

Very low food security in the USA is linked with exposure to violence

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Abstract

Objective: To investigate characteristics of exposure to violence in relation to food security status among female-headed households.

Design: Ongoing mixed-method participatory action study. Questions addressed food insecurity, public assistance, and maternal and child health. Grounded theory analysis of qualitative themes related to violence was performed. These themes were then categorized by food security status.

Setting: Homes of low-income families in Philadelphia, PA, USA.

Subjects: Forty-four mothers of children under 3 years of age participating in public assistance programmes.

Results: Forty women described exposure to violence ranging from fear of violence to personal experiences with rape. Exposure to violence affected mental health, ability to continue school and obtain work with living wages, and subsequently the ability to afford food. Exposure to violence during childhood and being a perpetrator of violence were both linked to very low food security status and depressive symptoms. Ten of seventeen (59%) participants reporting very low food security described life-changing violence, compared with three of fifteen (20%) participants reporting low food security and four of twelve (33%) reporting food security. Examples of violent experiences among the very low food secure group included exposure to child abuse, neglect and rape that suggest exposure to violence is an important factor in the experience of very low food security.

Conclusions: Descriptions of childhood trauma and life-changing violence are linked with severe food security. Policy makers and clinicians should incorporate violence prevention efforts when addressing hunger.

Keywords
Food insecurity
Women
Violence
Poverty
Hunger

Food insecurity is the lack of access to enough food for an active and healthy life due to economic circumstances, and is regularly monitored through the Current Population Survey by the Economic Research Service of the US Department of Agriculture⁽¹⁾. Food insecurity rates for female-headed households have remained extremely high compared with all other households in the USA. In 2010, 35·1% of female-headed households with children reported household food insecurity *v.* 14·5% of all households⁽¹⁾. Very low food security at the household level is defined as the episodic reduction in food intake and disruption of normal eating patterns due to lack of money and resources. Female-headed households with children have the highest rate of very low food security compared with all other households (10·8% *v.* 5·4%)⁽¹⁾. Quantitative research studies demonstrate an association between maternal depressive symptoms, household food security and poor child development^(2–4); far fewer have investigated associations between food insecurity and

experiences that may be related to depression such as exposure to domestic violence and adverse childhood experiences^(3,5,6).

The present study on exposure to violence and its relationship to food security status utilizes qualitative, demographic and household food security data collected in the ongoing Witnesses to Hunger study. The Witnesses to Hunger study incorporated the photovoice technique⁽⁷⁾ and semi-structured in-home interviews with forty-four mothers of young children under 3 years of age who received public assistance. The present study elucidates themes related to violence exposure and investigates the potential relationship between the type and quality of the reported exposures to violence and the severity of household food insecurity. Qualitative reports regarding experiences with rape and sexual assault, child abuse, attempted suicide and perpetration of violence by participants illuminate potential pathways that may link food insecurity and violence.

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Background and significance

Quantitative research demonstrates that maternal depression, anxiety and social isolation are correlated with food insecurity and with poor child development and behaviour^(8–13). In addition, household food insecurity is associated with suicidal ideation among adolescents⁽¹⁴⁾ and poor physical, mental and psychosocial health among children^(15–19). These studies leave many questions unanswered about the origins and nature of poor mental health reported by food-insecure caregivers.

Clues regarding the relationship between depression and hunger are found in mixed-methods research. For instance, Tarasuk found that odds of social isolation among women reporting household food insecurity with hunger (now called ‘very low food security’) were significantly higher than the odds of social isolation among women reporting food security⁽²⁰⁾. It is already well established that social isolation is intertwined with depression, stress and anxiety, and relates to exposure to violence, abuse and neglect^(21–23). Hamelin *et al.* reported the presence of stress and anxiety among food-insecure families⁽²⁴⁾, and our previous research reported anxiety, depression and exposure to violence among food-insecure women in Philadelphia⁽²⁵⁾. Wehler *et al.* found that homeless and low-income mothers who experienced sexual assault in childhood were over four times more likely to have household-level food insecurity than women who had not been assaulted⁽⁶⁾. Others demonstrated that child hunger was more prevalent in households in which mothers reported higher odds of post-traumatic stress disorder and substance abuse⁽⁵⁾. Melchior *et al.*’s longitudinal study found that mothers in persistently food-insecure homes had significantly higher rates of depression and/or a psychotic spectrum disorder, or had experienced domestic violence⁽³⁾.

Recent advancements in neuroscience research have shed light on the importance of a child’s earliest years for later adult health and well-being, as well as later economic activity^(26,27). Thus, a child’s exposure to ‘toxic stress’ – the kind of emotional, psychological and physical stress associated with neglect, abuse and deprivation – has been shown to harm the child’s current and future physical and mental health^(27–30). In addition, recent research has identified how adversity that occurs in critical moments during childhood and adolescence has a decisive impact on behaviours, choices and social relationships that extend into adulthood⁽³¹⁾.

Methods

The present study received approval from the Drexel University Institutional Review Board in 2008. Written informed consent was obtained from all participants. The study utilized qualitative investigation paired with quantitative measures to investigate women’s experiences with food security and public assistance programmes such as SNAP (Supplemental Nutrition Assistance Program), WIC

(Special Supplemental Nutrition Program for Women, Infants, and Children) and TANF (Temporary Assistance for Needy Families). Participants were recruited through a mailed flier sent to 150 caregivers of young children under 3 years of age who had requested outreach through the ongoing Children’s Health Watch research study. Sixteen participants responded to the flier by calling our offices and twenty-six participants were recruited through snowball sampling with the original sixteen between June and September 2008; two participants were recruited in December 2010. In addition to utilizing quantitative measures of household food security and public assistance programme participation, the present study utilized the photovoice methodology coupled with ethnographic and semi-structured interviews. At the first interview conducted in the participant’s home, participants completed an informed consent form and responded to a brief survey that inquired about public assistance programme participation, household food security, maternal depressive symptoms, self-rated health and caregiver-rated child health. At this meeting, participants received a digital camera and were trained in basic digital photography. After two to three weeks, researchers returned to download the photographs of participants and conducted semi-structured, qualitative interviews utilizing the photovoice interview technique. Finally, participants were invited to participate in one of four focus groups so the researchers could double check on major themes and for participants to identify which themes and photographs they deemed most representative and significant. More details about these methods are outlined in previous publications^(32,33).

Data collection and analysis

Quantitative data collected and reported herein include basic demographics, public assistance programme participation and the eighteen-question US Household Food Security Survey Module. We follow methods of household food security categorization as outlined by the US Department of Agriculture for households with children, where zero to two affirmative responses indicate food security, between three and seven responses indicate low food security, and eight or more affirmative responses indicate very low food security⁽³⁴⁾. We used the Kemper three-item screen to measure maternal depressive symptoms⁽³⁵⁾. Mothers and caregivers were categorized as having maternal depressive symptoms if they responded affirmatively to two of the three depression questions. We also measured mothers’ self-rated health and caregiver-rated child health with the validated questions from the Third National Health and Nutrition Examination Survey⁽³⁶⁾.

Violence-related results from the qualitative investigation are the primary focus of the present paper. Photographs taken by each participant served as the basis for discussion within the context of one-on-one, open-ended interviews. Two of the three authors conducted these interviews

utilizing the photovoice technique, as developed by Wang and colleagues^(7,37). The interview technique included follow-up questions to the narrative core of the story to elicit greater details. Thus, most research questions were unique to the narratives provided during each interview. Each interview lasted between 1.5 and 3 h, and approximately half the women completed follow-up interviews. A total of sixty-eight interviews were conducted between June 2008 and December 2010. Additionally, twenty-eight of the forty-four participants participated in one of four focus groups, in which women identified representative themes and selected photographs for the exhibit and website.

All interviews and focus groups were audio-recorded, transcribed verbatim and entered into ATLAS.ti, a qualitative software program that supports management and analysis of qualitative data. The qualitative data were wide-ranging in topic, and we therefore began by reorganizing the data using a phenomenological approach similar to that described by Wertz⁽³⁸⁾. This involved each author separately coding eight to ten transcribed interviews for major themes, developing a master code list through consensus discussion of the three authors, and reorganizing the narratives by these agreed-upon themes.

Information on violence surfaced primarily when we asked questions about the relationship between food insecurity and mental health, as many of these questions were answered with stories of exposure to violence and multiple hardships. We defined violence broadly to include descriptions of all traumatic experiences from fear of violence to actual violence, either to oneself or others. The third author then used a grounded theory approach⁽³⁹⁾, a commonly used method in qualitative research on food insecurity^(40–43), to investigate these themes further. Through constant comparison analysis of over 200 cases of violence, three primary dimensions of violence emerged as most salient to the participants, namely severity, locus and life stage, with three to five dimensional points for each. We then summed the number of participants reporting at least one case of violence at each level of severity, locus or life stage, and also categorized each participant by household food security status, maternal depressive symptoms, and child and self-reported health status. We then summed the number of participants who described at least one case in each category of violence, and summed the number of participants in each category of food security, depression and child and self-rated health, in order to identify patterns of relationship among the dimensions of violence described by participants and the food security and health status measures (see Table 3).

Results

Dimensions of violence in relation to food security status and depressive symptoms

Demographic results displayed in Table 1 show that most caregivers were participating in the major public assistance

programmes – SNAP, WIC and TANF – at the time of the interview. Twelve of forty-four women reported food security, fifteen of forty-four women reported low food security, and seventeen of forty-four women reported very low food security. Twenty-one of forty-four reported depressive symptoms. Compared with the food secure and low food secure groups, a higher proportion of very low food secure participants reported that their own health was fair/or poor and reported depressive symptoms. Over a quarter of the participants (12/44) never completed high school, fourteen had graduated from high school and nearly half (18/44) had attended a technical school or taken some college courses. Paradoxically, a higher proportion of those who had attended some college/technical school reported very low food security compared with those who had only a high school education or less. Based on information gleaned in the qualitative interviews, this is likely due to a mix of factors, including struggles to balance income between hours working *v.* attending school, the high cost of college tuition and college loans which drain income that could otherwise be put towards basic necessities such as food, and the fact that education received by most participants was through job training programmes required by the TANF (cash assistance) programme. These trainings received mixed reviews from the participants and rarely resulted in greater earnings. In addition, these results are affected also by exposure to violence.

In the qualitative interviews participants described childhood experiences that included witnessing the intimate partner abuse of their parents/guardians, exposure to substance abuse and domestic abuse/neglect. Theme analysis demonstrated five dimensional points of severity of violence, ranging from ‘casually recalled’ violence to violence with ‘life-changing impact’ (see Table 2). We also categorized violence in terms of locus, referring to closeness of violence to the caregiver: ‘being a victim’, ‘being a perpetrator’, ‘participants’ children’s experience’, ‘close others’ and ‘distant others’. We distinguished three life stages: ‘childhood’, ‘past adolescent/adulthood’ and ‘currently’.

We categorized each dimension of exposure to violence by participants’ food security status and depressive symptoms to investigate resulting patterns (see Table 3). Each dimension of violence exposure revealed at least one category in which the group of very low food secure women differed from the low food secure and the food secure groups. In the life stage dimension, eighteen women reported exposure to violence as a child, twenty-seven reported violence in the recent past, and thirty-four women reported experiencing violence currently. For violence occurring during childhood, large differences appeared between the very low food secure and low food secure and food secure (9/17 *v.* 5/15 and 4/12). When locus of violence was considered, there were qualitative differences between all three groups in the case of perpetration of violence. A strikingly higher proportion of

Table 1 Characteristics of the Witnesses to Hunger sample by food security status (*n* 44)

Characteristic	Household food security status							
	Overall sample (<i>n</i> 44)		Food secure (<i>n</i> 12)		Low food security (<i>n</i> 15)		Very low food security (<i>n</i> 17)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Mother's age (years)	26.7	6.6	25.4	6.3	25.2	5.3	29.1	7.5
Child age (months)	17.7	9.6	13.2	7.5	18.2	11.2	20.5	8.8
		<i>n</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Race/ethnicity								
Black	31		9	75	10	67	12	71
Hispanic	10		1	8	5	33	4	23
White	3		2	17	0	0	1	6
Mother's place of birth								
US born	43		12	100	14	93	17	100
Immigrant	1		0	0	1	7	0	0
Marital status								
Not married	39		10	83	14	93	15	88
Married	5		2	17	1	7	2	12
Education								
<12th grade	12		3	25	4	27	5	29
High-school graduate/GED	14		6	50	5	33	3	18
Technical school/some college	18		3	25	6	40	9	53
Employment								
Unemployed	32		9	75	11	73	12	71
Employed	12		3	25	4	27	5	29
TANF*								
No TANF	21		5	42	7	47	9	53
TANF	23		7	58	8	53	8	47
SNAP†								
No SNAP	1		0	0	0	0	1	6
SNAP	43		12	100	15	100	16	94
WIC‡								
No WIC	7		0	0	1	7	6	32
WIC	37		12	100	14	93	11	68
Child health								
Fair/poor	12		1	8	5	33	6	35
Excellent/good	32		11	92	10	67	11	65
Maternal health								
Fair/poor	17		4	33	5	33	8	47
Excellent/good	27		8	67	10	67	9	53
Depressive symptoms								
Maternal depressive symptoms	21		2	17	7	53	12	71
None	23		10	83	8	47	5	29

GED, General Educational Development.

All percentages have been rounded to the nearest whole number.

*Temporary Assistance for Needy Families: programme providing cash welfare benefit to families with children with extremely limited or no additional income (<http://www.hhs.gov/recovery/programs/tanf/index.html>).

†Supplemental Nutrition Assistance Program (formerly the Food Stamp Program): programme providing income-eligible families with electronic benefits that can be used for the purchase of food products (<http://www.fns.usda.gov/snap/>).

‡Special Supplemental Nutrition Program for Women, Infants, and Children: provides supplemental foods, health-care referrals and nutrition education for low-income pregnant and breast-feeding women and children up to 5 years of age (<http://www.fns.usda.gov/wic/>).

participants (10/17) described themselves as perpetrators of violence among the very low food secure group compared with the low food secure group (2/15) and the food secure group (2/12). In terms of violence severity, more than half of the participants reporting very low food security reported violence that had life-changing impact, as opposed to a fifth and a third of the participants in the low food secure and food secure groups, respectively.

When level, locus and life stage were investigated in relation to the quantitative measure of maternal depressive symptoms, a greater proportion of high levels of violence exposure were described among those who

reported maternal depressive symptoms. For instance, women who reported depression also reported levels of violence that had longer-lasting and life-changing impact compared with women who did not have depressive symptoms. Also, similar to the group of very low food secure participants, those with depressive symptoms were more likely to have been a perpetrator of violence or had violence affect close others such as family members and friends. When the data were categorized by self-rated health and caregiver-rated child health, there were few recognizable differences in proportion among each category (results not shown).

Table 2 Categorization of violence severity

Severity level	Name	Definition	Example(s)
1	Casually recalled	Little or no impact apparent, regardless of severity of event	Assault or murder of a neighbour or distant friend
2	Fear of violence	Participant expresses fear in relation to the event	Fear of children being out in the street or in day care and at risk of abuse/molestation by others
3	Short-lived impact	Consequences of event are described as short-lived	Abuse or neglect experienced by participant as a child
4	Longer-lasting impact	Consequences of event are described as long-term, but there is resolution or the consequences were not life-changing	Attempted murder or threats to close family members, experiences of intimate partner violence (as a child or in current relationships)
5	Life-changing impact	Event described as permanently life-changing	Murder or suicide of family/close friends, rape experienced by participant

Examples of exposure to violence described by very low food secure participants

Descriptions of severe violence congregated among the seventeen participants who reported very low food security. These experiences included exposure to rape and sexual assault, child abuse and neglect, becoming a perpetrator of violence, and attempted suicide and suicidal ideation. Again, these themes emerged in dialogues related to issues that the women identified as significant to their experiences with poverty and hardship. Most often, questions that elicited these experiences with violence and fear were non-directive, open-ended follow-up questions to references of depression, having a difficult childhood, complex emotions about parents and other helpers, and difficulty securing and maintaining employment. We describe below examples of the most severe violence that had a major impact on the lives of the women reporting very low food security. We report from their transcribed narratives. The ellipses [...] signify elimination of transition words such as 'like' and 'um' and repetitive phrases that do not alter the meaning or word proximity.

Rape and sexual assault

The women who described sexual assault did so primarily to explain how they came to be in their current financial situation where they cannot afford enough food, which in many cases was linked to low self-esteem and minimal positive adult influences during childhood. For instance, Participant #23, a 40-year-old married caregiver of a toddler, described how her stepfather had repeatedly raped her since the time she was aged nine. She also described how she never told her mother because she worried her mother would blame her and 'beat' her in response. From the participant's perspective, her mother was in a state of denial despite Participant #23's serious resulting medical conditions such as a ruptured bladder and vaginal bleeding. Worry about telling a trusted adult was found among several other participants. An unmarried mother of a two-and-half-year-old, Participant #43, described that when she was age 17 she finally reported to the police and to her family that her adopted father had been raping her for years. As a result, her stepmother

kicked her out of the house. Both women identified here described episodes of living in abandoned homes without running water and electricity. One turned to prostitution and crack cocaine, the other to a homeless shelter. These episodes are not the only rape experiences resulting in severe poverty in this sample. Six women reported having been raped by family members and each participant coped by escaping to the streets before age 18, in most cases dropping out of high school. Participant #17, a single caregiver of a toddler, reported she was so scared that men would rape her that she was very promiscuous (she slept with any man who 'wanted' her) for fear that she would be raped again if she refused their sexual advances. This violence-related high-risk behaviour was also described as linked to hunger she experienced in early childhood because her mother was exposed to violence and suffered from alcoholism:

'Sometimes we didn't have food to eat for two days. My mother was an alcoholic. So her drink came first. She was a victim of abuse. She was being abused, physically abused by her boyfriend. She was bein' abused so her thing was drink. I guess it comforted her and took all that away from her. So her drink came before anything else. We needed clothes. We went without a whole lot.'

There were very few reported instances in which the family was supportive of the woman who reported rape or sexual assault as a child or adolescent. In addition to experiencing rape by a family member, Participant #26, an unmarried mother living with her two children, age two and three, was beaten and molested by other adults. She described the connection between the molestation and the physical abuse she experienced as a child:

'I really want you to understand and hear how it is on my side; how I feel. I got molested by a mentally retarded uncle. Nobody believed me that I got molested [...] I can't sleep anymore at night. As a child, I used to get hit. I don't wanna go into details, but things I used to have happen to me at home, what my mom was goin' through and how I was

Table 3 Characteristics of the Witnesses to Hunger sample by life stage/locus/level of violence, food security status and report of maternal depressive symptoms (n 44)

Characteristics of exposure to violence	Food security status															
	Overall sample (n 44)				Food security (n 12)				Food insecurity (n 32)				Maternal depressive symptoms			
	Food security (n 15)		Very low food security (n 17)		Low food security (n 12)		Food security (n 12)		Low food security (n 15)		Very low food security (n 17)		No depressive symptoms (n 23)		Depressive symptoms (n 21)	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Life stage	18		4	33	5	33	9	53*	7	30	11	52*	11	30	14	67
Childhood	27		7	58	7	47	13	76	13	57	14	67	14	57	14	67
Past adulthood	34		9	75	10	67	15	88	16	70	18	86	18	70	18	86
Current	32		11	92	6	40	15	88	17	74	15	71	15	74	15	71
Locus of violence	14		2	17	2	13	10	59*	4	17	10	48*	4	17	10	48*
Victim of violence	17		2	17	7	47	8	47	8	35	9	43	9	35	9	43
Perpetrator of violence	24		7	58	7	47	10	59	10	43	14	67*	14	43	14	67*
Violence to child	17		3	25	5	33	9	53*	8	35	9	43	9	35	9	43
Close others	17		3	25	5	33	9	53*	8	35	9	43	9	35	9	43
Distant others	15		2	17	6	40	7	41	7	40	10	24	5	43	12	57
Level of violence	28		8	67	11	73	9	53	16	70	12	57	12	70	12	57
Level 1: Casually recalled	24		7	58	5	33	12	71	13	57	11	52	11	57	11	52
Level 2: Fear of violence	22		7	58	3	20	12	71	8	35	14	67*	14	35	14	67*
Level 3: Short-lived impact	17		4	33	3	20	10	59*	5	20	12	57*	12	22	12	57*
Level 4: Longer-lasting impact																
Level 5: Life-changing impact																

All percentages have been rounded to the nearest whole number.

*indicates large proportional difference in exposure to violence among participants by food security status and by report of maternal depressive symptoms.

bein' treated – the “shut-up”, the “stop”, [...] the “pop you in the head” – whatever the case, I would get it.’

Overall, experiences with rape and sexual assault were described as linked to past and current physical and mental health problems, inability to sleep, to eat, to feel safe and to develop lasting, trusting relationships. These physical and mental health problems were often provided as the reasons behind an inability to maintain a steady job, to complete their educations and to enter into nurturing relationships.

Exposure to child abuse and intergenerational violence

In addition to Participant #26, several other women described their experiences with having been abused as children. These experiences sometimes included the withholding of food or abusive activities around food. Participant #21 described her experience of being in foster care:

‘The lady that we was with for a year, she used to beat us when we were bad. That’s what my mom did, so it didn’t bother me. But when I went to the next foster home, she used to make us eat cat food for breakfast. I’d throw up. [...] She’d say I’m not goin’ to school until I eat that. I wet the bed when I was a little girl. She made me sit on the toilet all night long because I wet the bed. Her grandson, the whole time we were there for the six years [between age 4 and 12 years], he raped us.’

Participant #6, a single, 20-year-old mother of a two-year-old and a one-year-old, described that she not only suffered abuse by her mother, but also by her older brother who punched her so hard in the chest when she was nine that she was hospitalized. Abuse by her mother continued into adulthood. When asked by the researchers how the current abuse by her mother affected her ability to stay at her job, she described how she would hide the abuse:

‘I’ll always hide it. I mean I’ve been through worse, a lot worse. So, that’s really nothing too new. I thought it would be important for me to take a picture of it because I’m twenty years old. I’m an adult. There’s no reason why my mom should be putting her hands on me. But this is nothing compared to the way she used to beat me with belts, with extension cords, with shoes, with broomsticks, with phone cords, anything.’

Noting her mother’s depression, history of violent relationships and history of abuse she suffered as a child, this participant recognized that she herself is a part of a generations-long pattern.

Violence perpetuated throughout generations was a common thread in descriptions of exposure to violence as

a child. The women described how they are working to break this cycle, or how they get caught up in the cycle of violence. Participant #44, a soon-to-be-married mother of a three-year-old, described her relationship with her mother as 'nonexistent' because she blames her mother (who had severe drinking problems) for her childhood deprivation and mistreatment:

'I blamed my mother for all of it because there's no other person to blame. It goes back to how she was raised, and I think that's the cycle in our Black families. Like, they take it from when they were raised and bring it to now. Well, you have to break the cycle. My mom was a miserable Black woman, period. But why should I be a miserable Black woman because she's a miserable Black woman?'

This participant insisted that she does not want the violence to define who she is today. This desire to break the cycle was echoed by Participant #10, a single mother of three children, aged 11, eight and two, who described her upbringing as saturated with violence that she is trying to stop as an adult:

'We grew up with our parents cussin' and hollerin' and beatin' us all the time. You gotta break the chain somewhere, you gotta break it. I guess that's what our parents did, so that's what we do. I guess because their parents fussed, cussed, and hollered and drank and whatever, it was appropriate. They didn't see anything wrong with it. You just so accustomed to what's around you. That's why I try to be careful of what I bring around.'

Wanting to break the cycle of violence was described as almost impossible, demanding total vigilance. This was often difficult, because the family members of the participants, and their surrounding neighborhoods, were described as steeped in violence and dysfunction.

Perpetrators of violence

From several women's perspectives, violence emerges out of frustration with those around them and from deprivation. In response to a question about how the welfare system helps low-income families (the original intent of the present study), Participant #37, a mother of two young children, aged one and two, described how the system lets her down and how frustration with poverty might lead her to crime:

'[The system] should be to help the poor. They wonder why there's so much crime. I never did a crime in my life. Here I'm gettin' thoughts where I wanna bust somebody upside the head to get some money. I'm just keepin' it real and tellin' you the truth. I'd never, ever in my life, 'cause I go and have thoughts like that. But, I be, I'm strugglin' so hard to [make it], it makes my mind go down. [...] I shouldn't

even be havin' thoughts like that. I'm strugglin' so hard.'

This narrative outlines how frustration with the system and with deprivation leads to violent thoughts, and sometimes to violent actions, turning victims into perpetrators. Participant #5, who had run away from home at age 14 because she was raped by her father and physically abused by her mother, described how she would turn to violence as a relief from her suffering and from her lack of control:

'From the first fight, when the girl used to beat me up every day, it felt good to have control again. If I beat her up, she will leave me alone. If I just really slam her head into this concrete like this, it felt like a sign of relief. In a sick way, it felt good. Like, "if I just beat this girl down enough, or this man down enough, they would leave me alone and I will get the respect I deserve." And that's how I looked at life, like I had to fight my way.'

This description is a recognition that turning to violence to cope with frustration is an indication of lack of control over her life situation, and being a perpetrator of violence became an important coping mechanism.

Attempted suicide and suicidal ideation

Aside from occasionally victimizing others, participants explained they sometimes turned the violence against themselves. A mother of five children described her attempted suicide as a teenager. She explained:

'I got so depressed that I tried to hang myself and the belt broke. [...] I guess I got so depressed of being by myself.'

She described that her loneliness was related to having no one who cared for or supported her. Participant #44 reported trying to commit suicide by swallowing bleach. Participant #41, a 20-year-old mother of a one-year-old, described how, during her teenage years, she often thought of committing suicide because her mother encouraged her to do so, as it would be 'one less mouth to feed'. More recently, Participant #14 contacted the interviewers for assistance while she was considering shooting herself with a gun that was in her home. Suicide attempts were described as responses to inability to cope with previous experiences of violence and to frustrations associated with economic deprivation.

Discussion

Direct questions about violence exposure were not initially included in the semi-structured interview protocol, yet the methods in the present study facilitated the emergence of exposure to violence as an important theme that the low-income mothers chose to describe.

The nature of photovoice allows for research participants to frame the issues most important to them. While the photographs are not discussed herein, the method of utilizing photographs to elicit the issues most important to the women (instead of the issues most important to the researchers) made for insightful breakthroughs that would not have been made otherwise.

Forty participants described at least one scenario of violence and fear. The most severe forms of violence – those with longer-lasting and life-changing impacts – were described by proportionately more women who reported very low food security. This is an indication that traumatic experiences may be a factor that characterizes very low food secure households.

Although a majority of women reported exposure to violence currently, and reported that they were a victim of violence, those who reported exposure to the severest levels of violence explained how these experiences led them down a path towards deprivation typified by not having enough money for food or other basic needs. The long-lasting, transformative impact of violence exposure on health and development are well documented in research that investigates children's exposure to adverse childhood experiences. Exposure to violence and 'toxic stress' has severe life-long consequences on social, emotional and cognitive development. This, in turn, affects one's ability to succeed in school and thus affects earnings⁽⁴⁴⁾. This understanding of the long-term effects of adverse experiences in childhood, especially, helps explain the potential link that we found in this sample between exposure to violence in childhood and very low food security in adulthood.

According to trauma theory, acting violently towards others and/or having suicidal ideation are normal reactions to very stressful circumstances. Trauma theory refers to the complex effects of trauma on physical and mental health and behaviour⁽⁴⁵⁾. Research based in psychology, sociology and psychobiology describes how exposure to abuse and neglect or traumatic events such as war or interpersonal violence has lasting effects on adult behaviour and psychopathology⁽⁴⁶⁾. These adult behaviours include re-enactment of violence, disassociation, sleeplessness, addiction to trauma and becoming a perpetrator of violence⁽⁴⁵⁾. Participants in the present study reflected these experiences and behaviours, and described qualitatively how their perpetration of violence is linked to exposure to traumatic events earlier in life and their experiences with food insecurity. Our results are similar to those found among women in Uganda where food insecurity was related to higher sexual risk-taking, trading sex for money and staying in violent relationships⁽⁴⁷⁾.

The narratives describing exposure to violence also showed proportional differences among those who reported depressive symptoms, especially related to severity and quality of violence. In addition, qualitative descriptions of violence often followed from descriptions

of feeling sad, depressed, anxious, stressed and frustrated. Each of these experiences relates to feeling depressed even though not picked up by the quantitative depressive screen, and it was therefore clear from the women's descriptions that depression and exposure to violence went hand in hand.

Limitations

A strength of the present study is its ability to elicit issues important to participants themselves, rather than the researchers. This may also be a weakness. It is possible that self-selection into this type of study – in which women were encouraged to participate if they had ideas for change – may have biased participation by those who had experiences with violence and who were eager to express ideas for breaking the cycle of violence. Recruitment through an ongoing study of participants who utilized a hospital emergency room introduces selection bias for those who may have a higher exposure to violence overall. Interviews took place in participants' homes and may have resulted in greater comfort in answering the food security survey that may bias results towards those who identify themselves as severely deprived. In addition, drawing out the relationship between food insecurity and violence in explicit, linear terms was difficult within the open-ended interview, as the entire interview was spent on describing issues related to public assistance, poverty and breaking cycles of hunger and economic deprivation. Further research on the explicit pathways, beyond low educational attainment and inability to maintain a living-wage job, will help make the relationship between violence and food insecurity more explicit. The lack of inclusion of a validated, quantitative measure of exposure to violence leaves open questions regarding the reliability of results, because the violence stories emerged naturally in conversation. Finally, we did not track for differences in exposure to drug and alcohol addiction, which may relate to exposure to violence and ability to pay for food.

Implications for research and practice

Just as studies have found exposure to violence to be an important factor that leads to homelessness⁽⁴⁸⁾, violence exposure may be a significant factor in experiences of hunger. Few quantitative studies have suggested that exposure to violence may be associated with very low food security. While some food insecurity research has captured strong associations between depression, dysthymia and social isolation, those data suggest a need for investigation into the prevalence of exposure to violence. The present results suggest an urgent need for quantitative measures in population-based surveys to test the hypothesis that food security status is linked with exposure to violence.

Low-income mothers of young children may need intensive wrap-around services that can help them during

experiences of trauma in addition to ensuring women and their children have adequate access to federal nutrition assistance programmes. Our results also suggest that young children of very low food secure women are exposed to violence and its physical, mental and behavioural sequelae. This exposure could have disastrous effects on children's social, emotional and cognitive development.

There are three steps to move forward with food security research. First, population research should incorporate questions about exposure to violence to assess relationships between food security status and trauma. Second, health-care providers should screen for both food security and violence and refer as needed to domestic violence resources; additionally, those assisting women with exposure to domestic and intimate partner violence should refer to food assistance programmes. Finally, community-wide interventions to address community violence, domestic violence, child abuse and intimate partner violence could readily incorporate a community food security approach that seeks to improve access to food and ensures families can readily access federal nutrition assistance programmes.

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