BACKGROUND & AIMS

- **11 million Americans** will experience psychosis in their lifetime.
- Psychosis has an annual economic burden of **$300 billion** in the US, mostly due to increased morbidity and mortality.
- In the US, adults with psychosis have increased mortality primarily from cardiovascular disease (CVD) (Olfson 2015).
- Diabetes mellitus (DM) is a potent CVD risk factor, which occurs in 28% of individuals with serious mental illnesses (Mangurian 2018). People with psychosis are **twice** as likely to develop DM (Stubbs 2015).
- Little is understood of the contribution of social and environmental factors to diabetes health disparities experienced by people with psychosis. **Food insecurity** and **social support** are two factors.
- Food insecurity is defined as the disruption of food intake or eating patterns because of **lack of money and other resources**. People with psychosis are disproportionally affected by food insecurity (Coleman-Jensen, 2010).
- Food insecurity has been shown to be an **independent risk factor for poor glycemic control** (Seligman 2012).
- Prior research has shown a strong association between low social support and poor mental health (Russell & Fish, 2016) and an association of social support with mental health and food security (Hammami, Leatherdale, & Elgar, 2020; Na et al., 2019).
- This study aimed to **explore the relationship** among food insecurity, social support, and psychiatric symptom severity.

METHODS

- IRB-approved cross-sectional survey was conducted in January to May 2021 among adults (N=156) with **diabetes mellitus and co-morbid psychosis** who received primary care through 12 clinics affiliated with a large academic healthcare system in Washington state between 2017-2020.
- Administrative data were utilized to identify eligible patients: age 18-65; one inpatient or two outpatient diagnoses of **schizophrenia** (F20-29), **bipolar disorder** (F31), or **major depressive disorder with psychotic features** (F32.3; F33.3) and one inpatient or two outpatient diagnoses of DM (E08-E13.9). Patients with diagnoses of dementia or intellectual disability and those who could not speak or read English were excluded.
- All eligible patients were sent a letter with a unique link to a survey in Research Electronic Data Capture. The survey included questions related to **diabetes clinical characteristics, self-care behaviors,** and **psychosis symptom severity** in addition to demographics.
- Food insecurity was measured with **the USDA's Food Security Survey Module**, social support with the **Multidimensional Scale of Perceived Social Support**, and mental health symptoms with the modified **Colorado Symptom Index** (CSI).
- **Regression analysis** was applied to examine the associations between food security status, social support, and mental health symptoms.

RESULTS

- **26%** survey **response rate**
- **25%** met criteria for **food insecurity** (≥2 out of 6 on food security survey
- **16% low social support,** 43% moderate social support, 41% high social support
- Mean CSI was 19.36, which suggests participants experienced symptoms **several times per month** (versus daily or weekly).

Table 1: Differences Between Food-insecure and Food-secure Individuals on Social Support and Frequency of Mental Illness Symptoms

	Food insecure (n=39) M (SD)	Food secure (n=117) M (SD)	Cohen's *d* estimate	(95% CI)	*p*
Social support (full scale)	3.97 (1.28)	4.66 (1.54)	0.47	(0.09, 0.85)	0.008
Family subscale	3.54 (1.69)	4.71 (1.87)	0.26	(0.26, 1.02)	< 0.001
Friend Subscale	3.85 (1.98)	4.38 (1.76)	0.29	(-0.08, 0.66)	0.061
Significant other subscale	4.62 (1.89)	4.92 (1.83)	-0.20	(-0.20, -0.53)	0.192
Psychiatric symptoms mean	27.34 (11.91)	16.77 (10.89)	-0.95	(-1.34, -0.55)	< 0.001

- **Table 1** shows that **significantly lower social support** was found in participants with **food insecurity** compared to those without (p=0.008). This relationship was driven by lower social support from family (p<0.001) compared to friends (p=0.61) or significant others (p=0.192).
- Additionally, **greater psychiatric symptom severity** was found in people with food insecurity (p<0.001).

Table 2: Linear Regression Model Predicting Frequency and Severity of Mental Illness Symptoms by Food Insecurity and Perceived Social Support

Effect	Unstandardized Coefficients B	SE	Standardized Coefficients β	*p*
(Intercept)	16.84	(1.07)		< 0.001
Food Insecurity	10.37	(2.35)	0.37	< 0.001
Perceived Social Support	-1.90	(0.70)	-0.24	0.008
Food insecurity x perceived social support	1.274	(1.61)	0.07	0.430

Table 2 shows social support **did not** significantly moderate the relationship between food security and frequency of psychiatric symptoms.

DISCUSSION

- This study showed that **food insecurity** was significantly associated with both **low perceived social support** and **more frequent psychiatric symptoms.** However**, no evidence of a moderating effect** of social support on the relationship between food insecurity and psychiatric symptom severity was found.
- **Rate of food insecurity** was found to be **lower** than previous studies, which showed approximately 50% of individuals who used public mental health services faced food insecurity (Adams et al., 2021). The study sample was **not limited to public mental health service users**, which is the likely cause of this lower rate.
- **Limitations** include:
  - The cross-sectional design of the study.
  - The measure of psychiatric symptoms represent respondent's experiences in the most recent month. Self-reported data may result in recall bias.
  - Consequences of the COVID-19 pandemic such as social isolation and unemployment might be associated with elevated rate of symptoms.
  - The sample may not be representative given the low response rate.

CONCLUSIONS

- **Food insecurity is associated with poorer mental health outcomes**, which have been associated with poorer health outcomes.
- The presence of perceived **social support does not mitigate** the need for addressing food insecurity.
- There is a need for both medical and mental health providers who care for people with co-morbid diabetes and psychosis to **specifically address food insecurity.**

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