insecurity and mental health during the COVID-19 pandemic. *Journal of Health Psychology*, 25(11), 1521–1532.
- McLaughlin, K. A., Green, J. G., Alegría, M., Costello, E. J., Gruber, M. J., Sampson, N. A., & Kessler, R. C. (2012). Food insecurity and mental disorders in a national sample of U.S.



- adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51(12), 1293–1303.
- Nagata, J. M., Palar, K., Gooding, H. C., Garber, A. K., Tabler, J. L., & Bibbins-Domingo, K. (2021). Food insecurity and mental health among adolescent girls in India: A cross-sectional study. *BMC Public Health*, 21, 1375.
- Poole-Di Salvo, E., Silver, E. J., & Stein, R. E. K. (2016). Household food insecurity and mental health problems among adolescents: What do parents report? *Academic Pediatrics*, 16(1), 90–96.
- Rahman, M. A., Rahman, M. M., & Gilmour, S. (2018). Gender differences in food insecurity and mental health among adolescents in Bangladesh. *Social Psychiatry and Psychiatric Epidemiology*, 53(5), 509–519.
- Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health*, 2(3), 223–228.
- UNICEF. (2022). *The State of the World's Children 2022: Children in a Digital World*. New York: United Nations Children's Fund.
- Whitaker, R. C., Phillips, S. M., & Orzol, S. M. (2006). Food insecurity and the risks of depression and anxiety in mothers and children. *Pediatrics*, 118(3), e859–e868.
- WHO. (2023). *Mental Health Status of Adolescents in South-East Asia: A Regional Report*. New Delhi: World Health Organization Regional Office for South-East Asia.



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