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Participation in the Supplemental Nutrition Assistance Program and maternal depressive symptoms: Moderation by program perception

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ABSTRACT

Rationale: Previous studies have observed an association between participation in the Supplemental Nutrition Assistance Program (SNAP) and depression, which is contrary to SNAP's potential to alleviate food insecurity and financial strain.
Objective: This study investigated the impact of change in SNAP participation status on maternal depression, and whether perceptions of government assistance moderate this association.
Methods: Data were from the Fragile Families and Child Wellbeing Study (FFCWS). Logistic regression models with individual-specific fixed-effects, were fit to SNAP-eligible mothers who changed SNAP participation and depression status ($N = 256$) during waves 2 to 4. Perceptions of government assistance were defined as feelings of humiliation or loss of freedom and tested for interactions with SNAP participation.
Results: Perceptions of government assistance moderated the association between SNAP participation and depression (p-interaction = 0.0208). Those with positive perceptions of welfare had 0.27 (95% CI = 0.08 to 0.89) times lower odds of depression when enrolled vs. not enrolled in SNAP. Among those with negative perceptions of welfare, SNAP enrollment was not associated with depression (OR = 1.13; 95% CI = 0.85 to 1.51).
Conclusion: Evidence suggests that SNAP mental health benefits may be context specific. SNAP's capacity to improve mental health may depend on individual perceptions of government assistance. More research is needed to determine whether interventions aimed at mitigating negative perceptions of programs like SNAP could ameliorate poor mental health among program participants.

1. Background

Food insecurity, defined as a lack of access to food of sufficient quality or quantity due to financial constraints (National Research Council, 2006), affects 14% of the United States (US) population (Coleman-Jensen et al., 2015) and is associated with numerous negative health outcomes and chronic diseases, including poor mental health and depression (Stuff et al., 2006; Pan et al., 2012; Gundersen and Ziliak, 2015). The association between food insecurity and depression is especially worrisome. Depression is associated with higher risk of mortality from nearly all major medical causes (Zivin et al., 2015), and is expected to be a leading cause of morbidity and mortality across the globe by 2030 (Mathers and Loncar, 2006). Furthermore, depression among parents is adversely associated with child development (Huhtala et al., 2014), an association believed to be mediated by altered parent-child interactions (Gutierrez-Galve et al., 2015). The link between maternal depression and child outcomes early in life appears to be particularly strong. Mothers who experience depression during the postnatal period are more likely to have children with behavior problems by age 2–3.5 years (Narayanan and Nærde, 2016). Given the prevalence of food insecurity and its negative health consequences across generations, there are a number of national policies and programs in the US geared toward reducing it.

The Supplemental Nutrition Assistance Programs (SNAP) is one of the largest welfare programs available to Americans (United States Department of Agriculture Food and Nutrition Service (FNS) 2016b). It is also one of the oldest welfare programs and came about following the Great Depression in the 1930's. At that time, a pilot program called the Food Stamp Program was designed to increase the purchasing power of low-income individuals for surplus food resources. This program became permanent in 1964 (Pomeranz and Chriqui, 2015) and is now referred to as SNAP. Over the years Congress has modified SNAP, with

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the most recent changes occurring under the authority of the 2008 Farm Bill (FNS, 2014). In its current form, SNAP provides monthly food vouchers to households so that families can purchase necessary food resources (FNS, 2016a). All food and drink items are eligible with the exception of ready-to-serve foods (i.e. those without a nutrition label), dietary supplements, and alcohol (Pomeranz and Chriqui, 2015).

Administration of SNAP is the responsibility of both federal and state governments. Basic financial eligibility criteria are set by the federal government –individuals who fall below a certain percentage of the poverty level, determined by household income and size, and those who already receive benefits from other specific low-income assistance programs, are automatically eligible for SNAP (Falk and Aussenberg, 2014). SNAP beneficiaries must also meet certain employment or job training requirements and not have assets that exceed a certain value (i.e. liquid assets and/or vehicle ownership) (Bartfeld et al., 2015). States have some flexibility in further defining SNAP eligibility criteria, and can thereby increase or limit the number of individuals eligible. For example, gross income eligibility can range from a 1.30 to 2.00 federal poverty to income ratio (USDA, 2016). Additionally, states govern eligibility of drug felons (McCarty et al., 2012), the types of assets credited to an applicant (Ratcliffe et al., 2008), and enrollment procedures (e.g. call centers, online applications) (Ganong and Liebman, 2013). In 2014, SNAP supported over 46 million participants nationally and cost nearly $70 billion. Despite the large investment in SNAP, there is inconclusive evidence regarding the program's ability to ameliorate the health effects of food insecurity –particularly regarding its impact on mental health and depression (Bartfeld et al., 2015).

Some evidence suggests that participation in food assistance programs is associated with better mental health among adults (Oddo and Mabli, 2015; Kim and Frongillo, 2007; Kollannoor-Samuel et al., 2011), citing reductions in food insecurity and improved diet quality as potential mechanisms. In a recent study, Oddo and Mabli (2015) found that 6 months of SNAP participation is associated with a 38% reduction in psychological distress. They posited that, in addition to reducing food insecurity, SNAP participation may free up household financial resources that otherwise would have been used to purchase food. This would then allow participating households to meet other expenses, such as utilities or healthcare, which may yield additional psychological benefits for program beneficiaries. In contrast, other studies suggest that participation in SNAP and other food assistance programs may lead to poorer mental health among adults (Heflin and Ziliak, 2008; Leung et al., 2015a; Hwang et al., 2014). In general, qualifying for and using government assistance is associated with social stigma, arising from cultural or societal norms and personal interactions while applying for and receiving benefits (Mickelson and Williams, 2008). Heflin and Ziliak (2008) propose several untested mechanisms that specifically link SNAP participation to depression: SNAP use can result in feelings of dependence and erode self-empowerment, and participants may face social disapproval. In addition, the procedures associated with SNAP application and enrollment require participants to repeatedly overcome a number of potentially stressful situations to maintain benefits, such as limited SNAP office hours and transportation hurdles. Further, the limited number and types of food retailers who accept SNAP benefits can restrict food accessibility and quality (Ohls et al., 1999; Rosenbaum, 2013). One study that sheds light on the potential of programs like SNAP to influence mental wellbeing investigated the acceptability of a home-delivery food aid program among elderly Koreans (Hwang et al., 2014). This study reported that participants experienced feelings of stigma after receiving food assistance, despite benefits due to better quality meals and decreased living expenses. In other studies, perceptions of stigma have been associated with poorer mental health (Mickelson and Williams, 2008; Broussard et al., 2012).

In addition, investigations into whether food assistance programs may moderate the association between food insecurity and depression have reported mixed results. For example, Kim and Frongillo (2007) observed that elderly persons who participated in a meal home-delivery program and became food insecure after a period of food security did not experience an increase in depressive symptoms. They also reported no association between food insecurity and depression among those participating in SNAP. In contrast, food insecurity was associated with depression among nonparticipants. This suggests that participation in food assistance may increase resiliency against the negative mental health effects of food insecurity. However, associations did not hold in models of lagged effects of SNAP participation, suggesting the effect may not be long-lasting. Similarly, a study by Munger et al., (2016) reported SNAP enrollment was associated with a lower probability of depression, and the loss of SNAP benefits was associated with a higher probability of depression.

Consistent and clear scientific evidence on the relationship between SNAP and mental health is lacking. One hypothesis is that personal perceptions or feelings of stigmatization moderate the association between SNAP participation and mental health. Negative views of government assistance may increase stress levels and preclude mental health benefits that would otherwise be associated with receiving food assistance. Whether moderation by program perceptions explain inconsistencies in current literature is unknown.

Isolating the benefits of food assistance programs is a challenge since those who choose to participate in such programs likely have lower levels of food security or are more socioeconomically disadvantaged than others, even after accounting for observable factors such as income or educational status (Heflin and Ziliak, 2008; Meyerhoefer and Yang, 2011, 2011). Thus, self-selection bias must be addressed when investigating the association between food assistance programs and health outcomes. The Fragile Families and Child Wellbeing Study (FFCWS) provides a unique opportunity to investigate the relationship between SNAP participation and mental health. FFCWS is a longitudinal study of urban live births and parents with a higher proportion of mothers who are income-eligible for government assistance programs than the general US population. Using data from FFCWS, the aims of this study are to: (1) determine the association between change in SNAP participation and change in maternal depression; and (2) evaluate whether mothers' perceptions of government assistance moderate the association between SNAP participation and depression. It is hypothesized that the mental health benefit of participating in SNAP will be greater among those with positive views of government assistance than among those reporting negative views of government assistance.

2. Methods

2.1. Study sample

The study sample was comprised of mothers who moved on and/or off SNAP benefits and changed depression status with a federal poverty to income ratio (PIR) ≤ 2.00 in FFCWS waves 2 to 4. Data were drawn from waves 1 to 4 of FFCWS core surveys. FFCWS provides data on approximately 4900 urban births sampled from 75 hospitals in 20 large metropolitan areas (with a population size > 200,000) across the United States. Informed signed consent was obtained from mothers and fathers at each survey wave. Secondary analysis of FFCWS data was

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