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Household Food Insufficiency and Children Witnessing Physical Violence in the Home: Do Family Mental Illness and Substance Misuse Moderate the Association?

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Abstract

Objectives Research to date indicates that parents and children residing in food insufficient homes incur a host of negative health outcomes. Recently, studies have suggested that these homes are also at risk of violence between family members. Our objective is to examine the link between household food insufficiency and physical violence in the home using a recent, nationally representative sample, and to determine whether family mental illness and/or substance misuse inform this association. *Methods* A sample of nearly 50,000 children and families from the 2016 National Survey of Children's Health were employed in the study. Information concerning household access to food, experiences of violence between parents/adults, and associated mental health and substance use risk factors were available in the data. Logistic regression, employed in a hierarchical fashion, was utilized to analyze the data. *Results* Household food insufficiency was associated with an increased risk of children witnessing physical violence in the home, and this was especially pronounced in the case of moderate-to-severe food insufficiency. Findings also indicated that family mental illness and substance misuse partly attenuated this association and that household food insufficiency was more strongly associated with violence in the home in the absence of mental health and substance use risk factors. *Conclusions for Practice* Polices aimed at diminishing food insufficiency may have important collateral benefits in the form of reductions in family violence, and these benefits appear to extend to families that are otherwise at low risk of family violence.

Keywords Food insufficiency · Child health · Domestic violence · Mental health · Substance use

Significance

Household food insufficiency is a significant public health concern that has been associated with a number of family and child adversities. An emergent body of literature has suggested a link between household food insufficiency and family violence. This study adds to the current literature by investigating the association between household food insufficiency and children witnessing physical violence in the home using a recent, nationally representative sample of U.S. children and their families, and the extent to which family mental illness and substance misuse inform this association. Findings suggest that both mild and moderate-to-severe forms of food insufficiency are associated with children witnessing physical violence in the home. While these associations are partly explained by family mental illness and substance misuse, they are also especially robust when family mental illness and substance misuse are lacking. Food insufficient families are at increased risk of family violence. As a result, trauma-informed approaches to nutrition assistance and support are recommended.

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Introduction

Food insecurity—or diminished access to an adequate supply of safe, nutritious foods—is a threat to the health and wellbeing of children and families across the globe. In the United States, for example, more than 13% of children are residing in food insecure households (Coleman-Jensen et al. 2016). When nutritious foods are scarce or in danger of running out, the risk of children and youth experiencing iron deficiency/anemia (Eicher-Miller et al. 2009; Park et al. 2009), asthma (Gundersen and Ziliak 2015), hospitalizations (Banach 2016), lower bone mineral content (Eicher-Miller et al. 2011), mental and/or behavioral health problems (Althoff et al. 2016; Jackson et al. 2018a; Jackson and Vaughn 2017; Kimbro and Denney 2015), and general poor or fair health (Gundersen and Ziliak 2015; Kimbro and Denney 2015; Ryu and Bartfeld 2012) becomes significantly elevated. Parents residing in food insecure homes are also at risk of mental and physical health problems, including depression (Melchior et al. 2009; Weigel et al. 2016), anxiety/distress (Carter et al. 2011; Knowles et al. 2016), obesity/overweight (Pan et al. 2012), hypertension (Seligman et al. 2009), and diabetes (Seligman et al. 2009).

In addition to the health risks incurred among family members as a result of food insecurity, an emerging body of literature suggests that food insecurity may be associated with an elevated risk of domestic or intimate partner violence, which may indirectly broaden the impact of food hardships on a multiplicity of adverse sequelae, such as substance use (see Zimmerman and Posick 2016). For instance, a study of a large sample of women in the state of California by Ricks and colleagues (2016) detected a strong, positive association between food insecurity and women's exposure to intimate partner violence. The authors also found that the odds of intimate partner violence were higher among women experiencing severe v. mild food insecurity. A more recent study by Jackson and colleagues (2018a) examined the role of persistent food insecurity in family violence among a nationally representative sample of children and their families in the United States. The results indicated that the risk of exposure to violence in the home among young children (~4 years old) was nearly six times higher in households that had been food insecure across several years relative to consistently food secure households. A number of other studies corroborate the association between household availability of nutritious foods and domestic violence (Breiding et al. 2017; Chilton et al. 2014, 2015; Melchior et al. 2009; Sun et al. 2016), even suggesting that these forms of adversity and trauma can co-exist and reinforce each other across generations (Chilton et al. 2015, 2017).

One possible explanation of the nexus between household food insecurity and violence between family members in that same household is that a tenuous food supply is often accompanied by psychological distress and feelings of desperation, failure, shame, depression, being unfairly judged by others, and lack of control over the food environment (see Bernal et al. 2016; Hamelin et al. 2002; Knowles et al. 2016; Williams et al. 2012). Research suggests that children and youth residing in food insecure homes are aware of the instability of the food supply and even take on the mentally taxing responsibility of managing and appropriately allocating food resources (see Fram et al. 2011). In short, the experience of food insecurity is inherently destabilizing and emotionally taxing for family members, and the thoughts and feelings that are at least partly triggered by food insecurity can evolve into "toxic stress" (Hecht et al. 2018; Knowles et al. 2016), particularly as food insecurity becomes more severe. The toxic stress that so often characterizes food hardship, especially when persistent, may in some cases manifest as, or evolve into, mental health difficulties (Knowles et al. 2016; Melchior et al. 2009) and substance use challenges (Eaton et al. 2014; McLaughlin et al. 2012). These, and other associated risk factors, might comprise important mechanisms by which food insecurity and violence in the home may be interconnected. The plausibility of mental health and substance use risk factors as explanations of the food insecurity-domestic violence connection is rooted in literature demonstrating that violence in the home tends to overlap with a number of other family adversities, including mental illness/disorders such as depression (see Anderson et al. 2016; de Moraes et al. 2016; Khalifeh et al. 2015) and substance misuse/abuse (see Corvo and Carpenter 2000; Riger et al. 2014).

Despite the nascent body of work highlighting the nexus between household food insecurity and interpersonal violence between family members, and the qualitative research elucidating the psychological distress and cascading mental health challenges that food insecurity can both reflect and engender, the current literature is limited in some important respects. First, the bulk of studies examining the link between household food insecurity and family violence use local or regional samples that are of limited generalizability (for a recent exception, see Jackson et al. 2018a). Second, most of the extant research considers retrospective reports of women witnessing or being the victim of domestic violence as a child and how that might impact their ability to maintain a food secure household as an adult (Chilton et al. 2015, 2017; Sun et al. 2016). Studies exploring the overlap between food insecurity and children witnessing domestic violence within the same home are generally lacking.

Finally, while some studies have explored mental health as an explanation of the food insecurity-family violence link (see de Moraes et al. 2016; Hernandez et al. 2014), virtually no research has explored whether household food

insecurity is more or less likely to trigger violence in homes with a history of family adversities that have themselves been linked to domestic violence (e.g., mental illness and substance misuse; for an exception, see Sun et al. 2016). In other words, research has typically overlooked whether families already at-risk for domestic violence (due to mental illness and/or substance misuse) are more or less susceptible to the potential violence-triggering effects of food insecurity. The limited research to date on the moderating role of mental health challenges in the link between family violence and food insecurity is notably limited in its generalizability, as it employs a relatively small clinical sample of women in an urban setting. Nevertheless, the findings suggest that the link between household violence, associated adversities, and food insecurity may be magnified when caregivers manifest high levels of depressive symptomology (Sun et al. 2016). One potential explanation of this pattern of results may be that food hardships that are accompanied by mental health challenges among parents may be especially likely to facilitate a household environment and family dynamic wherein violence between family members can be more easily provoked.

Even so, this research also indicates that such adversities are still connected to food hardships even in the absence of depression (Sun et al. 2016), which suggests that mental health challenges may not be completely necessary for the food hardship/family violence association to emerge. Additional insights into the interplay between food hardships and other family adversities in the prediction of family violence are much needed, as the possibility remains that, in a nationally representative sample, the connection between food insufficiency and children witnessing violence in the home could be blunted when the home is already characterized by other adversities that place the family at greater risk of family violence (i.e., a saturation effect). The present study seeks to address these gaps in the literature by using a recent, nationally representative sample of nearly 50,000 U.S. children and their families to (1) examine the nexus between household food insufficiency and violence in the home and (2) explore the extent to which family mental illness and/or substance misuse explains and/or conditions this relationship.

Methods

For the current study, we employ data from the 2016 National Survey of Children's Health (NSCH). The NSCH is a survey of a cross-sectional weighted probability sample of U.S. children from infancy through the age of 17. The data are well-suited to the present research questions, as they include a number of items that provide insight into household food access, child and family health (both mental and physical), substance use, and family violence. The large sample of children (~ 50,000) also facilitates interactive analyses that explore the extent to which food insufficient households are especially prone to violence, and whether this association varies across households characterized by a certain degree of mental illness and/or substance misuse. Although the original sample consists over just over 50,000 children, 48,332 participants had valid data on the key independent and dependent variables—namely, household food insufficiency and witnessing physical acts of family violence. The total sample size was reduced to 47,706 in moderating analyses that examined mental illness and substance misuse among family members. After the inclusion of covariates, final sample sizes ranged from 46,508 to 46,889, contingent on the specific analysis being performed (i.e., direct v. moderating effects).

Measures

Witnessing Physical Violence in the Home

The key dependent variable in our analyses assesses whether the focal child had witnessed physical violence between family members in the home prior to data collection. Specifically, primary caregivers who participated in the survey were asked, "To the best of your knowledge, has {CHILD} ever experienced the following? Saw or heard parents or adults slap, hit, kick, or punch one another in the home." Response options to this questions included Yes (1) or No (2). Responses were recoded so that caregivers who answered "yes" were assigned a value of 1, and caregivers who answered "no" were assigned a value of 0.

Household Food Insufficiency

The 2016 NSCH contains one item pertaining to household food insufficiency and associated experiences of hunger. In contrast to research examining household food insecurity, which often utilizes the 18-item USDA module (see Jackson et al. 2018a, b), studies investigating the causes or consequences of *household food insufficiency* typically employ single-item indicators, which have been shown to be acceptable proxies measures for food insecurity (Alaimo et al. 1998; see also; Narain et al. 2018). Although these items are designed to determine the extent to which household access to food is lacking (Alaimo et al. 2001; Heflin et al. 2005; Siefert et al. 2004), a number of recent studies have relied on items that distinguish between mild food insufficiency—where household residents at times rely on low-cost foods and consume imbalanced meals—and moderate-to-severe food insufficiency—where residents sometimes or often experience hunger (Bocquier et al. 2015; Huang and Barnidge 2016; Lee et al. 2016).

The current study uses a single item available in the 2016 NSCH that mirrors the items used in some of the most recent research on food insufficiency (Bocquier et al. 2015; Lee et al. 2016). Specifically, primary caregivers were asked, "Which of these statements best describes the food situation in your household in the past 12 months?". Response options included *We could always afford to eat good nutritious meals* (1), *We could always afford enough to eat but not always the kinds of food we should eat* (2), *Sometimes we could not afford enough to eat* (3), and *Often we could not afford enough to eat* (4). In line with recent studies on the topic of food insufficiency (Lee et al. 2016; Muldoon et al. 2013), we opted to distinguish between households wherein sufficient food was lacking and those wherein food was sufficient, but nutritious food was lacking. Therefore, for the purposes of the present investigation, respondents who reported that they could sometimes or often not afford enough to eat (i.e., a response of 3 or 4) were categorized as experiencing *moderate-to-severe food insufficiency*, reflecting a degree of food insufficiency that is accompanied by hunger, or not having enough to eat. Respondents who reported that they could always afford enough to eat, but could not always afford to purchase nutritious foods (i.e., a response of 2), were categorized as experiencing *mild food insufficiency*. Finally, respondents who reported being consistently able to afford good, nutritious meals (i.e., a response of 1) were categorized as *food sufficient*.

Family Mental Illness

The first moderating variable in our analyses assesses the history of mental illness among individuals residing in the same domicile as the child. Specifically, primary caregivers were asked whether the focal child had ever lived with a family member who was mentally ill, suicidal, and/or severely depressed. Respondents were given the option to answer Yes (1) or No (0).

Family Substance Misuse

The second moderating variable in our analyses assesses the history of substance use problems among individuals residing in the same domicile as the child. Specifically, primary caregivers were asked whether the focal child had ever lived with a family member who had a problem with alcohol or drugs. Respondents were given the option to answer Yes (1) or No (0).

Covariates

The following covariates are included in all logistic regression models in an effort to minimize spuriousness: child age, child sex (male == 1), child race (i.e., black, hispanic,

with white/other as reference category), adults residents married (Y/N), adult residents cohabiting (Y/N), highest educational attainment of adult resident [ranging from 8th grade or less (1) to doctorate or professional degree (9)], income-to-poverty ratio [i.e., reported in percentages in the 2016 NSCH, where household income is divided by the poverty threshold and converted from a ratio into a percentage; income categories were then generated in line with prior research] (Liu et al. 2007; Singh et al. 2010): low income (100–199%), moderate income (200–399%), high income (400% or higher), with poor (< 100%) as the reference category), employment status (caregiver/parent employed at least 50/52 weeks in the year), nutrition assistance (i.e., any of the following forms of assistance: WIC, SNAP, and/or free/reduced-priced school lunch), parent self-rated mental health (on a 5-point scale from excellent to poor), and parent self-rated physical health (on a 5-point scale from excellent to poor). Models were robust to alternative model specifications with additional covariates (e.g., medical/health insurance, child physical health problems).

Plan of Analysis

The analysis proceeds as follows. First, we calculate the proportion of children who have witnessed physical violence between parents/adults in the home the degree of household food insufficiency. After assessing the bivariate pattern of results, we re-examine the association between household food insufficiency (mild as well as moderate-to-severe) and children's witnessing physical violence in the home using multivariate, logistic regression models. Next, the role of family mental illness and family substance misuse in attenuating associations between household food insufficiency and family violence is investigated. Subsequently, interactive relationships between food insufficiency and family mental illness are explored by calculating the association between household food insufficiency and family violence separately for households with and without a history of mental illness. Finally, interactive relationships between food insufficiency and family substance misuse are also explored by calculating the association between household food insufficiency and family violence separately for households with and without a history of substance misuse.

Results

We begin the analysis by calculating descriptive statistics for our key variables of interest. The results of these calculations indicate that just under 5% of participants (4.7%) in the sample reported that the focal child had witnessed physical violence between parents or adult family members

in the home. Additionally, while the majority of the sample (74.3%) resided in food sufficient homes, 21.3% of the sample reported experiencing mild food insufficiency and 4.4% of the sample reported experiencing moderate-to-severe food insufficiency. Furthermore, just over 8% of participants (8.2%) reported that the focal child had lived with a mentally ill, severely depressed, or suicidal person. Just under 9% of participants (8.9%), moreover, reported that the focal child had lived with someone with a drug or alcohol problem.

Next, we estimate the proportion of children in the sample who have witnessed physical violence between parents/adults in the home by the extent of household food insufficiency. The results are displayed in Fig. 1. As noted previously, the proportion of children in the full sample witnessing physical violence between parents/adults in the home is .047 (or 4.7%). However, this proportion varies contingent on the household's degree of food insecurity. To illustrate, just over 1 in 35 children residing in food sufficient households had witnessed physical violence between parents/adults in their home. Comparatively, nearly 1 in 5 children residing in homes with moderate-to-severe food insufficiency had witnessed physical violence between parents/adults.

Next, we proceed to examine the link between household food insufficiency and children witnessing physical violence in the home in a multivariate context. The results are displayed in Table 1. Overall, the results echo the pattern of findings displayed in Fig. 1. In short, while mild food insufficiency is associated with an increased risk of children witnessing physical violence in the home, moderate-to-severe food insufficiency is associated with a significantly greater risk of children witnessing violence in the home than mild food insufficiency. To illustrate, the odds of witnessing physical violence in the home were 54% greater for children residing in mildly food insufficient homes than for children residing in food sufficient homes (OR = 1.54; CI 1.35–1.69). However, the odds of witnessing physical violence in the home were 166% greater for children residing in moderately or severely food insufficient homes than for children residing in food sufficient homes (OR = 2.66; CI 2.26–3.09). Thus, the increase in the odds of witnessing violence is more than 3 times greater when children reside in moderately or severely food insufficient than when children reside in mildly food insufficient home (166/54 = 3.07), suggesting a type of gradient or dose–response effect.

Following the multivariate, logistic regression analyses, we proceed to explore the extent to which family mental illness and/or substance misuse might attenuate and/or moderate associations between mild and moderate-to-severe household food insufficiency and children witnessing physical violence in the home. These results are displayed in Tables 2 and 3. In the case of Table 2, all baseline covariates are included in each model, but are not shown to conserve space. The findings displayed in Table 2 indicate, as anticipated, that family mental illness and substance misuse are significantly associated with violence between parents/adults in the home. Even so, family mental illness and substance misuse only partially attenuate associations between food insufficiency and violence in the home (21–40% attenuation), with the association between food insufficiency and
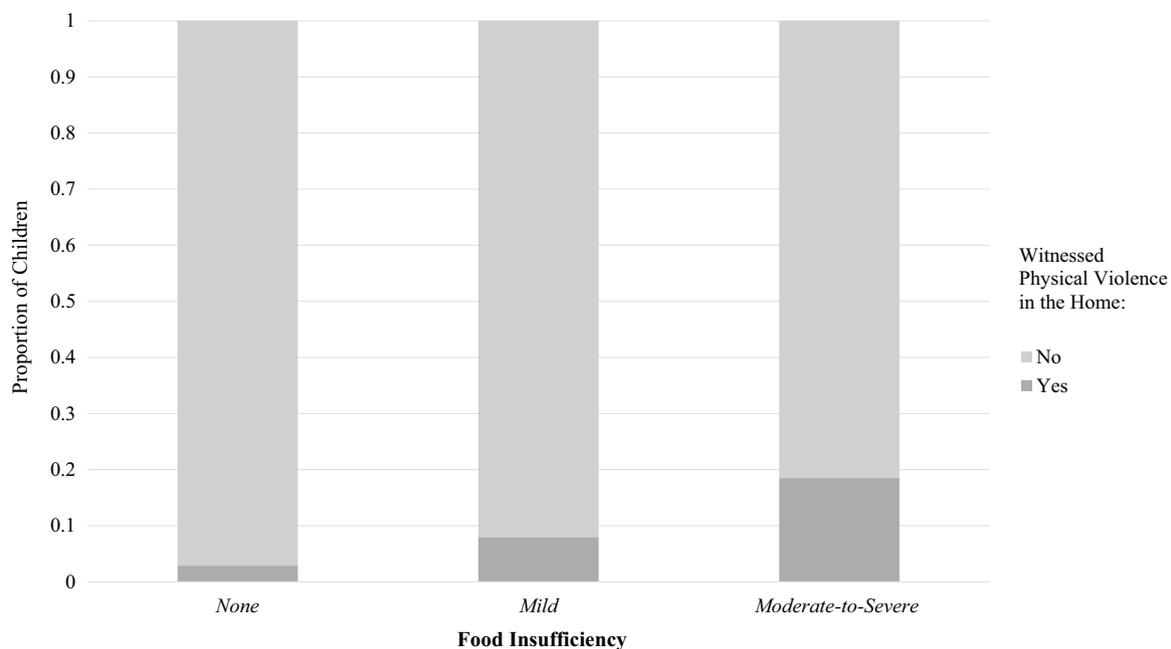

Fig. 1 The proportion of children witnessing physical violence in the home by degree of food insufficiency

Table 1 Household food insufficiency and children witnessing physical violence in the home

	Children witnessing physical violence in the home OR (CI)
Household food insufficiency	
Mild	1.54* (1.35–1.69)
Moderate-to-severe	2.66* (2.26–3.09)
Covariates	
Child age	1.05* (1.04–1.06)
Child sex	0.95 (0.87–1.04)
Black[a]	0.81* (0.69–0.96)
Hispanic[a]	1.03 (0.90–1.18)
Married, 2-parent household[b]	0.14* (0.13–0.16)
Cohabiting, 2-parent household[b]	0.70* (0.59–0.83)
Parental education	0.96 (0.91–1.02)
Low income[c]	1.04 (0.90–1.20)
Moderate income[b]	1.02 (0.87–1.19)
High income[b]	0.89 (0.75–1.07)
Parental employment	0.89 (0.80–1.00)
Nutrition assistance	1.32* (1.16–1.51)
Low parent self-rated mental health	1.41* (1.32–1.49)
Low parent self-rated physical health	1.06 (0.99–1.12)
N	46,889

[a]Reference category is "white/other"

[b]Reference category is "single-parent household/other"

[c]Reference category is "below poverty line", or a ratio of annual family income to poverty threshold less than 1

*p < .05

witnessing violence between parents/adults in the home remaining significant even after accounting for family mental illness and substance misuse.

Finally, we explored the extent to which the association between food insufficiency and witnessing physical violence in the home varied by contexts that were and were not characterized by mental illness or substance misuse (see

Table 2 Does family mental illness and/or substance misuse explain the association between food insufficiency and children witnessing physical violence in the home?

	Children witnessing physical violence in the home			
	B (SE)	B (SE)	B (SE)	B (SE)
Household food insufficiency				
Mild	0.43* (0.06)	0.34* (0.06)	0.29* (0.06)	0.26* (0.06)
Moderate-to-severe	0.97* (0.08)	0.76* (0.08)	0.74* (0.09)	0.65* (0.09)
Mediators/additional covariates				
Family mental illness	–	1.70* (0.05)	–	1.07* (0.05)
Family substance use	–	–	2.24* (0.05)	1.92* (0.06)
% Mediation/attenuation				
Mild	–	21%	33%	40%
Moderate-to-severe	–	22%	24%	33%

*p < .05

Table 3). The results indicate that, in the presence of family mental illness and in the presence of family substance misuse, mild food insufficiency was not significantly associated with children witnessing physical violence in the home. Even so, mild food insufficiency was significantly associated with children witnessing violence in the home in the absence of family mental illness and substance misuse.

Despite the findings concerning mild food insecurity, moderate-to-severe food insufficiency was significantly associated with witnessing physical violence in the home, regardless of whether families exhibited mental illness or substance misuse. These associations, however, were significantly different and varied in their magnitude across samples distinguished by family mental illness and substance misuse. For instance, when family mental illness was present, moderate-to-severe food insecurity was associated with a 34% increase in the odds of witnessing physical violence in the home (OR = 1.34; CI 1.02–1.74); when family mental illness was absent, however, moderate-to-severe food insecurity was associated with a significantly greater increase (180%) in the odds of witnessing physical violence in the home (OR = 2.80; CI 2.28–3.42). Similarly, when family substance misuse was present, moderate-to-severe food insecurity was associated with a 31% increase in the odds of witnessing physical violence in the home (OR = 1.31; CI 1.03–1.67); when family substance misuse was absent, however, moderate-to-severe food insecurity was associated with a significantly greater increase (217%) in the odds of witnessing physical violence in the home (OR = 3.17; CI 2.52–3.98).

Table 3 Household food insufficiency and children witnessing physical violence in the home: does family mental illness or substance misuse moderate the association?

	Children witnessing physical violence in the home			
	Family mental illness		Family substance misuse	
	Present (N = 3770)	Absent (N = 42,738)	Present (N = 4,057)	Absent (N = 42,535)
	RRR (CI)	RRR (CI)	RRR (CI)	RRR (CI)
Food insufficiency				
Mild	1.15 (0.95–1.39)	1.53* (1.33–1.76)	0.97 (0.82–1.15)	1.77* (1.50–2.08)
Moderate-to-severe	1.34* (1.02–1.74)	2.80* (2.28–3.42)	1.31* (1.03–1.67)	3.17* (2.52–3.98)
Child age	0.99 (0.97–1.01)	1.00 (0.97–1.02)	1.00 (0.99–1.00)	1.02* (1.01–1.04)
Child sex	1.16 (0.99–1.36)	1.30* (1.03–1.64)	1.02 (0.97–1.07)	0.99 (0.89–1.11)
Black[a]	0.83 (0.57–1.22)	0.98 (0.61–1.58)	0.97 (0.87–1.08)	0.97 (0.81–1.17)
Hispanic[a]	0.82 (0.63–1.07)	1.00 (0.70–1.42)	0.91* (0.83–0.98)	0.84* (0.72–0.99)
Married, 2-parent household[b]	0.83* (0.70–0.99)	0.75* (0.57–0.99)	0.81* (0.76–0.86)	0.69* (0.60–0.79)
Cohabiting, 2-parent household[b]	1.10 (0.79–1.54)	1.06 (0.68–1.66)	1.27* (1.12–1.43)	1.28* (1.05–1.57)
Parental education	0.82* (0.73–0.92)	0.78* (0.67–0.91)	0.79* (0.77–0.82)	0.80* (0.75–0.86)
Low income[c]	0.86 (0.66–1.11)	1.08 (0.90–1.30)	0.77* (0.61–0.97)	1.10 (0.89–1.37)
Moderate income[b]	0.86 (0.65–1.13)	1.00 (0.82–1.23)	0.80 (0.63–1.02)	0.90 (0.71–1.15)
High income[b]	0.84 (0.61–1.14)	0.88 (0.70–1.11)	0.63* (0.48–0.83)	0.87 (0.67–1.14)
Parental employment	1.39* (1.15–1.67)	1.02 (0.79–1.33)	1.31* (1.22–1.39)	1.28* (1.13–1.45)
Nutrition assistance	1.61* (1.28–2.04)	1.27* (1.08–1.50)	1.51* (1.39–1.65)	3.17* (2.75–3.66)
Parent self-rated mental health	0.93 (0.85–1.02)	1.38* (1.27–1.50)	1.04 (0.95–1.14)	1.56* (1.42–1.69)
Parent self-rated physical health	1.05 (0.95–1.16)	1.06 (0.97–1.14)	1.10* (1.01–1.19)	1.00 (0.91–1.09)

[a]Reference category is "white/other"

[b]Reference category is "single-parent household/other"

[c]Reference category is "below poverty line", or a ratio of annual family income to poverty threshold less than 1

*p < .05

Additionally, a significant dose–response relationship between food insufficiency and children witnessing violence in the home emerged (i.e., from none to mild, and mild to moderate-to-severe), but only among households where family mental illness and substance misuse were not reported.

Discussion and Conclusion

Studies examining household food insecurity and family violence, especially children witnessing violence in the home, are relatively scarce and hampered by limited

generalizability (for a recent exception, see Jackson et al. 2018a). The current findings build upon this body of work and suggest that the likelihood of witnessing violence in the home is elevated as food insufficiency becomes more severe. Using a recent and nationally representative sample, the present study found that the odds of children witnessing physical violence in the home are significantly greater in food insufficient homes, and that the increase in the odds of witnessing physical acts of domestic violence is more than three times greater when children reside in moderately or severely food insufficient homes than when children reside in mildly food insufficient homes. We also found that mental illness and substance misuse only partially attenuate these associations. An additional finding of interest is that experiencing mild food hardships in homes already immersed in risk for violence (by virtue of family mental illness and/or substance misuse) did little to increase the probability of violence, thereby suggesting a saturation or ceiling effect in those contexts. In other words, our findings suggest that the role of food insecurity as a potential trigger of violence in the home may be blunted in households already at significant risk of domestic violence. In total, these results add weight to the far-reaching consequences of food insecurity for a host of violence-related outcomes (Jackson et al. 2018a; Ricks et al. 2016), particularly when other familial risk factors for violence are lacking.

As previously mentioned, the destabilizing nature of experiencing food insecurity for the household at large provides a theoretical context for explaining these findings. More specifically, food insecurity can be experienced as emotionally burdensome and psychologically taxing, so much so that some researchers have referred to it as a type of trauma and advocate for a trauma-informed approach to addressing the issue (Hecht et al. 2018). It is possible that these feelings of stress, anxiety, and powerlessness may heighten the degree of family conflict and, in some cases, even trigger acts of interpersonal violence within the home (Jackson et al. 2018a). Qualitative research has also suggested that, in some cases, families experiencing severe forms of food insecurity may even take active steps to hide their food insecure status from extended family, friends, and neighbors (Hamelin et al. 2002), which could further facilitate the continuation of any co-occurring pattern of domestic violence that may have emerged.

Based on our findings, several programs and initiatives that can alleviate food insecurity and reduce victimization exposure are worthy of discussion. First, previous studies have found that nutrition assistance programs can reduce—though not eliminate—food insecurity (Ratcliffe et al. 2011). Thus, expansion of these programs in a year-round and sustained fashion is warranted. For example, one nutrition assistance initiative, the National School Breakfast Lunch Programs, does not extend service during the summer months (Huang et al. 2015). While comprehensive food assistance is necessary, we would also argue that these would be even more effective if part of a trauma-informed package intervention that includes victimization and reduction of adverse childhood experiences that occur in families. Additionally, we propose that effective public health programs such as Nurse Family Partnerships that provide home visiting for new parents should be implemented in conjunction with comprehensive nutrition assistance. Even so, initial demonstrations and attendant evaluations are critical to building the case for these more comprehensive and integrated initiative designed to address food insecurity and exposure to victimization.

The present study is not without limitations. First, there is the possibility of causal order in the reverse direction due to the cross-sectional nature of the data. It may be that domestic violence functions as a particularly potent cause of food insufficiency when other risk factors for food insufficiency (mental health problems, substance misuse by parents) are lacking. While a "saturation effect" may be accurate, causal order may or may not be. Still, we contend that there is a compelling rationale as to why food insufficiency might be experienced as a more significant form of trauma or a toxic stressor for families without a history of adversity or who are otherwise high-functioning. The results nonetheless show that these processes (hunger and domestic violence) co-occur on a national scale and that their overlap may be especially relevant among families that are otherwise at low risk of domestic violence. We also cannot determine the persistence of food insufficiency over time or the timing and persistence of the children's exposure to interpersonal violence between parents/adults in the home. Relatedly, due to the limited items on family violence in the NSCH, we cannot specifically identify perpetrators or victims of the violence, so we cannot determine the extent to which these actions constitute, for instance, violence against women or the elderly. Furthermore, the nature of the data do not allow us to explore other indicators of family violence that go beyond the witnessing of physical violence between adults in the home. Even so, our sample is recent, nationally representative, and generalizable to the U.S. population, and its size has facilitated moderating analyses that with a smaller sample would either be impossible or would produce highly unreliable results. Finally, to the extent that parents engaged in physically violent confrontations and incorrectly conclude that their children did not witness such violence, there may be a degree of measurement error in this item that can result in an underestimation or dilution of the strength of the central association of this study.

Despite its limitations, the present study contributes new, nationally applicable evidence concerning the association between food insufficiency and violence in the home and

highlights the relevance of mental health challenges and substance misuse as moderators of this association. In this way, polices aimed at diminishing food insufficiency could potentially have important collateral benefits in the form of reductions in family violence, and these benefits may also extend to families that are otherwise at low risk of family violence. Future research should continue to explore the nexus between food insufficiency, domestic violence, and family health as a means of promoting the health, safety, and wellbeing of children and their families.

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