



Safety Nets, Maternal Mental Health, and Child Mental Health Outcomes among Mothers Living in Poverty

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Abstract

Of the 40 million people living in poverty in the U.S., approximately 28% are single mothers and 18% are children. Low family income is linked with negative outcomes including higher rates of child mental health concerns. Due to limited public benefit availability, mothers often must rely on informal safety nets, or support from family or friends, to make ends meet. However, these informal safety nets are often coupled with burden, or obligations. To further increase their vulnerability, mothers living in poverty face higher levels of poor mental health. Also, both maternal mental health and safety nets can change over time. The purpose of this study was to examine informal safety nets, including informal support and burden, and maternal mental health and their longitudinal effects on mental health symptoms of children living in low-income families. Relying on data from the Welfare, Children, Families project, descriptive results showed change in informal safety nets, maternal mental health, and child mental health over time, with decline or multiple changes more common than improvement. Multilevel change models indicated safety nets and maternal mental health were associated with child outcomes such that mothers with minimal safety nets, higher psychological distress, and higher parenting stress had children with significantly higher mental health symptoms compared to children whose mothers had healthy safety nets and less distress. Findings speak to the importance of interventions that target both mothers and children in low-income families.

Keywords Single mothers · Safety nets · Social support · Maternal mental health · Longitudinal

Highlights

- Low-income mothers' informal safety nets, or support from family or friends, change over time.
- Findings suggest the negative impact of weak informal safety nets and poor maternal mental health for child mental health.
- Findings suggest the increasing importance of informal safety nets for children's mental health as children age.

There are 40 million people living in poverty in the U.S. Of them, 28% are single-mothers and 18% are children (Fontenot et al. 2018). Low family income negatively affects maternal and child outcomes. Low-income mothers face lower rates of school completion and employment and higher levels of harsh parenting strategies, parenting stress,

and poor physical and mental health. Their children experience higher incidence of educational, behavioral, and emotional problems (for review see Edin and Kissane 2010). Compared to other industrialized countries, U.S. families benefit less from public safety net programs, or public safety nets, including Temporary Assistance to Needy Families (TANF), Supplemental Nutritional Assistance Program (SNAP), and Supplemental Security Income (SSI; IOM 2013). As such, mothers living in poverty often must rely on their family or friends to supplement wages, garner family necessities, or otherwise get by each month (e.g., Edin and Lein 1997). These informal safety nets include practical, financial, and emotional supports that family or friends provide, and are particularly important post-welfare reform when the public safety net is largely

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contingent on employment (Moffitt 2015). The benefits of informal safety nets span multiple domains including material gains, better maternal mental and physical health, and better child mental and physical health outcomes (Huang et al. 2014; Radey 2018; Taylor and Conger 2017).

Informal safety nets can also introduce burden, or responsibilities that accompany a relationship, however (Offer 2012). Low-income mothers may carefully weigh potential benefits of relying on informal safety nets against what is expected in return, or the burden of such safety nets (Edin and Shaefer 2015; Levine 2013; Stack 1974). Moreover, low-income mothers' informal safety nets may decline in strength as children age (Radey and Brewster 2013) and may be unstable (Sandstrom and Huerta 2013; Schenck-Fontaine et al. 2017). Yet, most research examines only one aspect of informal safety nets—support or burden—and neglects to consider safety nets over time (Sandstrom and Huerta 2013). In addition, substantial evidence suggests the importance of considering maternal mental health aside informal safety nets, particularly among low-income mothers (e.g., McLoyd and Wilson 1990; Taylor and Conger 2017). The purpose of this study, therefore, was to examine the longitudinal effects of informal safety nets, including available support and burden, and maternal mental health on the mental health outcomes of children living in low-income families.

Informal Safety Net Configurations among Low-Income Mothers

Informal support can be essential in helping low-income, single mothers manage the effects of poverty (Edin and Lein 1997; Gazso et al. 2016). Informal safety nets, including burden to network members, however, are often complex and include expectations of both assistance and reciprocity (Gazso et al. 2016). Stack (1974) found that low-income women formed social networks in which they “swapped” things (e.g., goods, services) with the implicit intent of obligating the recipient to offer something in return at a later time. Since that study, researchers have continued to demonstrate expectations of reciprocity within informal safety nets (e.g., Domínguez 2011; Gazso et al. 2016). Yet, due to data limitations, most quantitative research typically assesses support without also considering the potential burden of expected return (e.g., Harknett and Hartnett 2011; Turney and Kao 2009).

Although work on reciprocity is largely qualitative, one recent study suggests low-income mothers vary quantitatively in their levels support and burden. A latent class analysis of informal safety net configurations using the data from the Welfare, Children, Families (WCF) project, data used in the current study, indicated 4 distinct informal

safety net configurations of low-income mothers: *healthy support and burden*, *healthy support only*, *healthy burden only*, and *unhealthy support and burden* (Radey and McWey 2019). *Healthy support and burden* was defined as mothers who had financial, practical, childcare, and emotional supports plus manageable burden in those areas as well. *Healthy support only* included mothers who perceived they had enough support but too much or too little burden in terms of providing financial, practical, childcare, and emotional supports. Conversely, *healthy demands only* consisted of mothers who had manageable burden but not enough supports. Finally, *unhealthy support and burden* had, in comparison with the other groups, harmful levels of both support and burden. The current study uses these classifications to examine how informal safety nets relate to child mental health.

Informal Safety Nets and Change Over Time

Importantly, informal safety nets may change over time (Gazso et al. 2016; Radey and McWey 2019). In Radey and McWey's (2019) study, the majority of mothers without healthy support and burden had changed safety net configurations 18 months later. In a qualitative study of low-income individuals in Canada, researchers found evidence that informal safety nets demonstrated more “changeability... rather than durability” (Gazso et al. 2016, p. 459). Economic, residential, and childcare instability is common among poor families (Hill et al. 2017), and this may further contribute to informal safety net volatility (Gazso et al. 2016).

Informal Safety Nets and Child Mental Health

Evidence suggests that access to informal safety nets promotes better child outcomes, including child health and development, for low income families (Jackson et al. 2000; Ryan et al. 2009). For instance, using two national datasets, researchers found that mothers' informal safety nets were associated with child mental health outcomes such that children of mothers with more support had lower internalizing and externalizing scores compared to children whose mothers had less available support (Ryan et al. 2009). Similarly, a longitudinal study found links between informal instrumental support available to mothers when their children were age 1 and children's internalizing and externalizing symptoms at child age 3 (Choi and Pyun 2014).

Of the limited research on informal safety nets and child outcomes, few studies consider the effects of network burden. Taylor's study (Taylor 2015) and his collaborative work (2012; 2016) are important exceptions. Examining 130 to 200 low-income, African American mothers, the researchers found that adolescents of mothers who had more demanding kin relations, such as kin who created problems for or were

too dependent on the mother, demonstrated higher levels of internalizing and externalizing symptoms (Taylor et al. 2012), adolescent distress (Taylor 2015), adolescent problem behavior (Taylor et al. 2016), and lower school achievement (Taylor 2015). This research suggests excess network burden is detrimental to youth outcomes, yet we do not know how it operates in conjunction with support.

In addition, we know little about the potential importance of timing effects of informal safety nets and child mental health. Studies examining informal safety nets and child outcomes tend to focus on early childhood (e.g., Jackson et al. 2000; Ryan et al. 2009), a critical time for child development (Duncan et al. 2012). This study provides the opportunity to examine if and how the relation between informal safety nets and child mental health may change over childhood.

Safety Nets, Maternal Mental Health and Child Mental Health

Together with examining safety nets, studies suggest the importance of examining maternal mental health when examining child mental health (McLoyd and Wilson 1990). Some propose that the exposure to negative life events and stressors inherently associated with living in poverty causes maternal distress and parenting stress and, ultimately, affects child outcomes (e.g., Gershoff et al. 2007; National Institute of Child Health and Human Development Early Child Care Research Network 2005; Sandstrom and Huerta 2013; Taylor and Conger 2017). When examining support and mental health together, researchers found that informal safety nets related to fewer child mental health symptoms while poor maternal mental health related to higher symptoms among Black, single-mother, low-income families (Jackson et al. 2000). Similarly, in a study of low-income, single mothers, McLoyd and Wilson (1990) found that high levels of maternal distress and low levels of supportive parenting behaviors predicted higher degrees of psychological distress among their children. Although these studies did not examine informal safety net support *and* burden, findings help shed light on why it may be important to empirically examine support, burden, and maternal mental health. If support provided by one's informal safety net comes with an implicit expectation of gaining something in return, those with the least to offer and the most distress may be less likely to have access to informal safety nets even if they have the greatest need. This study aims to better understand the relations between informal safety nets, maternal mental health, and child mental health.

Conceptual Framework

Social capital, or potential available resources and obligations from one's informal network (e.g., family, friends), is important to well-being (Coleman 1998). Defined by its

functionality, social capital provides a means to achieve outcomes otherwise unattainable, including human capital and child development (Coleman 1998). Social capital is not a single entity; rather, it can be a variety of entities as long as it (a) consists of some form of social structure and (b) facilitates actions of individuals within the structure. Applied to this study, single mothers' social capital comprises their informal safety nets offered and expected by family or friends. Although substantial research suggests the merits of having people to turn to in times of need (Edin and Lein 1997), the demands or responsibilities from social relationships—a central component of social capital—has gained much less attention. Yet, the drawbacks of social networks, following Coleman's (1998) social capital framework, may be particularly relevant for low-income mothers in resource-scarce environments. Recognizing the importance of considering the bi-directionality of social networks, Offer (2012) introduced the concept of "burden of reciprocity" identifying that exclusively measuring support neglects the demands that relationships may introduce. If mothers do not have resources to share, for example, they may withdraw from relationships, thus losing potential sources of support. Thus, it is important to consider change in social capital over time given the often-volatile relationships and circumstances that low-income mothers face (Sandstrom and Huerta 2013).

As a critical resource, mothers' social capital can influence her quality of life, including parenting stress and psychological distress, thereby influencing her children's development, including child mental health (Coleman 1998). The current application of social capital contributes to understanding how family processes influence child development by capitalizing on longitudinal data to test the importance of informal safety nets, including support and burden, and maternal stress over time to child mental health.

Current Study

Low-income mothers face high levels of stress and distress and rely on their informal safety nets to make ends meet (Edin and Lein 1997). The importance of these safety nets is even more significant post-welfare reform in which public assistance availability is more limited (Loprest and Nichols 2011). This study uses Coleman's concept of social capital to understand the longitudinal effects of informal safety nets and maternal mental health on mental health outcomes of low-income children. Specifically, the aims were to measure: (1) informal safety nets, maternal mental health, and child mental health behavior problems over time, (2) the relation between informal safety nets and child mental health, (3) the relation between maternal parenting stress and distress and child mental health, and (4) the relation

between informal safety nets and child mental health over time. Based on extant research, we hypothesized that (1) informal safety nets, maternal mental health, and child mental health deteriorate over time, (2) weak informal safety nets, including little available support and unmanageable burden, are positively associated with higher initial levels of and linear increases in children's mental health symptoms, (3) mothers' mental health problems, including distress and parenting stress, are positively associated with higher initial levels of and linear increases in children's mental health symptoms, and (4) the effects of informal safety nets are age contingent, particularly important for young children.

Method

The Welfare, Children, Families (WCF) project is a longitudinal study developed to provide insight into racially and ethnically diverse, low-income families' lives post-welfare reform (Angel et al. 2007). Caregivers with children between ages 0–4 or 10–14 at baseline were sampled from Boston, Chicago, and San Antonio (93% of the caregivers were the children's biological mothers). A stratified, random sampling approach was used to identify neighborhoods with at least a 20% poverty rate and households within those neighborhoods with families living below 200% of the poverty threshold. Researchers first collected data via a survey instrument with close-ended items from mothers and their children in their homes in 1999 (Wave 1), again in 2000–2001, approximately 1.5 years later (Wave 2), and 5 years later in 2005–06 (Wave 3). The Wave 1 response rate was 75%, Wave 2 was 88%, and Wave 3 was 84% (Angel et al. 2007).

We used data from all study waves to examine how informal safety nets contribute to parenting stress, maternal distress, and child mental health. Mothers provided assessments of the mental health of their children beginning at age 2; therefore, we included mothers whose children were at least 2 years of age at baseline ($n = 1857$). Because the relationship between informal safety nets and child mental health may differ for non-parental caregivers, we limited the sample to biological and adoptive mothers who maintained caregiving responsibilities at all waves ($n = 1646$; 89% of sample). We further excluded a few mothers who were of races other than Black, Hispanic, or White because of the small number ($n = 34$) and also mothers with missing data at baseline ($n = 16$) resulting in a final sample of 1596 mothers and 3895 observations across three waves. Mothers included in the sample (55% Hispanic, 39% Black, and 6% White) were similar to those not included on all study variables. See Table 1 for more information about sample demographic characteristics.

Table 1 Percentage distribution of mothers at wave 1: welfare, children, families project

Variable	<i>M (SD)</i> or %
<i>Outcome – CBCL Total Symptoms</i>	
Mean Inventory Score	30.2 (21.4)
% Borderline Concern	7.7
% Clinical Concern	17.9
<i>Outcome – CBCL Internalizing Symptoms</i>	
Mean Inventory Score	8.2 (6.9)
% Borderline Concern	9.1
% Clinical Concern	16.3
<i>Outcome – CBCL Externalizing Symptoms</i>	
Mean Inventory Score	10.6 (8.1)
% Borderline Concern	10.2
% Clinical Concern	12.8
<i>Main Predictor – Safety Net Configuration</i>	
Minimal safety net	13.4
Healthy demands only	15.4
Healthy supports only	16.5
Healthy demands and supports	54.8
Complete private safety net	71.3
Emotional support	89.6
Practical support	90.1
Child care support	89.6
Financial support	81.1
Healthy demands in at least 3 areas	70.1
Healthy emotional demands	73.0
Healthy practical demands	77.8
Healthy child care demands	73.4
Healthy financial demands	68.8
<i>Main Predictor – Maternal Mental Health</i>	
Mean parenting stress level (1–5)	2.8 (0.85)
Mean maternal psychological distress	6.7 (8.70)
% at or above clinical level	6.9
<i>Maternal Covariates</i>	
Race and ethnicity	
Non-Hispanic, Black	39.0
Hispanic	55.4
Non-Hispanic, White	5.6
Age (in years)	33.6 (8.00)
Living with partner including married (yes)	40.4
Has a high school diploma/GED (yes)	56.9
Mean number of kids in the household	2.72 (1.35)
Focal child is a girl	50.7
Focal child age	
Total	9.09 (4.56)
Ages 0–4	3.49 (0.90)
Ages 10–14	12.50 (1.43)

Measures

Informal safety nets

Informal safety nets included both supports and burden. To measure supports, mothers were asked whether they had “no one”, “some”, or “enough” support in each of the following areas: emotional (i.e., listen to your problems), practical (i.e., do small favors), financial (i.e., loan you money), and childcare (i.e., take care of your children). To assess burden, mothers were asked if there was “no one”, “too many”, “only a few”, or “as many as you can handle” people who needed them for support. Building from a latent class analysis (Radey and McWey 2019), we categorized safety sets as having healthy support when mothers had “some” or “enough” supports in all four areas. We categorized informal safety nets as having manageable burden when mothers had “only a few” or “as many as you can handle” network members needing support in at least three areas. “Healthy support and burden” included mothers with healthy levels of support and manageable burden. “Support only” or “Burden only” included mothers who had healthy levels of supports or manageable burden only, respectively, and “unhealthy” included those who lacked both healthy support and manageable burden. In regressions, we use healthy support and burden as the reference category.

Child mental health

Child mental health was measured by the Child Behavioral Checklist (CBCL) total score of internalizing (e.g., too shy or timid) and externalizing behaviors (e.g., screams a lot; Achenbach 1991). We selected raw scores from the total behavior scale to capture multiple dimensions of child mental health, particularly relevant for the largely disadvantaged sample (Fanti and Henrich 2010). The CBCL is comprised of 113 items with response options ranging from 0 (*not true as far as I know*) to 2 (*very true or often true*). Higher scores indicate higher levels of symptoms, and there are normed clinical cutoff scores indicating borderline and clinically significant levels (Achenbach 1991). The Cronbach’s alpha for total score scale for each wave for WCF sample were 0.94–0.95. (Angel et al. 2007).

Maternal mental health

A seven-item scale was adapted by WCF investigators to assess parenting stress. The items measured negative emotions associated with parenting such as “I feel overwhelmed by my responsibilities as a parent”. Mothers indicated their level of agreement with items on a five-point scale ranging from 0 (*strongly agree*) to 4 (*strongly disagree*). In keeping with past research using this measure (e.g., Ettinger et al. 2018), mean

scores were calculated across items and higher scores indicate higher parenting stress. The reported Cronbach’s alpha for the WCF sample was acceptable (0.75–0.81; Angel et al. 2007).

The 18-item, Brief Symptom Inventory (BSI; Derogatis 2000) was used to measure maternal distress. Mothers indicated their level of agreement on a 0 to 4 scale in which 0 was “not at all” and 4 was “extremely”. The summed variable included three sub-scales to measure somatization, depression, and anxiety. Higher scores indicate higher levels of distress. For the WCF, the Cronbach’s alpha for the BSI was 0.90 to 0.93 (Angel et al. 2007).

Covariates

Based on prior research on informal safety nets, maternal mental health, and child mental health, we included several time-constant covariates in the models including race and ethnicity, child gender, and maternal and focal child age at baseline. We created a race and ethnicity variable from two items: one asking mothers to select whether or not she was of Hispanic or Latina origin and one asking her to select her race based on categories from the US Census. From these items, we created three mutually exclusive categories (i.e., Hispanic, non-Hispanic Black, and non-Hispanic White). Due to a lack of power to detect relations, we excluded the small number of mothers in other racial categories ($n = 34$). In terms of child gender, we coded girls as 1 and boys as 0. We measured age based on birthdates for both mothers (in years) and their children (in months). We centered child age at 24 months (the youngest age for included children) for ease of interpretation. Models also included time-varying covariates including whether mothers were living with a partner or spouse (yes = 1, no = 0) and the number of children in the household under age 18, both based on their household composition roster. As suggested by Singer and Willett (2003), we centered the number of children around one, a substantively meaningful constant as the majority of mothers had one or two children. Mother’s highest education level was measured by distinguishing mothers with a high school diploma or GED (1) from those without (0). Due to the nature of the study, models controlled for whether or not the child was in the younger subsample (ages 2–5) and whether or not the parent completed the CBCL for their 2–3-year old children at baseline. Due to study design, models with covariates control for city.

Analytic Strategy

First, we used frequency distributions to provide a statistical description of mothers at baseline including informal safety nets, maternal stress and distress, child mental health, and the covariates. We next examined how informal safety nets; maternal stress and distress; and child mental health

changed over time. We indicated mothers and children whose values changed and how they changed (i.e., improved, deteriorated, or inconsistent). Descriptive statistics are weighted to represent low-income families living in the survey cities during the time of data collection.

Second, we used the multilevel models of change (Singer and Willett 2003) to examine how informal safety nets and maternal mental health predicted initial status and changes in child mental health. The technique measures both structural (i.e., fixed) and stochastic (i.e., random) effects simultaneously through equations at two levels. The models allow us to consider how change in low-income mothers' lives (e.g., informal safety nets, maternal mental health) is associated with child mental health. Level 1 models consider within-child change (e.g., how does mental health change for children of low-income mothers over time?). Level 2 models measure between-child differences in change (e.g., how do changes in mental health vary across children?). Of particular importance in our examination of informal safety nets and child mental health, Level 2 models use the variation in change across children to determine the shape of the individual growth trajectories, given each child's set of covariates and the interrelations among the covariates. Level 2 equations address how covariates were associated with child mental health at baseline and how the same covariates were associated with the rate at which child mental health changed over data collection. We measured the passage of time between waves using focal child's age in months. For the main predictors of maternal parenting stress and mental health, we follow Hoffman's (2015) approach to differentiate within- and between-person associations. We included person-centered variables to measure within-person associations. We included mother's average score across the three time points to control for between-person associations. To examine if the association between informal safety nets and child mental health was conditional on child age, we tested an informal safety net-time interaction.

Results

Table 1 provides a statistical description at baseline data collection, weighted to represent mothers living below 200% of the poverty line. More than one in four children exhibited mental health symptoms in the range for concern, with 18% demonstrating clinically significant mental health problems. Similar proportions of children experienced clinically significant internalizing and externalizing symptoms. Most mothers (55%) reported access to support in the areas of emotional, practical, financial support, and childcare, and manageable burden (i.e., some people calling on them for help) in at least three areas. Mothers without

healthy nets were relatively equally split between having neither healthy burden nor support, healthy burden only, or healthy support only. Although at least two-thirds of mothers reported healthy support or burden in any one area, fewer mothers reported healthy support and burden levels for financial help than in other areas. The levels of parenting stress and psychological distress also are notable. The mean parenting stress level indicates that, on average, mothers neither agreed nor disagreed with statements such as being bothered by their children, overwhelmed by them, or angry towards them.

Addressing Aim 1, Table 2 indicates that low-income families experienced change over time. Almost one-third of children experienced change in clinical status of their internalizing or externalizing symptoms. Of those whose CBCL total scores changed over time, only 33% improved and maintained their improvement. Informal safety net health also changed. Two-thirds of mothers changed safety net configurations over time, and, of those with changes, only 36–38% gained healthy supports and burden and kept them over time. Change was less common, nonetheless notable (13–14%), in maternal stress and psychological distress with deterioration or multiple changes more common than improvement.

Table 3 presents the results from the mixed-effects regression models of child combined internalizing and externalizing symptoms. Models A and B are preliminary steps to ensure that the modeling is appropriate for the data. It is estimated without predictors to ascertain whether there is enough variation in mental health symptoms both between children and over time to warrant further study. The between-person constant reflects that children, on average, had a score of 32 across all time points. The large residual variance of the random-effects intercept suggests substantial, potentially explainable residual variation between children over time. Rho in Model A exceeds 0.5, indicating a high degree of autocorrelation and the fact that differences between children account for approximately one-half of the total variance in child CBCL scores (Singer and Willett 2003).

Model B adds child age (in months and centered at 24 months) to the model to capture the rate of change in child mental health symptoms. To consider both between- and within-child change in child mental health symptoms over time, this model allows individual children to differ in their Wave 1 score and in their change trajectories over time. A likelihood ratio test comparing deviance values from models A and B indicates that model B is a superior fit to the data (difference in deviance statistics of 19.9 ($df = 3$, $p < 0.0001$)). The between-child constant indicates that children's symptom scores significantly differed from 0 at age 2 and the within-child constant indicates that children differed in their score trajectories, with the average child's

Table 2 Percentage distribution of low-income mothers who reported at least one change between wave 1 and wave 3 follow-up: welfare, children, families project

Variable	Within-person change			
	Percent with change	Percent deteriorated	Percent inconsistent	Percent improved
<i>Outcome</i>				
Child total behavior symptoms (concern/clinical level)	30.9	39.0	28.1	32.9
Child internalizing symptoms (concern/clinical level)	36.7	39.4	25.9	34.7
Child externalizing symptoms (concern/clinical level)	32.3	35.5	24.5	40.1
<i>Time-varying predictors and covariates</i>				
Safety nets	66.8	–	–	–
Healthy supports	41.8	38.7	24.5	37.8
Healthy demands	47.9	37.8	26.8	35.5
Maternal mental health				
Psychological distress (clinical level)	14.1	28.8	28.1	43.2
Parental stress (Averaged one standard deviation change or more)	13.1	16.5	63.7	19.9

“Percent Deteriorated” includes those who increased in child behavior symptoms without a subsequent decrease, lost safety nets without a subsequent gain, or increased in psychological distress or parent stress without a subsequent decrease. “Percent Inconsistent” includes those who experienced more than one change. “Percent Improved” includes those who decreased in child behavior symptoms without a subsequent increase, gained safety nets without a subsequent loss, or decreased in psychological distress or parent stress without a subsequent increase

symptoms decreasing over time (-0.03 per month). The statistically significant residuals for initial status and change over time suggest unexplained between-child variability and within-child variability over data collection. The correlation coefficient between true initial status and true change is -0.251 ($-0.251 = -0.39 / \sqrt{241.65 * 0.01}$), suggesting that the relation between child’s symptoms and symptom change over time is negative and relatively weak. In short, the amount of child mental health symptoms at baseline did little to predict later change.

Models A and B confirm that child mental health symptoms change over time and between-child differences account for some of this change. Turning to Aims 2 and 3 (the effects of informal safety nets and maternal mental health on child behavior problems), model C builds from model B to include informal safety net and maternal mental health along with demographic and household characteristics. Model fit statistics indicate that model C provided a better fit to the data. The between-child constant in this model represents children’s mental health symptoms when all covariates are set to zero and the within-child constant represents monthly symptom change controlling for all covariates. The within-child constant changed from negative to positive from model B to C indicating that mental health concerns increased slightly over time, after accounting for covariates.

The coefficient estimates suggest that informal safety nets and maternal mental health were associated with child mental health symptoms. The total CBCL scores of children whose mothers had minimal informal safety nets were on average 2.8 points higher—indicating more mental health problems—than children whose mothers had healthy levels of support and burden. Children whose mothers had only healthy levels of burden (no support) averaged 1.7 higher on mental health symptom scores compared to those whose mothers had healthy nets. Maternal psychological distress and parenting stress also were associated with child mental health. The within-person effect of maternal distress indicates that for every unit of distress more than usual, children’s mental health symptoms increased by 0.28 points; for a one-point increase on the 5-point parenting stress index more than usual, children’s symptoms increased by 6.5 points. Demographic characteristics also related to child symptoms such that Black and Hispanic children had fewer reported symptoms, 3.8 and 4.7 fewer points, respectively, on average, than White children. Likewise, girls averaged 2 points lower than boys and children of mothers with at least a high school diploma also averaged lower scores.

The statistically significant variance components in model C indicate that additional predictors could improve model fit. To examine Aim 4 (effect of informal safety nets over time), model D expands on model C by including

Table 3 Mixed effects linear regression models of child's total internalizing and externalizing symptoms: welfare, children, families project, waves 1–3

Variables	Model A b (SE)	Model B b (SE)	Model C b (SE)	Model D b (SE)
<i>Fixed Effects</i>				
Between-child constant (initial status)	32.21*** (0.85)	33.03*** (0.82)	13.59*** (3.36)	13.82*** (3.57)
Safety Net Strength (ref: healthy support & demands)				Safety net/Time
No healthy demands or support			2.82** (0.88)	−0.20 (1.75)
Demands only			1.68* (0.84)	2.74 (1.67)
Support only			0.76 (0.80)	0.17 (1.55)
Maternal mental health				
Parenting stress (within person)			6.51*** (0.48)	6.52*** (0.48)
Parenting stress (between person)			9.59*** (0.62)	9.62*** (0.62)
Psychological distress (within person)			0.28*** (0.05)	0.28*** (0.05)
Psychological distress (between person)			0.60*** (0.05)	0.60*** (0.05)
Time-Invariant Covariates				
Race and ethnicity (Non-Hispanic White as reference)				
Non-Hispanic Black			−3.76* (1.50)	−3.80* (1.50)
Hispanic			−4.69** (1.48)	−4.70** (1.47)
Mother's age			−0.12* (0.06)	−0.12* (0.06)
Child is a girl			−2.27** (0.80)	−2.28** (0.80)
Child is toddler at baseline			0.40 (1.34)	0.43 (1.34)
CBCL 2–3 version			8.65*** (1.00)	8.62*** (1.00)
Time-varying Covariates				
Cohabiting or married			−0.39 (0.73)	−0.45 (0.73)
Mother has a HS diploma/GED			−2.72*** (0.78)	−2.66** (0.78)
Number of children in household			−0.13 (0.27)	−0.13 (0.27)
No support or demand x child age				0.03* (0.02)
Healthy demands only x child age				−0.01 (0.01)
Support only x child age				0.01 (0.01)
Within-child constant (rate of change)		−0.03*** (0.007)	0.02* (0.01)	0.02 (0.01)
<i>Random Effects</i>				
Variance Components				
Variance: initial status	268.11*** (13.74)	241.65*** (29.45)	151.69*** (22.42)	149.67*** (22.34)
Variance: within-child	245.92*** (7.27)	235.63** (7.86)	210.55*** (6.84)	210.73*** (6.85)
In rate of change		0.01 (0.003)	0.004 (0.002)	0.004 (0.002)
Covariance		−0.39* (0.287)	−0.19*** (0.221)	−0.176*** (0.221)
Model Statistics				
Rho	0.522	0.506	0.419	0.415
Goodness-of-fit				
Deviance	34531.48	34511.58	33607.93	33602.07
AIC	34539.44	34523.58	33655.93	33656.07
BIC	34564.55	34561.18	33806.35	33825.29

$N = 1596$; $N = 3895$ observations

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

within-mother change to consider how informal safety nets predicted which children increase or decrease behavior problems by interacting safety net with time. Figure 1 illustrates this effect and suggests that the negative impact

of minimal safety nets on child mental health increased over time as children aged. Having mothers with minimal safety nets, neither healthy levels of burden nor support, was increasingly associated with more child mental health

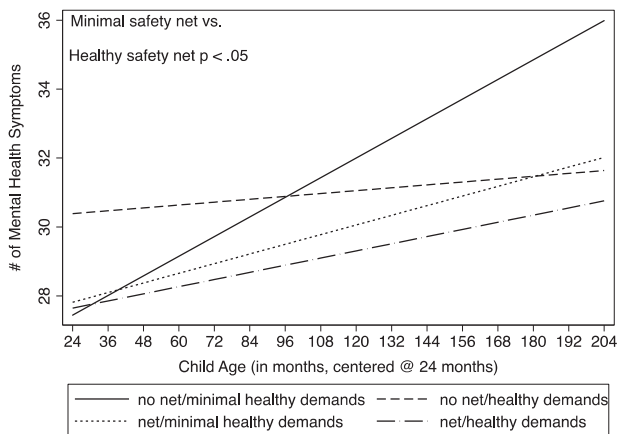


Fig. 1 Interaction of safety nets and child age on child mental health symptoms

symptoms. When children were young, those with mothers with minimal safety nets had a similar number of mental health symptoms; however, the difference increased over time such that for fifteen-year-old children, there was approximately a six-point difference. The interaction between maternal mental health and child age was not significant indicating that its effect did not change over time.

Discussion

Studies indicate that informal safety nets and maternal mental health are important for child mental health among low-income families (Jackson et al. 2000; Ryan et al. 2009; Taylor and Conger 2017). Most studies, however, consider available supports without considering burden that support or network members may produce. Additionally, we know little about the longitudinal impact of informal safety nets and maternal mental health on child mental health. We applied Coleman's concept of social capital to a longitudinal, diverse sample of low-income mothers and examined how informal support and burden together with maternal mental health predicted child mental health outcomes in light of their socioeconomic conditions over 7 years. This study provides two central contributions to the literature, demonstrating: (a) the negative impact of informal safety nets without support and poor mental health, particularly parenting stress, for low-income children's mental health and (b) the increasing importance of informal safety nets as children age.

First, descriptive results revealed high levels of vulnerability among low-income families. One in four children exhibited mental health symptoms in the range for concern, with 18% demonstrating clinically significant mental health problems. This finding bolsters extant research demonstrating

high levels of child mental health concerns associated with family poverty (Sandstrom and Huerta 2013; Wolf and Morrissey 2017). The high levels of parenting stress and maternal psychological distress also are notable and, again, are consistent with past research (e.g., Gershoff et al. 2007; National Institute of Child Health and Human Development Early Child Care Research Network 2005; Sandstrom and Huerta 2013; Taylor and Conger 2017). Importantly, analyses also demonstrated high levels of change over the 7 years of data collection. Supporting our first hypothesis, two-thirds of mothers changed in the health of their informal safety net over time. Of those with changes, only 36–37% gained healthy supports or burden and kept them over the study period. Although less volatile than informal safety nets, 13–14% of mothers entered or exited clinical levels of maternal stress and psychological distress, again with stress and distress increases more common than declines. Moreover, the levels of mental health symptoms were unstable for nearly one-third of children, with 33–40% of those with changes entering the range of concern for internalizing and externalizing symptoms.

Second, turning to multilevel models of change, congruent with the social capital framework and earlier studies (e.g., Choi and Pyun 2014; Jackson 1998), findings revealed that informal safety nets and maternal mental health were associated with child mental health over time. In accordance with hypothesis 2, informal safety nets were associated with child mental health symptoms such that children of mothers with minimal safety nets or those with only healthy burden had more mental health symptoms than children whose mothers had healthy safety nets. Moreover, supporting hypothesis 3, maternal mental health symptoms, particularly parenting stress, positively predicted higher mental health symptoms among children. For each one-point increase on the 5-point parenting stress index, children's symptoms increased by almost 8 points. The relation between informal safety nets and child and mental health support Coleman's (1998) social capital framework such that informal safety nets, including mothers' combination of resources from various sources, contribute to health and behavior.

Third, results support studying informal safety nets, including support and burden, and child mental health together and over time. Supporting Taylor et al.'s (2012; 2016) work, unmanageable burden was related to child behavior problems. Access to one-sided support, however, did not significantly increase child mental health symptoms compared to those with healthy bi-directional support. Support, rather than bidirectionality, appears protective of child mental health. The significant interaction of informal safety nets with time indicates that minimal safety nets became increasingly consequential for child mental health as children aged, influencing young children significantly less than their older peers. This finding is counter to

hypothesis 4 and begs the question, why do informal safety nets become more important as children get older? Research suggests that informal safety nets of low-income mothers tend to decline as children age among children ages 0 to 5 (Radey and Brewster 2013). It is plausible that a decline in informal safety nets, coupled with public safety nets that are conditional on parental employment (Edin and Kissane 2010), make older children more susceptible to poorer mental health outcomes through factors such as reduced parental monitoring. More research is needed to determine why mothers' minimal nets are more significant for the mental health of older youth.

Our finding that informal safety nets and maternal mental health are important to child outcomes join accumulating evidence that identifies the role of maternal economic and social conditions in child outcomes. Following Coleman's (1998) social capital framework regarding the importance of social resources for wellbeing, results revealed that mothers who lack healthy informal safety nets and face poor psychological health are more likely to have children whose mental health is at risk. These findings are important because they can be used to inform interventions. Specifically, programs aiming to promote the well-being of children from low-income families might consider systemic models that consider both parent and child functioning. Targeting parents and parenting may offer the greatest payoff for our collective investments in aiding low-income families (Gershoff et al. 2007). For example, findings here support Sommer et al. (2018) two-generation anti-poverty approach to simultaneously help low-income mothers and their children through education, parenting skill development, social network development, and services to meet basic needs. The approach's dual-focus on mothers and their children offers an unmatched opportunity to promote maternal and child wellbeing synergistically.

The study's strengths and limitations are important to consider. First, multilevel modeling allowed us to measure informal safety nets, maternal mental health, and child mental health, while reducing the possibility of omitted variable bias (Singer and Willett 2003). However, despite our inclusion of socioeconomic conditions, unmeasured positive qualities associated with healthy safety nets may contribute to child mental health. Also, in terms of change, WCF data contained only three time points. It is possible that mothers experienced changes during times not captured by the study. In addition, the introduction of time-varying covariates in the multilevel models ruled out the possibility that time-constant variables account for the relation among informal safety nets, maternal mental health, and child mental health because if changes in a predictor influence changes in outcomes, a confounding variable would need to predict these changes and correspond with the predictor's

trajectory over time (Singer and Willett 2003). Reverse causation, however, is possible such that child mental health could predict informal safety nets. Second, the study relied on maternal reports of resources, psychological health, and children's mental health outcomes. Mothers who lacked informal safety nets and felt stressed may have perceived their children's mental health as more problematic (Black et al. 1999). Our use of an established measure of child mental health, the fact that relations were similar across both internalizing and externalizing symptoms, and prior studies finding strong correlations between maternal and other reports (e.g., Achenbach et al. 2005) help to mitigate this concern. Third, although qualitative work points to the "burden of reciprocity" in low-income neighborhoods (Offer 2012), we were unable to measure support and burden sources in the WCF. Future research, including structural equation modeling to capture pathways affecting child mental health, could build upon this study's findings while addressing methodological limitations.

In sum, although the benefits of informal safety nets are well documented (e.g., Huang et al. 2014; Taylor and Conger 2017), few studies have considered the theoretically- and conceptually-important concepts of stress and burden linked with informal support networks (Coleman 1998; Offer 2012). Results of this study indicated that unhealthy informal safety nets and poor maternal mental health were negatively associated with child mental health outcomes over time. This is important given that U.S. families benefit less from public safety net programs compared to other industrialized countries (IOM 2013). These constellations of risks speak to the importance of interventions that target both mothers and children in families living in poverty. In addition, findings revealed that minimal safety nets were particularly detrimental to the mental health of older youth. There are many possible explanations for this finding including that perhaps people are more likely to help mothers with younger compared to older children and the unintended consequences of conditional public safety nets on youth. However, given the negative long-term effects of poverty on children and families, more research is needed to understand why informal safety nets become increasingly important to mental health as children age.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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