

# THE EXAMINATION OF THE INTERSECTION BETWEEN FOOD SECURITY AND MENTAL HEALTH: A SYSTEMATIC REVIEW

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## **Abstract**

*Food insecurity is a phenomenon that attacks people at both the household and individual level. While there have been vast research studies on the effects of what living with food insecurity does to the physical body, there has been less attention on what food insecurity does to the mind. As living food insecure is typically associated with social determinants such as lower socioeconomic status, ignoring the possible psychological effects would be harmful to the affected populations. The conducted research is a systematic review of past interventions tackling food insecurity in terms of what was successful and what was not while also looking for studies that address the impact on mental health that arises from food insecurity. The findings from the research collection could serve as an indication for a possible association between food insecurity and mental health issues while posing implications for how current food insecurity interventions could be altered to address the mental health component.*

*Keywords: food insecurity, mental health, intervention, well-being, health, interventions, policy, United States*

## **Introduction**

Living food insecure is not a salient part of one's identity. The United States Department of Agriculture (USDA) defines food insecurity as "a lack of consistent access to enough food for an active, healthy lifestyle" (Health and Hunger, Feeding America, 2017). Unfortunately, according to the USDA in 2017, approximately 22% of Black non-Hispanic households were food insecure and 18% of Hispanic households were food insecure, but only 8% of White non-Hispanic households were food insecure (USDA, 2017). Food insecurity disproportionately affects demographics that have historically had social determinants of health such as being a racial or ethnic minority status and belonging to a lower socioeconomic status.

There was a study published in 2012 by McLaughlin et. al where data were collected

from the National Comorbidity Survey Replication Adolescent Supplement to find subjects. The researchers were looking to examine whether food insecurity could be linked with mental disorders. Their results concluded that there could be an association between food insecurity and adolescent mental disorders such as mood, anxiety, behavior, and substance disorders. The researchers called for social interventions to address the issue (McLaughlin et. al, 2012).

Existing research studies express well the outcomes that living food insecure can have on one's physical body. Children living food insecure are more likely to develop iron deficiencies and asthma (Corman et. al, 2014). Older adults are more at risk of developing diabetes and hypertension while experiencing higher levels of obesity and

poor sleep outcomes (Pooler et. al, 2018). However, there is less hard evidence to establish a direct relationship between food insecurity and mental well-being. Because of this paucity in current public health research, this study had three main objectives: 1) examine past food intervention studies in the US only, 2) identify public policies that surround food insecurity in the US, and 3) identify articles about studies pertaining to the relationship between mental health or mental well-being and food insecurity.

## Methods

The study started with determining what databases would be appropriate for the kind of data desired. The search for databases started with gathering knowledge on what type of information was presented on each database. Availability of databases was limited to where Saint Louis University had subscriptions for students to use. From there, the three designated research databases were PsychINFO, PubMed, and SLUth Search Plus.

### *Article eligibility criteria*

It was determined that no data would be synthesized for the review if the article was published before 2005. This was to prevent very outdated data to be presented while still having potential for a plethora of data to be found. Articles also had to be printed fully in English to avoid any misinterpretation errors. Qualifying articles also had to have come from peer reviewed journals. The subject matter from each qualifying article also needs to have taken place in the United States.

After establishing the eligibility criteria for the articles to be examined, the search began. At the beginning, only the abstracts were read to gauge if the article met all the

eligibility criteria to move further. Articles deemed eligible moved past the preliminary round of reading and were then categorized into three sections: interventions, policy, and association studies.

After the articles had been separated, they were then read in their entirety.

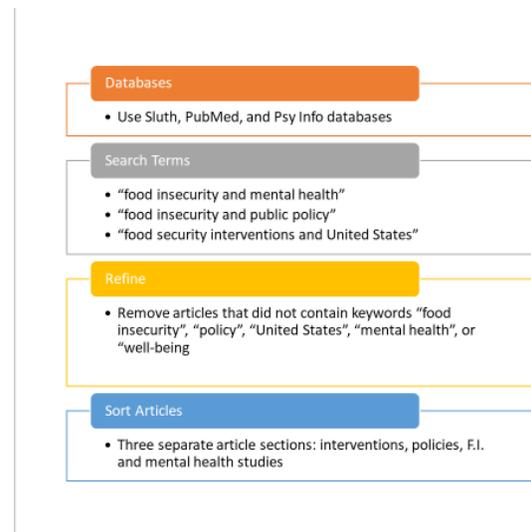


Figure 1. This graphic shows a flowchart of the process that was used for how articles were picked.

### *Risk of bias*

When performing systematic reviews, there exists room for researcher bias when deciding what articles are to be used for any data synthesis. For this particular systematic review, articles simply needed to meet their basic eligibility criteria. All the intervention studies were included in the results whether the intervention was successful or not. The mental health and food insecurity articles included in the results were judged on a study level as opposed to an outcome level, meaning that articles were included whether their results supported this study’s hypothesis or not. Lastly, policy and programs articles were included in the final pool of articles regardless of impact on the population.

## Results

A majority of the articles used for this review mentioned that those who are living food insecure have higher chances of suicidal ideations<sup>sub</sup>, depressive symptoms<sup>sub</sup>, and anxiety disorders<sup>sub</sup>. One thing that most of the articles reviewed agreed upon was that there is a need in public health to have more longitudinal food insecurity and mental health studies. The unfortunate issue to this is that longitudinal studies cost a lot of money and time.

Interestingly, all the studies which investigated the intersection of food insecurity and mental health were observational. Most of the studies composed of online surveys or questionnaires at certain checkpoints throughout the duration of the study. Some were even long term interaction studies with both food secure and food insecure households, but never was an experiment carried out. While observational studies are good for forming a theory about associations, they cannot determine correlation.

### *Interventions*

Some interventions had a higher pay off than others. Take the Baltimore healthy food stores intervention, for example. This intervention was composed of presenting lower fat and lower sugar grocery items at the front of grocery and convenience stores in a Korean neighborhood in Baltimore. In addition to more presentation of healthier food options, customers were offered vouchers and coupons for other items and prizes (Gittelsohn, 2009).

School breakfast interventions appeared to also have positive impacts on their intended communities. In a study that was published in 2017, Fletcher & Frisvold investigated the

causal effects of breakfast programs on a child's food insecurity (2017). Part of this intervention was to become more educated on the state requirements for eligibility for a food breakfast program. Later, the researchers then cross-examined the state requirements for eligibility and food insecurity. Their estimates overall suggested that participation in a school breakfast program does reduce food insecurity for elementary aged children.

### *Policy and programs*

The two policies examined were the Women, Infants, and Children (WIC) program and Supplemental Nutrition Assistance Program (SNAP), commonly referred to as "food stamps". WIC, a federally funded program which assists low-income mothers who are pregnant or currently have children, is obtainable for up to five years per child. WIC was shown to be beneficial to the mothers who utilized the service. Eligibility is assessed every six months which means if someone no longer qualifies, the resources can then go to someone else in need. This is an important food insecurity source as it addresses the need of proper nutrition in both the mother and the child (Metalino-Katsaras et. al, 2010).

On the other hand, SNAP has not always been the best policy and program. Previously, SNAP funds were distributed in voucher-like coupons to eligible participants; however, this method contributes to a stigma surrounding receiving public assistance for food. However, in 2014, SNAP transitioned from the coupon system to an Electronic Benefit Transfer (EBT) system. Now, participants can use SNAP funds via a debit card-like payment card to alleviate the stress of using coupon-like vouchers in a store. The EBT

system is also more efficient as it is simpler to use a card to pay for groceries as opposed to vouchers (Collins, Kleman, Wolf, & Briefel, 2017).

### **Conclusion & Discussion**

The purpose of this review was to examine the relationship between mental well-being and food insecurity and discuss past food security interventions. An overarching theme of needing more longitudinal studies emerged from the research. Longitudinal studies in public health typically consist of long-term observational studies.

Longitudinal studies are important when asking questions such as “is there a relationship between food insecurity and mental health?” because they provide insight that might not be obtained in any other way. Because longitudinal studies take longer in time, they also allow researchers to draw conclusions about changes over time.

Unfortunately, a major setback to a longitudinal study is that they are expensive. Because of this, researchers would have to opt for a smaller subject pool which would make it harder to draw conclusion for large groups of people and demographics.

In lieu of much needed longitudinal data, the majority of previously conducted research indicates a strong possibility that there is some sort of link between food insecurity and mental well-being. A potential next step, with this knowledge, is to implement long term interventions that address this intersecting issue.

### *Limitations*

One limitation to this systematic review is the data that is available. Saint Louis University only purchased subscriptions to certain article databases. Additionally, some databases only had access to abstracts and references, but not whole articles and reports. This was especially a problem

trying to move through the first and second stages of the review. Having a limited amount of data available has potential to change the results of a systematic review. However, this is an issue that could not be easily resolved for funding reasons.

At a study level, a few other limitations exist. The multifaceted stigma around both mental illness and living food insecure may incur a lower participation rate than other types of survey research or observational studies.

### *Recommendations*

One recommendation, at the local level, would be for food pantries, food banks, etc. to partner with local therapists through a referral system. The referral would take place while a participant is signing up for their respective program. This intervention could also be accompanied by follow-up. While the referral system does not guarantee that a customer will use the mental health resources available to them, but they would know that those resources exist.

Another suggestion along the same line of thinking would be to perform some type of screening at the time of application to a food insecurity intervention through a survey or similar mechanism. This device would gauge whether a participant could benefit from immediate mental health care.

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