Household Disrepair and the Mental Health of Low-Income Urban Women

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ABSTRACT *We employ longitudinal survey data from the Welfare, Children, and Families project (1999, 2001) to examine the effects of household disrepair (e.g., living with leaky structures, busted plumbing, broken windows, and pests) on psychological distress among low-income urban women with children. Building on previous research, we adjust for related housing concepts, neighborhood disorder, financial hardship, and a host of relevant background factors. We also formally test the mediating influences of social support and self-esteem. Our cross-sectional analysis indicated that household disrepair is positively associated with recent symptoms of psychological distress. Our longitudinal change score analysis demonstrates two important patterns. First, women living with household disrepair at baseline are not necessarily vulnerable to increases in symptoms of psychological distress over the 2-year study period. Second, women who report an increase in disrepair over the study period are also likely to report a concurrent increase in symptoms of distress. Although social support and self-esteem favor mental health in our cross-sectional and longitudinal analyses, these psychosocial resources fail to mediate or explain the association between disrepair and distress.*

KEYWORDS *Neighborhood, Housing, Mental health*

INTRODUCTION

For the majority of Americans, home is an escape from the harsh reality of the outside world. Home is a place to recuperate from daily hassles, a space of comfort and safety, and a positive source of identification.¹⁻⁴ Unfortunately, for the estimated five million American families living in substandard housing, the home environment is often a source of chronic stress and poor health. Researchers have long noted a connection between poor housing conditions and adverse physical health outcomes.^{1,5,6} Poor housing conditions, including residential crowding and household disrepair, have been shown to elevate the risk of household accidents, asthma, tuberculosis, other respiratory infections, and all-cause mortality.^{1,7-9} Conversely, improvements in housing may favor cardiovascular and respiratory health.¹⁰

Few studies have examined the link between housing quality and mental health. Nevertheless, studies suggest that poor housing conditions can be psychologically distressing.^{6,11} Research in this area has suffered from a number of methodological limitations. Studies of housing conditions and outcomes like depression and anxiety have typically relied on small community samples¹²⁻¹⁵ or respondents diagnosed with previous mental health conditions.¹⁶ Evans et al.¹³ used data collected from

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two independent samples, one rural in upstate New York ($n=207$) and one urban in Michigan ($n=31$), to show that poor physical housing conditions are associated with higher levels of psychological distress. Previous studies may also confound neighborhood quality and housing quality. For example, Galea et al.¹⁷ find that individuals who live in neighborhoods characterized by low-quality internal and external built conditions tend to exhibit higher rates of recent and lifetime depression than individuals living in other neighborhoods. Moving individuals to better housing may favor mental health, but these results are unclear because these movements usually involve concurrent changes in neighborhood environments.^{18–20}

Although prior research has made significant contributions to our understanding of the association between housing quality and mental health, few explanations for this relationship have been formally tested.^{21,22} Why might housing conditions be related to mental health? Housing conditions could impact mental health by altering social relationships.^{18,22,23} The residential setting is a venue for contact with members of one's primary social network.²² Individuals who live in houses characterized by problems with plumbing, broken windows, peeling paint, rats, and cockroaches may be reluctant to invite guests into their home due to safety concerns or the stigma associated with living in a substandard environment. Under these conditions, poor housing quality could undermine the formation and maintenance of social ties, which might limit the availability of social support and increase the risk of psychological distress. This perspective is corroborated by evidence suggesting that social withdrawal may partially mediate or explain the relationship between housing quality and mental health.¹⁸

Housing conditions might also influence mental health through self-conceptions. Homes are important sources of identification. It is a symbol of who we are and what we have accomplished.^{2,22,23} The physical features of the home influence how residents view themselves and how they are viewed by others in the community.²⁴ Individuals living under poor housing conditions may experience feelings of embarrassment or shame and eventually come to internalize negative perceptions of their home environment.²³ In this way, substandard housing could contribute to lower levels of self-esteem and, as consequence, poorer mental health outcomes.²²

In this paper, we use longitudinal survey data to examine the effects of household disrepair (e.g., living with leaky structures, busted plumbing, broken windows, and pests) on psychological distress among low-income urban women with children. Building on previous research, we adjust for related housing concepts, neighborhood disorder, financial hardship, and a host of relevant background factors. We also formally test the mediating influences of social support and self-esteem.

METHODS

Sample

The data for this investigation come from the Welfare, Children, and Families (WCF) project (see <http://www.jhu.edu/~welfare/>). The WCF project is a household-based, stratified random sample of 2,402 low-income women living in low-income neighborhoods in Boston, Chicago, and San Antonio. The WCF first sampled census blocks (or neighborhoods) with at least 20% of residents below the Federal Poverty line based on the 1990 census. Within these neighborhoods, households under 200% of the poverty line were sampled, with an oversample of households below

100% of the poverty line. Because one of the goals of the WCF project is to assess the impact of welfare policy and work on children, households were screened for the presence of children. Households with at least one infant or child (aged 0–4) or young adolescent (aged 10–14) were sampled. The children’s caregivers, all women, were interviewed face-to-face. The data were collected in 1999 with a follow-up in 2001. The baseline response rate was 75%, and 89% of the original sample was re-interviewed. The overall respondent-level response rate is 75%, with city-specific response rates of 74% (Boston), 71% (Chicago), and 79% (San Antonio). Subsequent analyses are weighted to account for variations in sample sizes across cities.

Measures

Psychological distress, the focal dependent variable, is measured with the Brief Symptom Inventory (BSI-18; Derogatis²⁵), which includes subscales for depression, anxiety, and somatization. Psychological distress is measured as the mean response to 18 items ($\alpha=0.92$). For example, respondents were asked to indicate how much in the past 7 days they were distressed or bothered by “feeling no interest in things,” “feeling tense or keyed up,” and “nausea or upset stomach.” Response categories for all psychological distress items were coded as (1) not at all, (2) a little bit, (3) moderately, (4) quite a bit, or (5) extremely.

Household disrepair, the focal predictor variable, refers to potentially harmful noxious housing conditions. Household disrepair is measured as a summed response to eight items. For example, respondents were asked to indicate whether any of the following conditions were present in their households: “a leaky roof, a toilet, hot water, or other plumbing that doesn’t work,” “broken windows,” and “rats, mice, cockroaches, or other pests.” Responses to these individual items were dummy coded (0) no and (1) yes.

Emotional support, our first potential mediator variable, is measured with a single item. Respondents were asked to indicate how many people they could count on to listen to their problems when they were feeling low. Response categories were coded as (0) no one, (1) too few people, and (2) enough people. These measures have also been used in previous research to predict mental health.²⁶

Self-esteem, our second potential mediator, is measured as the mean response to eight items ($\alpha=0.74$), which were developed by Rosenberg²⁷ and are known to have adequate reliability and validity.²⁸ Respondents were asked to indicate the extent to which they agree or disagree with the following statements: (a) I take a positive attitude toward myself; (b) All in all, I am inclined to feel that I am a failure; (c) On the whole, I am satisfied with myself; (d) I feel I don’t have much to be proud of; (e) I’m a person of worth, at least on an equal basis with others; (f) At times, I feel that I am no good at all; (g) I wish I could have more respect for myself; (h) I feel I am able to do things as well as most other people. Response categories for these items range from (1) strongly disagree to (4) strongly agree.

Scholars interested in the association between home environment and health have criticized the overreliance on subjective reports of neighborhood and housing quality.^{22,23} The basic criticism is that individuals with preexisting mental health issues may be more sensitive to problems in the environment. Nevertheless, researchers have emphasized the importance of self-assessments of one’s home and neighborhood.²³ Problems in the home with wiring or pests may not be readily apparent to outside observers. If the primary underlying mechanism linking housing and health is stress-related, it is important to directly assess the perceptions and experiences of respondents. Perceptions of one’s environment may matter as much

or more than objective measures. Although subjective and objective measures are highly correlated, research shows that perceived neighborhood problems are more strongly correlated with health than objective measures of the neighborhood environment.²⁹ To formally address this issue, we assess the convergent construct validity of our focal measure of household disrepair by comparing these responses with interviewer observations of household disrepair inside and outside of the home. Interviewers provided information about *inside household disrepair*, meaning they observed one or more potentially dangerous health or structural hazards (e.g., rodents, frayed wires, glass, peeling paint). Interviewers also provided information about *outside household disrepair*, including assessments of the yard, halls, and stairs (e.g., broken steps, alcohol or drugs present, broken glass). Responses to these items are dummy coded (0) no and (1) yes.

Following previous research, subsequent multivariate analyses attempt to isolate the effects of housing quality from other housing-related concepts and neighborhood quality. Previous research has noted a connection between public housing and poor health.³⁰ Therefore, our analysis controls for residence in *public housing* (1= currently residing in public housing). Residential crowding, defined as more than one person per room, has been associated with social withdrawal and psychological distress.³¹ Therefore, we include a measure for the ratio of the total household population to number of rooms in the house. We must note that a limitation of our *household ratio* measure is that the survey limited the response categories for number of rooms in the residence to four, thereby potentially inflating the rate of residential crowding. *Neighborhood disorder* is measured as the mean response to ten items ($\alpha=0.89$). For example, respondents were asked to rate their neighborhood environment in terms of “assaults and muggings,” “abandoned houses,” and “high unemployment.” Response categories for these items are coded (1) not a problem, (2) somewhat of a problem, and (3) a big problem.

In accordance with previous research on housing context and mental health,^{14,20,32} our multivariate analysis includes controls for several potentially relevant background factors, including city of residence (dummy variables for Boston residence, Chicago residence with San Antonio as the reference category), age (in years), race/ethnicity (dummy variables for non-Hispanic White, Mexican, and other Hispanic compared with Black), education (in years), employment status (1=employed, i.e., worked for pay in the past week), current welfare status (1= currently receiving welfare), marital status (dummy variables for married-living with spouse and cohabiting-not married compared with singles and married-no spouse in house), and number of children (continuous number). Our analysis also controls for *financial hardship*, which refers to the inability to meet essential material needs. Hardship is measured as the mean response to 13 items ($\alpha=0.83$). For example, respondents were asked to indicate how often they had to “borrow money to pay bills.” Respondents were also asked to indicate whether they had enough money to “afford housing, food, and clothing” and whether any adults or children in the household were “unable to eat for a whole day because there wasn’t enough money for food.” Because the original hardship items were measured with mixed question formats and response categories, each of these items has been standardized to account for metric differences.

Analytic Strategy

Our analysis begins with the presentation of descriptive statistics for the study sample, including minimum and maximum values, means, standard deviations, and

alpha reliability estimates (Table 1). In the second stage of our analysis, we assess the construct validity of our focal measure of household disrepair by testing associations with interviewer ratings of disrepair inside and outside of the home (Table 2). In the third stage of our analysis, we model baseline (1999) psychological distress (Table 3). Finally, we attempt to establish the causal order of our focal associations by modeling changes in psychological distress over 2 years (1999 and 2001) (Table 4). In lieu of standard lagged endogenous dependent variable models, we employ change score models to assess 2-year distress trajectories. A recent comparison of two-wave panel designs concluded that change score models are generally preferable to lagged endogenous dependent variable models.³³ We computed change scores by subtracting baseline (1999) distress scores from follow-up (2001) distress scores. Change scores are continuous variables that range from some negative number to

TABLE 1 Descriptive statistics

	Range	Mean	SD	Cronbach's α	
Dependent variables					
Psychological distress (1999)	1.00–4.61	1.35	0.47	0.92	
Distress change (2001–1999) ^a	–2.50–2.50	–0.02	0.43		
Housing variables					
Household disrepair	0.00–5.00	1.29	1.42	0.74	
Disrepair change (2001–1999) ^a	–5.00–5.00	–0.16	1.61		
Interviewer rating of inside disrepair	0.00–1.00	0.09	0.59		
Interviewer rating of outside disrepair	0.00–1.00	0.14			
Public housing	0.00–1.00	0.34			
Household ratio	0.50–6.00	1.30			
Mediator variables					
Emotional support	0.00–2.00	1.37	0.70		
Support change (2001–1999) ^a	–1.00–3.00	1.05	0.77		
Self-esteem	1.00–4.00	3.39	0.55		
Self-esteem change (2001–1999) ^a	–2.00–2.62	0.08	0.59		
Background variables					
Age	18.00–74.00	32.94	9.64	0.83	
Non-Hispanic White	0.00–1.00	0.04	2.33		
Black	0.00–1.00	0.42			
Mexican	0.00–1.00	0.34			
Other Hispanic	0.00–1.00	0.20			
Education	0.00–14.00	10.61			
Employed	0.00–1.00	0.43	0.51		
Receiving welfare	0.00–1.00	0.28			
Financial hardship	–0.90–3.36	–0.08			
Hardship change (2001–1999) ^a	–3.21–2.90	0.01			
Married, spouse in house	0.00–1.00	0.30	1.58	0.89	
No. of children	1.00–13.00	2.76			
Neighborhood disorder	–1.91–1.91	–0.05			
Disorder change (2001–1999) ^a	–5.00–5.00	–0.16			
Boston residence	0.00–1.00	0.33			
Chicago residence	0.00–1.00	0.33			
San Antonio Residence	0.00–1.00	0.33			

Source: Welfare, Children, and Families (1999, 2001)

ⁿ=2,313

^aⁿ=2,045

TABLE 2 Binary logistic regression of interviewer ratings of disrepair inside and outside of the home

	Interviewer rating of inside disrepair	Interviewer rating of outside disrepair
Housing variables		
Household disrepair	1.51 (1.37–1.66)	1.33 (1.22–1.46)
Public housing	0.65 (0.45–0.93)	2.38 (1.77–3.20)
Household ratio	1.01 (0.76–1.35)	1.35 (1.08–1.69)
Model statistics		
Model χ^2	184.16***	408.69***

Source: Welfare, Children, and Families (1999)
 $n=2,313$. Shown are odds ratios with 95% confidence intervals in parentheses. All models control for age, race and ethnicity, education, employment status, welfare status, financial hardship, marital status, number of children, neighborhood disorder, and city of residence

some positive number. Negative numbers indicate fewer symptoms of psychological distress in 2001 than in 1999. Positive numbers suggest greater distress in 2001 than in 1999. Many respondents exhibit a change score of 0, which indicates no change in distress levels across waves. To account for the possibility of other changing conditions and circumstances, we also computed change scores for financial hardship, neighborhood disorder, emotional support, and self-esteem. Because change scores are continuous variables, we used ordinary least squares (OLS) regression throughout our multivariate analyses. In this case, unstandardized coefficients are estimated to describe the difference in the expected change in psychological distress for every one unit change in an independent variable.

Our specific multivariate analytic strategy proceeds in three steps. In our baseline analysis, model 1 tests whether household disrepair predicts baseline psychological distress, net of public housing, household ratio, and all background

TABLE 3 OLS regression of the baseline psychological distress

	Model 1	Model 2	Model 3
Housing variables			
Household disrepair	0.04***	0.04***	0.04***
Public housing	0.02	0.01	0.00
Household ratio	0.03	0.04	0.03
Mediator variables			
Emotional support		-0.12***	-0.09***
Self-esteem			-0.22***
Background variables			
Neighborhood disorder	0.08***	0.07***	0.06**
Financial hardship	0.24***	0.22***	0.18***
Model statistics			
Model F	27.40***	32.01***	41.45***
R^2	0.15	0.18	0.23

Source: Welfare, Children, and Families (1999)
 $n=2,313$. Shown are unstandardized OLS coefficients with standard errors in parentheses. All models control for age, race and ethnicity, education, employment status, welfare status, marital status, number of children, and city of residence

* $p<0.05$, ** $p<0.01$, *** $p<0.001$ (two-tailed tests)

TABLE 4 OLS regression of the change in psychological distress

	Model 1	Model 2	Model 3
Housing variables			
Household disrepair (1999)	0.00	0.00	0.00
Disrepair change (2001–1999)	0.03***	0.02**	0.02**
Public housing (1999)	−0.01	−0.01	−0.02
Household ratio (1999)	0.01	0.01	0.02
Mediator variables			
Emotional support (1999)		−0.10***	−0.07***
Support change (2001–1999)		−0.09***	−0.08***
Self-esteem (1999)			−0.11***
Self-esteem change (2001–1999)			−0.14***
Background variables			
Neighborhood disorder (1999)	0.02	0.00	0.02
Disorder change (2001–1999)	0.00	0.00	0.00
Financial hardship (1999)	0.06**	0.04*	0.04*
Hardship change (2001–1999)	0.13***	0.12***	0.10***
Psychological distress (1999)	−0.35***	−0.38***	−0.35***
Model statistics			
Model <i>F</i>	31.62***	31.52***	32.91***
<i>R</i> ²	.23	.25	.28

Source: Welfare, Children, and Families (1999, 2001)

n = 2,045. Shown are unstandardized OLS coefficients with standard errors in parentheses. All models control for age, race and ethnicity, education, employment status, welfare status, marital status, number of children, city of residence, and baseline psychological distress

p* < 0.05, *p* < 0.01, ****p* < 0.001 (two-tailed tests)

factors. In our change score analysis, model 1 tests whether baseline levels of household disrepair and changes in household disrepair predict changes in psychological distress, net of public housing, household ratio, baseline distress (to account for preexisting mental health issues), neighborhood disorder (baseline and change score), financial hardship (baseline and change score), and all other background factors. Models 2 and 3 add a sequence of potential mediators to explain any significant effects for household disrepair. In our baseline analysis, model 2 adds emotional support to model 1. Model 3 then adds self-esteem to model 2. In our change score analysis, models 2 and 3 also include change scores for emotional support and self-esteem, respectively.

To formally assess mediation, we employ the Clogg statistic³⁴ to test for significant changes in the effects of household disrepair across nested models (i.e., before and after adjusting for mediators). A statistically significant reduction in the magnitude of the housing coefficient would suggest mediation.

RESULTS

Descriptive Statistics

According to Table 1, the average respondent exhibited low baseline levels of psychological distress and household disrepair. The respondent ratings of household disrepair are corroborated by interviewer ratings of disrepair inside and outside of the home. The change scores for psychological distress and household disrepair

suggest that symptoms of distress and signs of disrepair declined slightly over the study period. With respect to psychosocial resources, the average respondent reported having someone they could count on for emotional support and high levels of self-esteem. The result for self-esteem is surprising given the disadvantaged nature of the sample; however, this pattern is generally consistent with the high percentage of African American respondents in the sample.

Convergent Construct Validity

Table 2 assesses the convergent construct validity of our focal measure of household disrepair. According to these results, respondent reports of household disrepair are positively associated with interviewer ratings of disrepair inside and outside of the home. Specifically, each unit increase in household disrepair increases the odds of an interviewer rating of disrepair inside and outside of the home by approximately 51% and 33%, respectively. These results suggest that our focal measure of household disrepair is more strongly associated with interviewer ratings of disrepair inside of the home. They also confirm the correlation between respondent reports and interviewer ratings, which supports the convergent construct validity of our focal measure of household disrepair.

Multivariate Analysis

Table 3 presents our baseline regression analysis. These results indicate that household disrepair is positively associated with symptoms of psychological distress. In other words, living with leaky structures, busted plumbing, broken windows, and pests can be psychologically distressing. This general pattern persists across models, with adjustments for related housing concepts, neighborhood disorder, financial hardship, emotional support, self-esteem, and range of background factors. Although emotional support and self-esteem are inversely associated with psychological distress, these psychosocial resources fail to explain any notable portion of the association between disrepair and distress.

Based on the data in Table 4, baseline household disrepair is unrelated to changes in psychological distress across models. This means that women living with household disrepair at baseline are not necessarily vulnerable to increases in symptoms of psychological distress over the 2-year study period. Nevertheless, the change score for household disrepair is statistically significant at conventional levels. This result suggests that women who reported an increase in disrepair were also likely to report a concurrent increase in distress symptoms over the study period. When emotional support is entered in model 2, the coefficient for the change in household disrepair is reduced from model 1, but this reduction is not statistically significant ($t=1.43$, $df=2,042$, $p>0.05$). The coefficient for the change in household disrepair is unchanged by the introduction of self-esteem in model 3. Once again, these psychosocial resources fail to mediate or explain the association between disrepair and distress.

DISCUSSION

In this paper, we used longitudinal survey data from the Welfare, Children, and Families project (1999, 2001) to examine the effects of household disrepair (e.g., living with leaky structures, busted plumbing, broken windows, and pests) on psychological distress among low-income urban women with children. Building on previous research, we adjusted for related housing concepts, neighborhood disorder,

financial hardship, and a host of relevant background factors. We also formally tested the mediating influence of social support and self-esteem.

Our cross-sectional analysis indicated that household disrepair is positively associated with recent symptoms of psychological distress. These results are generally consistent with previous research.^{13,21,22} Our longitudinal change score analysis revealed two important patterns. First, in contrast to some previous research in this area,¹³ women living with household disrepair at baseline are not necessarily vulnerable to increases in symptoms of psychological distress over the 2-year study period. Second, women who reported an increase in disrepair over the study period were also likely to report a concurrent increase in distress symptoms. These results suggest that the impact of housing on mental health is immediate. Current housing conditions are associated with current mental health. It does not appear that housing conditions have long-term effects on mental health like other stressful conditions and events (e.g., victimization in early life, divorce, or the death of a spouse). If housing conditions improve, mental health is likely to improve. Conversely, if housing conditions worsen, mental health is likely to suffer. Although social support and self-esteem favored mental health in our cross-sectional and longitudinal analyses, these psychosocial resources failed to mediate or explain the association between disrepair and distress. These patterns directly contradict previous theoretical and empirical work.^{18,22,23}

Limitations

We would like to acknowledge several important limitations of this research. Because the WCF data are restricted to Boston, Chicago, and San Antonio, it is unclear whether our results are generalizable beyond these three cities. It is also unclear whether these results extend to other populations, namely, middle and upper income households within these three cities or other areas of the country.

Although we hypothesize that housing conditions predict mental health, preexisting mental health conditions could also select some women into poor housing. Poor mental health could undermine socioeconomic status (educational attainment and employment status), which could lead to residence in poor neighborhoods and substandard housing. Poor mental health (especially feelings of hopelessness—a common indicator of depression) might also prevent residents from moving or improving their housing conditions. Our longitudinal analysis supports our theoretical argument (that housing conditions predict mental health); however, we cannot rule out the possibility of reverse causation.

While our study includes a number of relevant housing concepts, there are no doubt other elements of home environment that we have failed to take into account. For example, it would be optimal to also account for length of time in the current residence in predicting current mental health. It may be that the longer an individual resides in low-quality housing, the greater the impact on mental health. Future research should take into account length of residence and other related housing variables.

Research Implications

Although prior research has made significant contributions to our understanding of the association between housing quality and mental health, few studies have attempted to formally test viable mediators linking housing conditions and psychological distress. Our results provide little support for previous theoretical arguments focusing on social support and self-esteem; however, future research

should continue to explore these and other potential psychosocial mechanisms. For example, Evans and colleagues^{21,22} suggest that the sense of control may play an important role in linking poor housing with lower levels of psychological well-being. Research shows that poor housing quality is associated with lower levels of mastery and higher levels of helplessness.³⁵

It is also important to begin to think about how housing conditions might interact with housing tenure and other difficult life conditions. The psychological consequences of poor housing conditions may be especially pronounced by prolonged exposure (as indicated by housing tenure). Housing conditions might also interact with residential crowding to create a double disadvantage. Similarly, poor housing conditions could amplify the mental health effects of living in a neighborhood characterized by noise, litter, broken windows, and other indicators of disorder. Under the conditions of poor housing quality, individuals would have no place to turn to recuperate from the stresses of daily life. Although supplemental analyses (not shown) indicate that the association between neighborhood disorder and psychological distress does not vary according to the level of household disrepair, researchers should continue to explore these types of stress amplification processes.

As a next step in this line of research, scholars might also explore how mental health may mediate previously noted connections between housing quality and physical health outcomes. Similarly, research might investigate the ways in which residents cope with inadequate housing conditions. It may be that poor housing quality leads to adverse mental health outcomes, which in turn increase the risk of negative coping mechanisms such as heavy alcohol or drug use.

Policy Implications

The results of our study suggest that poor housing conditions can be psychologically distressing. Previous assessments of policy initiatives like “Moving to Opportunity,” which moves residents of low-quality housing located in high-poverty neighborhoods to higher quality housing in lower poverty neighborhoods, have been mixed.^{19,36} Nevertheless, our findings tend to support these programs. Our results also support understudied policy initiatives aimed at housing improvements without neighborhood relocation.³⁷ We find that changes in housing conditions have an impact on mental health even when changes in neighborhood conditions are taken into account. Beyond the need for continued housing-related policy initiatives, our results highlight the importance of comfortable and safe housing and the unique contribution of housing conditions to the mental health of low-income urban women with children.

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