Housing Quality, Housing Instability, and Maternal Mental Health

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Abstract

Poor housing conditions and residential instability have been associated with distress among women; however, this association could be the result of other social factors related to housing, such as intimate partner violence (IPV) and economic hardship. We examined associations of housing conditions and instability with maternal depression and generalized anxiety disorder (GAD) while accounting for IPV and economic hardship in the Fragile Families and Child Wellbeing Study (N = 2,104). In the third study wave, interviewers rated indoor housing quality, including housing deterioration (e.g., peeling paint and holes in floor) and housing disarray (e.g., dark, crowded, and noisy). Mothers reported whether they had moved more than twice in the past two years, an indicator of housing instability. A screening for depression and GAD was obtained from questions derived from the Composite International Diagnostic Interview-Short Form in the second and third study waves. IPV and economic hardship were assessed through questionnaire. In this sample, 16% of women were classified as having probable depression and 5% as having probable GAD. In adjusted analyses, mothers experiencing housing disarray (odds ratio [OR], 1.3 [95% confidence interval (CI), 1.0, 1.7]) and instability (OR, 1.4 [95% CI, 1.2, 2.3]) were more likely to screen positive for depression. In addition, those experiencing housing instability were more likely to screen positive for GAD (OR 1.9 [95% CI, 1.2, 3.0]) even after adjusting for other social factors. No associations were noted between housing deterioration and maternal mental health. Similar associations were noted when incident cases of probable depression and GAD were examined. Housing instability and disarray, but not deterioration, are associated with screening positive for depression and generalized anxiety among women regardless of other social stressors present in their lives. Housing could potentially present a point of intervention to prevent mental health consequences among mothers and possibly their children.

Introduction

Housing is inextricably linked to health.[1] While the physical structure of the home provides shelter, housing is more than just a shelter: it provides comfort, privacy, and a sense of security, and our home is defines our neighborhood environment, both structural and social. At all these levels—structural, psychological, social, and neighborhood-built environment— housing can impact health.[1,2] Inadequate housing conditions are associated with both physical and mental illness through direct and indirect pathways. Structural features of the home (i.e., mold, pest infestation, and peeling paint) directly impact health, while location (accessibility to services and facilities), neighborhood-built environment (recreation, parks, and walkability), and as social connectedness to a community can indirectly impact health.[1]

Specific structural features of the home have been associated with psychological health.[3] For example, living in multiunit dwelling, higher floor level, and housing type (high rise vs. low rise) have been associated with distress symptoms and depression among women.[4] Other features of housing quality, such as structural deterioration of the home, presence of mold, and pest infestation have also been associated with distress.[5,6] Furthermore, improvement of housing conditions or moving to better quality housing has been demonstrated to improve mental health outcomes.[7,8] The link between structural features of the home and mental

well-being could be due to various factors such as difficulties in dealings with repairs and landlords, stigma of living in a deteriorated home, insecurity, and concerns about tenure.[4,9]

Other housing features not related to the structure of the home have also been associated with distress symptoms. For example, overcrowding, housing costs, and lack of control over housing (i.e., landlord unavailable to fix things) have also been associated with distress symptoms and poor mental health.[2,10,11] These associations can be potentially explained by lack of control over one's living environment. When one loses the ability to cope or to take control over one's life or environment, we perceive stress. Thus, the home environment may be a direct stressor which can affect individual health.[12]

Episodes of homelessness have also been associated with poor mental and physical health.[13] Physical and mental health problems can be an antecedent to homelessness as they can interfere with one's ability to work, as well as deplete economic resources.[14] In addition, mental health problems can isolate individuals, leaving them with less social support and putting them at a greater risk for homelessness. Frequent moves, a lower-intensity stressor, may also generate psychological distress. In longitudinal studies, residential instability, defined as frequently moving or not having enough money to pay rent, has been associated with depression among women.[15,16] In a study of drug users and their social network members, Davey-Rothwell et al. noted that frequent moves in a six month period were associated with higher levels of depressive symptoms independent of homelessness in the past six months.[16] Thus, while mental health problems can be a precursor for housing instability, instability can also be a precursor for mental health problems.

While there is literature documenting evidence of an association between housing and mental health, studies have not accounted for other social stressors that are likely to co-occur in the lives of those experiencing poor housing conditions. Women of low socioeconomic status are more likely to live in poor housing conditions in addition to experiencing a number of other social stressors. Housing quality is tightly associated with socioeconomic status. Lack of financial resources results in fewer housing options that are often of poorer quality as well as frequent moves. Financial hardship, not having enough money to pay for utilities, doctor visits, or groceries, is in itself a source of stress known to be correlated with mental health.[17,18] Intimate partner violence (IPV) is also more prevalent in low-income urban environments and more likely to occur when couples are under financial strain.[19,20] Women who are victims of IPV are more likely to suffer financial hardship, thus hampering their ability to obtain and maintain housing. Pavao and colleagues reported that among women participating in a California-population-based cohort study, those who reported being victims of IPV had approximately four times the odds of reporting housing instability compared with women who did not experience IPV.[21] Thus, studies that investigate the relationship between housing factors and mental health should account for social factors known to be correlated with housing and also mental health.

The goal of the current study was to examine the influence of housing quality and instability on mental health (depression and generalized anxiety disorder [GAD]), among women participating in the Fragile Families and Child Wellbeing study, a population-based study of a disadvantaged urban sample. We examined the relationship between housing quality (deterioration and disarray) and instability with mental health among women, exploring both prevalent and incident cases, while accounting for IPV and financial hardship. We chose

these two social factors because of their known association with housing conditions and with mental health. We also consider whether our findings are attributable to homelessness, a more extreme case of housing instability.

Materials and Methods
Study Population

Analyses were conducted using public-use data available from the Fragile Families and Child Wellbeing Study, a prospective birth cohort study that follows a sample of mother–child pairs from 20 large cities in the United States. Nonmarital births were over-sampled relative to marital births in a ratio of 3 to 1. The study is a joint effort by Princeton University's Center for Research on Child Wellbeing and Center for Health and Wellbeing, Columbia University's Social Indicators Survey Center, and The National Center for Children and Families (http://www.fragilefamilies.princeton.edu). Details on the study design can be found in Reichman et al. 2001.[22] In brief, 4,898 women were recruited from 75 hospitals during the birth of the child in 20 US cities with populations over 200,000. Random samples of both married and unmarried births were selected until preset quotas were reached based on the percentage of nonmarital births in the city that occurred at that hospital in 1996 or 1997. Several exclusions were made: mothers who planned to place the child for adoption, families in which the father of the baby was not living at the time of the birth, those who did not speak either English or Spanish well enough to complete the interview, mothers who were too ill to complete the interview or with babies too ill for the mother to complete the interview, and those whose baby died before the interview could take place. Among eligible mothers, 82% of those married and 87% of those unmarried agreed to participate. Mothers completed a baseline interview at delivery and participated in follow-up interviews when the children were approximately 12 and 36 months of age. At the time of the 36-month follow-up, 3,288 families remained in the study with 2,119 completing the study at home.[22] In addition, 15 participants were missing data on other covariates, leaving 2,104 women for the current analyses. Those who did not participate in the 36-month in-home assessment differed significantly from those who responded based on race/ethnicity (Blacks, 39% nonparticipants vs. 54% participants; p < .0001)

Housing Quality

At the 36-month in-home follow-up, trained interviewers conducted an assessment of indoor housing conditions. A total of 11 items regarding the integrity of the physical home environment were completed, including whether the home unit contained broken windows or cracked windowpanes, open cracks or holes in walls or ceiling, holes in floor, broken plaster or peeling paint, and whether any of the following hazardous conditions were observed: frayed electrical wires, presence of mice or rats, broken glass, falling plaster, broken stairs, peeling paint, and other hazards. Housing deterioration was defined as responding yes to one or more of the above questions. In addition, six interviewer-reported items regarding the organization of the home environment (i.e., is inside of home dark or crowded, cluttered or dirty/not reasonably cleaned, is house overly noisy—from noise in the house or from noise coming from outside the house) made up a second construct, housing disarray, defined as responding yes to one or more of the above items. Housing quality items available in the Fragile Families and Child Wellbeing Study are consistent with items from previous work on housing conditions demonstrating links to psychological distress.[1,5,23] We previously reported on the association between these housing factors and childhood asthma.[24]

Housing Instability

Mothers were asked whether they had moved two or more times in the past two years. Mothers who responded yes to one or more of the above questions were categorized as experiencing housing instability.

Mental Health

The Composite International Diagnostic Interview-Short Form (CIDI-SF) 25 is a screening for depression and GAD which is based on one of the most widely used structured diagnostic interviews to assess adult psychiatric disorders in epidemiological studies.26 Mothers answered the CIDI-SF during the 12- and the 36-month assessments. The CIDI-SF was scored consistent with the developer's guidelines 27 which generates probable diagnosis of psychiatric disorders consistent with the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; APA, 1994). To ascertain probable depression, mothers were initially asked if they experienced dysphoria (depression) or anhedonia (lack of enjoyment of what is often experienced as pleasurable) in the past year for a specific duration (two weeks or more), and if so, whether such symptoms lasted most of the day and occurred every day. If mothers denied the presence or persistence of symptoms, probability of depression was scored as zero. If presence and persistence of symptoms were positive, mothers were asked about seven other symptoms (1) losing interest, (2) feeling tired, (3) change in weight, (4) trouble sleeping, (5) trouble concentrating, (6) feeling worthless, and (7) thinking about death. A probable depression score resulted from adding up the answer to these seven symptoms plus the first dysphoric symptom, if present, ranging therefore from 0 to 8. A score of three or more is considered as a probable case. Also, if a mother reported taking medication for depression, she was considered as a probable case. To ascertain probably GAD, mothers were first asked if they had a period of 6 months or more when they felt worried, tense or anxious. Those denying this experience were considered noncases. Mothers who reported having such experience were asked questions to ascertain that the experience (A) had a certain level of severity and duration, (B) involved lack of control, and (C) included at least three out of seven specific physiological symptoms, therefore addressing DSM-IV criteria A, B, and C, respectively.

Social Factors

Intimate Partner Violence Maternal IPV was assessed at baseline and at the 12 and 36 months follow-up assessments, using previously validated questions which varied slightly between baseline and follow-up assessments.27,28 At baseline, mothers were asked to think about their relationship with the baby's father and asked how often does "he hit or slap you when he is angry?" At the 12 and 36 months, assessment mothers were asked to think about their relationship with the baby's father or current partner and were then asked: "How often does he slap or kick you?" "How often does he hit you with a fist or object that could hurt you?" "How often does he tries to make you have sex or do sexual things you don't want to?" and "Were you ever cut or bruised or seriously hurt in a fight with the baby's father or current partner?" Mothers who responded "often" or "sometimes" as opposed to "never" to either of the first four questions or who responded "yes" to the fifth question were categorized as experiencing IPV for the relevant time period. IPV was characterized as: (a) never experiencing IPV (b) occurring prior to 12 months only (endorsed at baseline and/or 12-month follow-up), (c) occurring between 12 and 36 months only (endorsed at 36 months

only), or (d) occurring both prior to 12 months and also between 12 and 36 months (chronic exposure).

Economic Hardship At the 36-month follow-up mother's were asked whether they had faced any of the following economic hardships in the past year (yes/no): not having enough money to pay full electricity, gas or oil bill; having to borrow money from friends or family; receiving free food or meals; not having enough money to see a doctor; telephone service disconnected; electricity, gas or oil turned off; mother or children ever hungry because there was no money to buy food. Economic hardship in the past year was characterized as: (a) not experiencing any hardship, (b) experiencing only one hardship, and (c) experiencing two or more hardships.

Covariates

The baseline and follow-up questionnaires ascertained information on sociodemographic factors. Analyses were adjusted for race/ethnicity, categorized as White, Black, Hispanic, and other race/ethnicity, education level categorized as less than high school, high school graduate, or some college education, age, and marital status.

Statistical Analyses

A series of logistic regression analyses were conducted to estimate the association between housing quality, instability, and mental health. First, logistic regression models were conducted while adjusting for sociodemographic factors using all cases of probable depression and GAD (model 1). A second set of models was implemented further adjusting for IPV and economic hardship (model 2). To decrease the possibility that pre-existing mental health problems would explain the results, analyses were repeated excluding women who had probable depression and GAD at the 12-month follow-up and who therefore were not new cases at the 36-month follow-up, first adjusting for sociodemographic factors only (model 3) then further adjusting for IPV and economic hardship (model 4). Two additional analyses were conducted: (1) to test the consistency of the findings, women who were homeless at some point in the past year were excluded; (2) to examine as to what extent specific housing conditions could be a result of maternal mental health, we explored how items of the housing disarray scale more clearly under maternal control (e.g., clutter and dirt) would be more strongly related to maternal mental health than those they could not control (e.g., noise). All analyses were conducted in SAS version 9.0 (SAS Institute, Cary, NC).

Results
Among the sample of 2,104 women who completed the 36-month in-home assessment, 54% self-identified as Black and 23% as Hispanic; 17% reported IPV at any time point; 29% scored 2 or greater in the economic hardship scale; 16% were classified as having probable depression, and 5% as having probable GAD at the 36-month follow-up (Table 1). Fifteen percent of women were classified as living in deteriorated housing, 28% as living in housing disarray, and 16% as having experienced housing instability in the past 2 years.

Table 1
Demographics, Fragile Families, and Child Wellbeing Study (*N* = 2,104)

Demographics	Number	Percent	Mean	SD
Age			24.8	5.9
Race/ethnicity				
White	471	22.4		
Black	1,142	54.3		
Hispanic/other	491	23.3		
Highest education level attained				
Some college	700	33.3		
High school graduate	546	26.0		
Less than high school	858	40.8		
Marital status: married	591	28.1		
Economic hardship (range, 0–8)				
None	1,010	48.0		

Table 1
Demographics, Fragile Families, and Child Wellbeing Study (*N* = 2,104)

In analyses adjusted for education, age, race/ethnicity, and marital status, housing disarray and instability were both associated with probable depression (OR, 1.3 [95% CI, 1.0, 1.8] and 1.7 [95% CI, 1.3, 2.3], respectively) (Table 2, model 1). Housing deterioration was not associated with depression (OR, 0.9 [95% CI, 0.6, 1.2]). Further adjustment for IPV and economic hardship (Table 2, model 2) decreased the effect estimates previously noted, however housing disarray and instability remained statistically significantly associated with higher odds of probable depression. In addition, significant associations were noted between economic hardship and depression and between IPV and depression. In adjusted analyses excluding women who were identified as a probable case of depression at the 12-month follow-up (N = 1,834), housing instability was significantly associated with depression (OR, 1.4 [95% CI, 1.0, 2.0]) at the 36-month follow-up (Table 2, model 4). Housing disarray was not statistically significantly associated with probable depression (OR, 1.3 [95% CI, 0.9, 1.8]) at the 36-month follow-up, though the magnitude of the effect was similar (Table 2, model 4). Similar to previous analyses, housing deterioration was not associated with depression.

Table 2
Housing characteristics, housing instability and probable depression, logistic regression analyses

	Depression (all cases), N = 2,104 OR (95%CI)		Depression (new cases), N = 1,834 OR (95%CI)	
	Model 1	Model 2	Model 3	Model 4
Age	0.99 (1.0, 1.0)	0.99 (1.0, 1.0)	0.98 (1.0, 1.0)	0.98 (1.0, 1.0)
Race/Ethnicity				
White	Reference	Reference	Reference	Reference
Black	0.97 (0.7, 1.4)	1.00 (0.7, 1.4)	0.90 (0.6, 1.4)	0.93 (0.6, 1.4)
Hispanic	0.70 (0.5, 1.0)	0.71 (0.5, 1.1)	0.67 (0.4, 1.1)	0.69 (0.4, 1.1)
Other Race/Ethnicity	1.27 (0.7, 2.4)	1.24 (0.6, 2.4)	0.93 (0.4, 2.2)	0.96 (0.4, 2.3)

Table 2
Housing characteristics, housing instability and probable depression, logistic regression analyses

Housing instability was also significantly associated with probable GAD (OR, 2.5 [95% CI, 1.6, 3.8]) in analyses adjusting for demographics only (Table 3, model 1). Housing disarray and housing deterioration were not significantly associated with GAD. Further adjusting for IPV and economic hardship decreased the effect estimates noted between housing instability and probable GAD; however, the association remained statistically significant (Table 3, model 2). In addition, significant associations were noted between economic hardship and GAD and between IPV and GAD. In adjusted analyses excluding women who were identified as having GAD at the 12-month follow-up (N = 2,030), housing instability remained associated with GAD (OR, 2.1 [95% CI, 1.3, 3.5]), housing disarray, and deterioration were not statistically significantly associated with GAD (Table 3, model 4).

Table 3

Housing characteristics, housing instability, and generalized anxiety disorder (GAD); logistic regression analyses

| | GAD (all cases), N = 2,104 | | GAD (new cases), N = 2,030 | |
| | OR (95%CI) | | OR (95%CI) | |
	Model 1	Model 2	Model 3	Model 4
Age	1.02 (1.0, 1.1)	1.03 (1.0, 1.1)	1.01 (1.0, 1.1)	1.02 (1.0, 1.1)
Race/ethnicity				
White	Reference	Reference	Reference	Reference
Black	0.47 (0.3, 0.8)	0.48 (0.3, 0.8)	0.51 (0.3, 0.9)	0.51 (0.3, 0.9)
Hispanic	0.55 (0.3, 1.0)	0.54 (0.3, 1.0)	0.57 (0.3, 1.1)	0.56 (0.3, 1.1)
Other race/ethnicity	1.39 (0.6, 3.2)	1.36 (0.6, 3.3)	0.99 (0.3, 3.0)	0.99 (0.3, 3.1)

Table 3

Housing characteristics, housing instability, and generalized anxiety disorder (GAD); logistic regression analyses

An additional analysis was conducted to determine whether our findings were influenced by women who were homeless at some point in the past year, to make sure that the association we found was not fully explained by such an extreme experience. Women who had stayed in a shelter, car, or abandoned building in the past year (N = 47) were excluded from the adjusted analysis. The relationships noted between housing disarray and instability with probable depression did not change (OR, 1.3 [95% CI, 1.0, 1.7] and 1.4 [95% CI, 1.0, 2.0], respectively). Furthermore, the relationship between housing instability and GAD also did not change (OR, 2.0 [95% CI, 1.2, 3.2]).

Lastly, we explored whether specific items of the housing disarray construct would be more strongly associated with maternal mental health. Questions regarding whether the home was dirty or dusty were included in our housing disarray construct as well as questions in respect to how crowded and noisy the house was, factors that are out of the immediate control of the mothers. We divided the housing disarray construct into two constructs, housing characteristics that were to a certain extent in the control of mothers (clutter, dirty, and dark home) and features out of their immediate control (crowded and noisy home). In adjusted logistic regression models, living in a noisy and crowded home was associated with probable depression (OR, 1.37 [95% CI, 1.0, 1.8]) while living in a dirty, dark, cluttered home was not (OR, 1.10 [95% CI, 0.8, 1.5]).

Discussion

Our goal was to examine the relationship between housing quality and instability and mental health while considering social stressors known to co-occur in urban populations. We found housing disarray (characterized by a noisy and crowded home) and housing instability (moving frequently in a short period of time) to be associated with probable depression among mothers of young children. Furthermore, housing instability was associated with probable GAD. We found no associations between housing deterioration and maternal mental health. Findings were similar between analyses using prevalent or incident cases of probable depression and GAD.

The association between the built environment and adult mental health has been previously documented.[3,29] In a study conducted in London, Weich et al. reported that a higher prevalence of depression was associated with independently rated structural features of the built environment.[3] Among New York City residents, Galea et al.[29] reported that, living in a neighborhood characterized by poor quality-built environment is associated with greater likelihood of depression even after accounting for individual level sociodemographic factors and neighborhood level income. We extend this work by analyzing features of the indoor home environment not previously considered and furthermore by accounting for other social stressors associated with both mental health and housing.

Similar to other studies, we found housing instability to be associated with mental health.[15,16,30] There are several pathways through which housing instability could affect mental health. Constant moves disturb social networks and can result in more isolation, lack of access to support and family and less access to healthcare. Instability can also lead to disruption in children's routines, daycare and school arrangements which could lead to more distress among mothers. While residential instability is associated with economic status and with IPV, our results show that instability affects women's mental health over and beyond concurrent economic hardship and IPV.

Contrary to other studies we found housing deterioration was not associated with screening positive for either depression or GAD. One potential explanation is that our measure of housing deterioration did not capture specific structural components of the house previously shown to be associated with mental health. For example, the Fragile Families study did not include a measure of presence of mold, water leaks, or dampness, previously shown to be associated with depression.[6] Future assessments of housing conditions should include questions regarding pest infestation, water leaks, and mold. In addition to independently rated measures of housing quality, perception of housing quality should also be assessed to provide a more comprehensive picture of housing quality as it relates to mental health.

Our findings noted that depression was associated with characteristics of the housing environment which most times are not directly created by an individual—that is, living in a noisy and crowded home. In contrast, features of the housing environment, such as a dirty, dark, cluttered home, which one would expect to result from the lack of motivation accompanying depression, were not related to probable maternal depression. This pattern supports the notion that housing disarray would not merely result from depressive illness.

Our additional analysis shows that our results are not exclusively explained by extreme situations, like homelessness, but also reflect lower-intensity stressors associated with

frequent moves and poor housing quality. Low-intensity chronic stressors have been associated with distress, even after accounting for major traumatic events. The impact of low-intensity stressors, such as overcrowding, on mental health is thought to be partly attributable to the fact that these stressors are proximal or immediate, and largely out of one's control.[31]

Our study has a number of strengths. We used an interviewer-rated measure of housing quality that did not rely on the subject completing the depression screening. We furthermore accounted for key social factors not previously considered in other studies relating housing factors to mental health. There are also a number of limitations worth mentioning. First, a screening and not a diagnostic measure was used to determine who had mental health problems. Second, due to the longitudinal nature of the study, a number of participants were lost to follow-up. While there was a difference based on race/ethnicity between those who completed the 36-month assessment and those who did not, there were no differences based on maternal depression and GAD at the 12-month follow-up and completion of the 36-month follow-up assessment, suggesting that this loss to follow-up is nondifferential with respect to outcome. Third, as previously mentioned, the housing assessment did not include factors such as pest infestation and mold, which have been shown to be associated with distress. Furthermore, we do not have a measure of housing deterioration or disarray for participants' previous addresses. Lastly, even though the Fragile Families Study included longitudinal information, the central study hypotheses (association between housing and mental health) was tested cross-sectionally due mostly to incomplete data in the subsequent wave which if used, would have restricted the sample size even more. While we cannot establish a temporal causal relationship, when examining new cases of probable depression and GAD, we noted similar associations to previous analyses which included all cases.

Conclusions and Implications

Our study shows that specific features of one's housing are related to mental health among mothers even after adjusting for IPV and economic strain. Providing resources to obtain and maintain adequate housing for young mothers would be beneficial to both mother and child as housing conditions have also been shown to affect child physical and mental health.[32] In addition to being directly affected by housing conditions, children could be indirectly affected by their mother's mental health status. Thus, addressing and eliminating stressors experienced by young mothers, such as housing quality, can potentially benefit mothers as well as children's health and well-being.

Acknowledgements

Abbreviations

IPVIntimate partner violenceGADGeneralized anxiety disorder

References

1. Shaw M. Housing and public health. Annu Rev Public Health. 2004;25:397–418. doi: 10.1146/annurev.publhealth.25.101802.123036.

2. Dunn JR. Housing and inequalities in health: a study of socioeconomic dimensions of housing and self reported health from a survey of Vancouver residents. J Epidemiol Community Health. 2002;56(9):671–681. doi: 10.1136/jech.56.9.671.

3. Weich S, Blanchard M, Prince M, Burton E, Erens B, Sproston K. Mental health and the built environment: cross-sectional survey of individual and contextual risk factors for depression. Br J Psychiatry. 2002;180:428–433. doi: 10.1192/bjp.180.5.428.

4. Evans GW, Wells NM, Moch A. Housing and mental health: a review of the evidence and a methodological and conceptual critique. J Soc Issues. 2003;59(3):475–500. doi: 10.1111/1540-4560.00074.

5. Sandel M, Wright RJ. When home is where the stress is: expanding the dimensions of housing that influence asthma morbidity. Arch Dis Child. 2006;91(11):942–948. doi: 10.1136/adc.2006.098376.

6. Shenassa ED, Daskalakis C, Liebhaber A, Braubach M, Brown M. Dampness and mold in the home and depression: an examination of mold-related illness and perceived control of one's home as possible depression pathways. Am J Public Health. 2007;97(10):1893–1899. doi: 10.2105/AJPH.2006.093773.

7. Elton PJ, Packer JM. A prospective randomised trial of the value of rehousing on the grounds of mental ill-health. J Chronic Dis. 1986;39(3):221–227. doi: 10.1016/0021-9681(86)90027-5.

8. Halpern D. Mental Health and the Built Environment. London, England: Taylor & Francis; 1995.

9. Evans GW. The built environment and mental health. J Urban Health. 2003;80(4):536–555. doi: 10.1093/jurban/jtg063.

10. Dunn JR, Hayes MV. Identifying social pathways for health inequalities. The role of housing. Ann NY Acad Sci. 1999;896:399–402. doi: 10.1111/j.1749-6632.1999.tb08153.x.

11. Evans GW, Lepore SJ, Allen KM. Cross-cultural differences in tolerance for crowding: fact or fiction? J Pers Soc Psychol. 2000;79(2):204–210. doi: 10.1037/0022-3514.79.2.204.

12. Elliott M. The stress process in neighborhood context. Health Place. 2000;6(4):287–299. doi: 10.1016/S1353-8292(00)00010-1.

13. Munoz M, Crespo M, Perez-Santos E. Homeless effects on men's and women's health. Int J Ment Health. 2005;34(2):47–61.

14. Phinney R, Danziger S, Pollack HA, Seefeldt K. Housing instability among current and former welfare recipients. Am J Public Health. 2007;97(5):832–837. doi: 10.2105/AJPH.2005.082677.

15. Magdol L. Is moving gendered? The effects of residential mobility on the psychological well-being of men and women. Sex Roles. 2002;47:553–560. doi: 10.1023/A:1022025905755.

16. Davey-Rothwell MA, German D, Latkin CA. Residential transience and depression: does the relationship exist for men and women? J Urban Health. 2008;85(5):707–716. doi: 10.1007/s11524-008-9294-7.

17. Reading R, Reynolds S. Debt, social disadvantage and maternal depression. Soc Sci Med. 2001;53(4):441–453. doi: 10.1016/S0277-9536(00)00347-6.

18. Lahelma E, Laaksonen M, Martikainen P, Rahkonen O, Sarlio-Lahteenkorva S. Multiple measures of socioeconomic circumstances and common mental disorders. Soc Sci Med. 2006;63(5):1383–1399. doi: 10.1016/j.socscimed.2006.03.027.

19. Benson M, Fox G. Concentrated Disadvantage, Economic Distress, and Violence against Women in Intimate Relationships. Washington, DC: National Institute of Justice; 2004.

20. Benson M, Fox G. Economic Distress, Community Context and Intimate Violence: An Application and Extension of Social Disorganization Theory, Final Report. Washington: National Institute of Justice; 2001.

21. Pavao J, Alvarez J, Baumrind N, Induni M, Kimerling R. Intimate partner violence and housing instability. Am J Prev Med. 2007;32(2):143–146. doi: 10.1016/j.amepre.2006.10.008.

22. Reichman N, Teitler J, Garfinkel I, McLanahan S. Fragile families: sample and design. Child Youth Serv Rev. 2001;23(4/5):303–326. doi: 10.1016/S0190-7409(01)00141-4.

23. Evans GW, Wells NM, Chan HY, Saltzman H. Housing quality and mental health. J Consult Clin Psychol. 2000;68(3):526–530. doi: 10.1037/0022-006X.68.3.526.

24. Suglia SF, Duarte C, Sandel M, Wright R. Social and environmental Stressors in the home and childhood asthma. J Epidemiol Community Health. 2010;64(7):636–642. doi: 10.1136/jech.2008.082842.

25. Kessler R, Andrews G, Mroczek D, Ustun T, Wittchen H. The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF) Int J Meth Psychiatr Res. 1998;7:171–185. doi: 10.1002/mpr.47.

26. Kessler RC, Wittchen H-U, Abelson JM, et al. Methodological studies of the Composite International Diagnostic Interview (CIDI) in the US National Comorbidity Survey. Int J Meth Psychiatr Res. 1998;7:33–55. doi: 10.1002/mpr.33.

27. Lloyd S. The effects of domestic violence on women's employment. Law Policy. 1997;19:139–167. doi: 10.1111/1467-9930.00025.

28. American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

29. Galea S, Ahern J, Rudenstine S, Wallace Z, Vlahov D. Urban built environment and depression: a multilevel analysis. J Epidemiol Community Health. 2005;59(10):822–827. doi: 10.1136/jech.2005.033084.

30. Matheson FI, Moineddin R, Dunn JR, Creatore MI, Gozdyra P, Glazier RH. Urban neighborhoods, chronic stress, gender and depression. Soc Sci Med. 2006;63(10):2604–2616. doi: 10.1016/j.socscimed.2006.07.001.

31. Miller KE, Rasmussen A. War exposure, daily stressors, and mental health in conflict and post-conflict settings: bridging the divide between trauma-focused and psychosocial frameworks. Soc Sci Med. 2010;70(1):7–16. doi: 10.1016/j.socscimed.2009.09.029.

32. Evans GW. Child development and the physical environment. Annu Rev Psychol. 2006;57:423–451. doi: 10.1146/annurev.psych.57.102904.190057.