

THE EFFECT OF HOUSING QUALITY ON MATERNAL MENTAL HEALTH:  
THE MEDIATING ROLE OF FAMILY CONFLICT

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## ABSTRACT

Home is a place where people spend more than half of the day and communicate regularly with important members of their social network. Thus, it is natural to examine whether housing quality has effects on human health. Many studies have reported a positive relation between housing quality and mental health, but most suffer from cross-sectional research designs and lack analysis of underlying mechanisms to account for the possible effects of housing quality. In this regard, the present study seeks to shed light on the association among housing problems, maternal mental health, and family conflict within the context of a longitudinal design. This study also examines whether family conflict operates as an underlying mechanism of the relation between housing problems and mental health. The results show that housing problems are prospectively associated with greater psychological distress among women independently of socioeconomic status. Furthermore, this effect is partially explained by higher levels of familial conflict.

## BIOGRAPHICAL SKETCH

Jeyon (Jenny) Kim received her Bachelor's degree in Architecture from Yonsei University in South Korea. During that time, she visited Illinois Institute of Technology in Chicago to study architecture for one year, as an exchange student. After graduation, she decided to change her course of career and got a job in an advertising agency. While she was working as a copywriter, her interest in human minds had grown. To appease the intellectual curiosity, she started to study psychology at Yonsei University Graduate School. She earned a Master of Arts degree in the field of social and cultural psychology. She yearned to combine what she learned from the field of architecture and psychology. That passion led her to pursue a Master's degree in environmental psychology at Cornell University.

저의 시작과 현재와 미래를 만들어주신  
부모님께 이 논문을 바칩니다.

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## INTRODUCTION

Most people have a stable primary residence and typically spend more than half of the day in their home (U.S. Bureau of Labor Statistics, 2018). Home is also a place where people communicate regularly with important members of their social network (Bronfenbrenner & Evans, 2000). Thus, it is natural to examine whether housing quality has effects on human health. Early research on housing quality and health mostly focused on physical health, providing evidence that inadequate housing conditions led to various health problems (Lawrence, 2002; Matte & Jacobs, 2000). In addition to the focus on physical health, a considerable amount of research has explored the association between housing quality and psychological distress or mental health. Similar to physical health, people in substandard housing have been found to have elevated psychological distress (Evans, Wells, & Moch, 2003). In the present study, I will examine the relations between housing problems and maternal mental health. Furthermore, I will examine the mediating role of family conflict to account for the expected association between housing problems and maternal mental health.

### *Housing and mental health*

Duvall and Booth (1978) studied the housing environment and women's health in Canada and found that major structural deficiencies such as cracked or broken structural elements, lack of privacy, and space problems predicted low emotional well-being of married women with a child. A study of Birtchnell, Masters, and Deahl (1988) in England depicted that the dwelling interiors of depressed women were significantly poorer in appearance compared with non-depressed women. A large

scale case study conducted by Blackman, Evason, Melaugh, and Woods (1989) compared two areas of public housing in Northern Ireland. The results showed that both adults and children in poorer housing had worse mental health. A particular strength of Blackman and colleagues' work is that all of the residents were in public housing and thus from a homogenous background in terms of factors such as income, education, or type of occupation. Hunt (1990) conducted a study on emotional distress and housing in England and Scotland. This study also illustrated that the percentage of both adults and children reporting symptoms of emotional distress was positively correlated with the number of housing problems such as dampness, mold, poor repair, and overcrowding. Hunt and McKenna (1992) compared three areas of public housing in England with different degrees of physical improvements. For people over age 64, greater incidence of anxiety and depression was reported by those who lived in relatively less improved housing. In a study conducted in Japan by Saito, Iwata, Hosokawa, and Ohi (1993), poor psychological health status was found among women who were dissatisfied with the arrangement of their house or room, who perceived the house as inadequate for children, and who were annoyed by indoor and outdoor noise. This Japanese study and several others (Dunn & Hayes, 2000; Duvall & Booth, 1978; Saito et al., 1993) which rely on resident perceptions of housing quality to assess housing are subject to methodological criticism since the same individual's perception of housing quality is correlated with some self-reported index of well-being. Hopton and Hunt (1996) conducted a study in Scotland and found a significant effect of dampness on mental health. Weich and Lewis (1998) conducted a massive survey of more than 9,000 respondents in the UK. Common mental disorders such as anxiety

and depression were significantly associated with a poor material standard of living after controlling for occupational social class, education, and other potential confounding factors. Dunn and Hayes (2000) surveyed two neighborhoods in Canada and found that those who reported poorer overall satisfaction with dwelling were 2.5 times more likely to report poorer mental health. Evans, Saltzman, and Cooperman (2001) used an observer-based, standardized index of housing quality to look into the relation between housing quality and children's mental health. This study found that children who reside in poorer quality housing have more psychological symptoms than their counterparts living in better quality housing, independent of socioeconomic status and mother's mental health. Evans, Kantrowitz, and Eshelman (2002) also found that housing quality is associated with positive affect among older adults living independently in the community.

Although there is a general consensus on a positive association between housing problems and psychological distress, this topic of research faces several methodological problems. A lot of studies relied on participants' self-report when evaluating housing quality. Results based on self-report could be problematic since mental health could influence one's evaluation of housing quality. For example, people who have more psychological distress might report their housing quality lower than who do not suffer from psychological distress. For instance, a study on depression and the physical environment reported that depressed people described the housing estate as unpleasant and bad for their children (Birtchnell et al., 1988). On the contrary, it is also possible that people who have fairly good mental health might rate their housing conditions to be good regardless of the actual conditions. Furthermore,

cross-sectional research designs render causal direction ambiguous and inconclusive. It is not only hard to understand the directionality of the relationship, but also difficult to rule out other ‘third’ variables that could be affecting the relationship. For instance, it is possible that people with low mental health are more likely to end up in poor quality housing because of a lack of motivation or willpower to search for decent housing.

There are several longitudinal studies that scrutinized how people’s mental health status changed before and after the relocation or renovation. These studies tend to have stronger internal validity because it is possible to eliminate potentially confounding variables including personality, ethnicity, and socioeconomic status by comparing the same individual from pre- to post- move. Wilner, Walkley, Pinkerton, and Tayback (1962) found that after relocation from slums to public housing, residents’ optimism and life satisfaction improved compared to those who stayed in slums. Carp (1975) interviewed low-income elderly residents noting that those who moved to a new apartment building designed for the elderly reported more happiness, less worry, a greater sense of optimism than non-movers. Elton and Packer (1986) also compared certain psychological symptoms of the residents who were randomly assigned to move or stay. The participants asked for council housing relocation due to mental illness. The researchers found that for those who moved to better housing, depression and anxiety symptoms improved significantly compared to their counterparts who remained in poor-quality housing. These same researchers found similar results from the following analysis of the same rehousing program (Elton & Packer, 1987). In this study, all participants moved from council housing but some moved due to mental

illness and the other relocated for other reasons. For all of them, regardless of the reasons of relocation, improvements in depression and anxiety were found. Halpern (2014) reported that after remodeling to improve housing, symptoms of both anxiety and depression of the residents decreased while the symptoms of the control group did not change. The control group was well matched on age, average length of residence, and income. Evans, Wells, Chan, and Saltzman (2000) studied women relocating through a housing program and found that housing quality predicted psychological distress and moreover, changes in housing quality were predictive of post-move psychological distress with controlling for pre-move psychological distress. This study has strong internal validity since changes in housing quality were associated with changes in psychology distress. Wells and Harris (2007) conducted a study of women relocating from inadequate to higher quality, newly constructed homes. The results showed that significant improvements occurred in housing quality and psychological distress diminished from pre-move to post-move. They also found that changes in housing quality predicted post-move psychological distress, after controlling for pre-move psychological distress. Vaid and Evans (2017) also studied women relocating from slum housing to public housing and those who in slums on wait-lists to relocate to public housing in India. The researchers found that movers manifest better mental health and moreover, housing quality largely explained the differences in mental health between movers and non-movers.

***Housing and mental health; Mediating processes***

While the results of both cross-sectional and longitudinal studies support a positive relation between housing quality and mental health, the reason why housing quality has impacts on mental health is yet to be revealed. A few studies delved more deeply into the underlying mechanisms that accounted for linkages between housing problems and mental health. Evans et al. (2002) discovered a mediating role of place attachment which accounted for the association between housing quality and older adults' mental health. Place attachment, the feeling of security, belonging, and expression of self (Brown & Perkins, 1992), fully mediated the association between housing quality and positive affect. The elderly who lived in higher quality housing, independent of sociodemographic factors such as income and gender, felt more attached to their home, which led to better mental health. On the other hand, Wells and Harris (2007) suggested social withdrawal as the underlying process to account for the relation between housing quality and psychological distress. They suggested that poor housing conditions might lead occupants to socially withdraw and subsequently have more psychological distress. The results of the study showed that, for low-income women, the association between housing quality and psychological distress was fully mediated by social withdrawal. Different from Evans and colleagues' cross-sectional design, Wells and Harris employed a longitudinal design and measured each variable at two different time points; pre- and post-move. In a comprehensive review of the literature on housing and mental health, Evans et al. (2003) reviewed various psychological processes that might have some relation between housing and mental health categorizing them as identity, insecurity, control or mastery over the environment, interpersonal relations such as support or conflict, including parenting

when children are involved. Nonetheless, only the two aforementioned studies have scrutinized the relations among housing quality, and underlying psychosocial process, and a mental health outcome in a rigorous manner.

### ***Family conflict as a mediator***

As possible mediators of the relations between housing quality and mental health, Evans et al. (2002) and Wells and Harris (2007) introduced place attachment and social withdrawal, respectively. In the present study, I suggest family conflict as a potential mediator given that housing problems could readily precipitate familial conflict, which, in turn, may lead to more maternal psychological distress.

The residence is a physical and social environment that encompasses the microsystem for families (Bronfenbrenner, 1994). A microsystem is the most immediate environment that a person lives in. Bratt (2002) described possible connections between housing and family well-being. She suggested housing could impact family well-being in three broad ways. The first is through its physical attributes and availability, including housing quality and safety. Second, apart from the physical presence, the relationship of housing to its occupant can affect family well-being. Crowding, affordability, and tenure options are some examples of that relationship. Lastly, neighborhood conditions can influence family well-being. Edwards, Booth, and Edwards (1982) studied how the features of housing affect a family environment. Type of housing was related to different aspects of spousal relations. Husbands and wives residing in apartments (versus detached single-family dwellings and multiple dwellings) reported more marital conflict, such as arguments



and threats on the part of one of them to leave home. Moreover, fathers residing in apartments were more likely to strike their children. These results were shown after controlling for age, education, and occupational status.

With regard to the quality of housing, Wilner et al. (1962) focused on family relations with housing quality by comparing before and after relocations. Residents who relocated from slums to public housing reported fewer quarrels and arguments among family members. The researchers assumed that family conflict would more frequently arise within the families in the slum area due to competition for the use of limited space and facilities.

### *Study aims and hypotheses*

The present study builds upon and extends prior research on housing quality and mental health in two important ways. First, due to the longitudinal research design, this study provides more rigorous evidence of the effect of housing quality on mental health. Second, by examining a psychosocial mediator, familial conflict, that might reasonably be expected to be inter related to both housing quality and mental health, this study helps to better understand the underlying processes that mediate housing quality and mental health. I hypothesize that housing problems will significantly predict maternal psychological distress. Furthermore, I hypothesize that family conflict will mediate the relation between housing problems and maternal psychological distress.

## METHODS

### *Participants and procedure*

The participants of this study were part of a longitudinal study of poverty, risk factors, and child development (Evans, 2003). The original sample was recruited in rural counties in upstate New York using records from public schools, the Cooperative Extension System of the U.S. Department of Agriculture, the federal Head Start program, subsidized housing, and other antipoverty programs. In this sample, 50% of the participants came from families that were at or below an income-to-needs ratio of 1, which is the U.S. federal poverty line. The income-to-needs ratio is an annually adjusted per-capita index. The other half of the sample at recruitment came from families with income-to-needs ratios 2 to 4 times the poverty line, which represents the level of most American families. Three additional waves of data were collected every four years, and the final sample analyzed in the present study consisted of 351 mothers of children in the study. Because of the focus of this study, I used data from wave 1 (Housing Problems), Wave 2 (Family Conflict), and Wave 3 (Mental Health). The original sample (Wave 1) had 351 participants. The majority (87.5%) was white. The rest included ten African-Americans, two Asians, one Latino, and two Native Americans. Fifty three percent were married or living with significant others and 42.2% were single, divorced or widowed. The mean number of children per household was 2.75, with a range of 1-7. The modal level of education was completion of some college (29.1%), 27.9% had completed high school, 11.7% had finished a 2-year degree, 11.1% had finished a 4-year degree, 8.3% had completed masters/PhD/MD degree, and 6.6% had received less than a high school education. Based upon the head

of the household, most participants were unskilled workers (55.4%). 19.6% were professionals, 13.6 % were managers or administrators, and 11.1% were skilled workers. At wave 2, the number of participants reduced to 225, and at Wave 3, I could follow up with 216 participants. Multiple imputations were used to address missing values by using SPSS version 21.

Since Evans' (2003) study mainly focused on child development, the secondary dataset included only mothers' responses. Although, it is reasonable to analyze mother's psychological distress since many of the prior studies on housing quality specifically focused on women's mental health (Birtchnell et al., 1988; Evans et al., 2000; Saito et al., 1993; Vaid & Evans, 2017; Wells & Harris, 2007). None of the studies clarified the reasons of investigating only women's mental health, but some reasons can be suggested. First, women on average spend more time in the home and perform more duties in home including cleaning, food preparation, laundry, and caring for and helping household members (U.S. Bureau of Labor Statistics, 2012). Second, in studies that required a visit the participant's house, it might have been easier to ask women compared to men to let the researchers visit the home and conduct research.

All data were collected in participants' houses by two researchers. The researchers briefly explained the study and asked participants to complete a consent form. While one researcher evaluating housing problems, the other researcher conducted a short interview. Participants were asked to fill in the questionnaires to assess the participant's psychological distress, the amount of family conflict, and the socioeconomic status (SES) of the participant. Income-to-needs ratio, maternal

education and maternal occupation level from Wave 1 were z-scored and the mean was used as an index of SES.

## ***Measures***

### ***Independent variable: Housing Problems***

The *Housing Problems* scale was developed by Evans et al. (2000). It is an observer-based measurement to evaluate physical housing problems. The original scale has six subscales; structural quality, privacy, indoor climatic conditions, hazards, cleanliness/clutter, and child resources. In the present study, the child resources subscale was not included. Within the structural quality subscale, the questions were such as “Rate the worst ceiling/wall surface in the room” (0 = good, 1 = less than 1 square foot (.03m<sup>2</sup>) loose or missing, 2 = more than 1 square foot (.03m<sup>2</sup>) loose or missing). Privacy subscale asked such as “Do you have to walk through the bedroom to get to another room?” (0 = no other rooms, 1 = one other room, 2 = more than one other room). Indoor climatic conditions asked such as “Heat has broken down” (0 = not in a year, 1 = once in the past three months or last winter, 2 = once a month or more). For the hazards subscale, questions were such as “Stair is...” (0 = in good condition, 1 = structurally sound but cracked, discolored, paint peeling, 2 = potentially dangerous (e.g., no risers to individual steps, loose or no handrails, nails sticking out)). Lastly, cleanliness/clutter subscale asked such as “How much clutter is in the kitchen?” (0 = little or none, 1 = some clutter, 2 = chaos). Overall housing problems score was computed by calculating the mean of the standardized scores of each subscale. A higher score indicates that there are more housing problems. This scale was

established as a reliable and valid instrument to assess housing problems (Evans et al., 2000). For reliability, internal consistency (Cronbach's alpha) of the overall instrument was .78, which indicated it was moderately reliable. Inter-observer reliability was also moderate (Ebel  $r = .72$ ). Through several evaluations, the instrument was shown to have concrete construct validity as well.

### ***Family Environment (Family Conflict)***

Family conflict is a subscale of the Family Environment Scale (Moos & Moos, 1994). Nine questions measure the amount of openly expressed anger and conflict among family members. The scale includes questions such as, "We fight a lot in our family" and "Family members often criticize each other". All questions are answered either 1 (*True*) or 2 (*False*). A higher score depicts more conflict in the participant's family. The internal consistency of family conflict is .75 and a 2-month test-retest reliability of this scale is .85. This scale has been developed and tested across various types of families in a number of European, Asian and African countries as well as in the United States.

### ***Mental Health (Psychological Distress)***

Maternal mental health was measured with the Demoralization Index of the Psychiatric Epidemiology Research Instrument (PERI; Dohrenwend, Shrout, Egri, & Mendelsohn, 1980). This is a standardized symptom checklist for nonclinical populations. The scale has 21 questions that ask participants whether they have felt a particular way in the last 3 months. The questions were such as, "How often have you

been bothered by feelings of sadness or depression - of feeling blue?” and “How often have you felt anxious?”. Responses were given on a 5-point Likert scale, ranging from 0 (*Never*) to 4 (*Very often*). A higher score means that the participant has more psychological distress. Reliability of this scale is .91, which indicates that it is highly reliable. The PERI shows concurrent validity with other measures of psychological health (e.g., Langner, 1962) and is predictive of eventual psychiatric case openings as well as help-seeking reports (Catalano & Dooley, 1983). The PERI has been widely used across ethnically, economically, and geographically diverse samples both in the United States and abroad.

## RESULTS

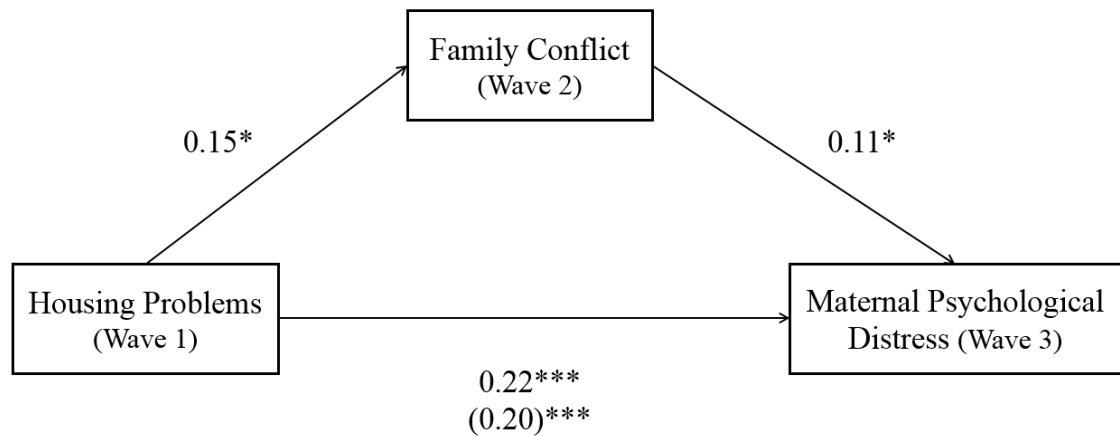
Before testing the main hypotheses, I checked if there were outliers. Through regression analysis, I found that two participants had standard residuals that were larger than 3. Therefore, those two participants’ responses were eliminated from further analyses.

*Table 1.* Descriptive Statistics and Correlations Among Variables

Variable	<i>M</i>	<i>SD</i>	Correlations			
			1	2	3	4
1. Housing problems (Wave 1)	.68	.31	-	.180**	.306**	-.419**
2. Family conflict (Wave 2)	1.35	.26		-	.174**	-.136*
3. Maternal psychological distress (Wave 3)	20.93	11.82			-	-.305**
4. Socioeconomic status	-.01	.76				-

\*\*p < .01.

Then, I examined the correlations between the variables. Housing problems were positively correlated with family conflict in wave 2 and maternal psychological distress in wave 3. Family conflict in wave 2 was also significantly correlated with maternal psychological distress in wave 3 (Table 1). Finally, I examined the indirect effect of housing problems on maternal psychological distress through family conflict by using the SPSS bootstrapping macro provided by Hayes (2017). The relationship between housing problems and maternal psychological distress was mediated by family conflict.



*Figure 1.* Standardized regression coefficients for the relationship between housing problems and maternal psychological distress as mediated by family conflict. The standardized regression coefficient between housing problems and maternal psychological distress, controlling for family conflict, is in parentheses. SES is included as a covariate.  
 \* $p < .05$ . \*\*\* $p < .001$ .

As shown in Figure 1, the standardized regression coefficient between housing problems and family conflict was statistically significant, as was the standardized regression coefficient between family conflict and maternal psychological distress. There was a significant indirect effect of housing problems on

maternal mental health through family conflict,  $\beta = 0.016$ ,  $SE = 0.011$ , 95% confidence interval (CI) = [.001, .042] (Table 2). The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5000 samples. These results included SES as a covariate. I also analyzed with two different covariates; the number of children and the marital status (married/significant other in home vs. divorced/single/widowed). The results remained the same for each of these two control variables in the model.

*Table 2. Result of Mediation Analysis*

Predictor	$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>
IV to Mediator				
Housing problems	.0149	.048	2.574	.011
Mediator to DV				
Family conflict	.110	2.314	2.170	.031
Bootstrap result for indirect effect				
	$\beta$	Boot <i>SE</i>	LL 95% CI	UL 95% CI
	.016	.011	.001	.042

## DISCUSSION

### *Summary of findings*

Although the relation between housing problems and mental health has been examined in many studies, most of them suffered from cross-sectional research designs and lacked analysis of underlying mechanisms to account for the effects of housing problems. In this regard, the present study sought to shed light on the association among housing problems, maternal mental health, and family conflict



within the context of a longitudinal design. This study also examined whether family conflict operates as an underlying mechanism of the relation between housing problems and mental health. As hypothesized, housing problems were prospectively associated with greater psychological distress among women independently of SES. Furthermore, this effect was partially explained by higher levels of familial conflict (see Figure 1).

### ***Contributions***

The present study contributes to the literature on housing problems and mental health in several ways. First, the longitudinal design of this study makes it possible to establish a prospective association between housing problems and mental health. Prior studies on this relation were mostly designed as cross-sectional research revealing a correlation between housing problems and mental health (Birtchnell et al., 1988; Blackman et al., 1989; Dunn & Hayes, 2000; Duvall & Booth, 1978; Evans et al., 2002, 2001; Hopton & Hunt, 1996; Hunt, 1990; Hunt & McKenna, 1992; Saito et al., 1993; Weich & Lewis, 1998). Although the results provided consistent evidence of a positive association between housing problems and psychological distress, cross-sectional research designs entailed the limitation of ambiguous causal directionality. Due to the longitudinal design, the result of the present study can be interpreted in a prospective manner. In other words, one can predict that people who live in poorer quality housing, are likely to have more conflict in their family later on. Moreover, the mother in that family is anticipated to have more psychological distress subsequently.

Second, while various social environmental stressors such as crowding and density have been studied and reviewed as major sources to threat one's mental health (Halpern, 2014), the family environment has been dealt with scarcely. In this regard, adding family conflict to the model helped us to expand the literature.

Furthermore, it is important to note that the present study investigates the mediating role of family conflict in understanding why poor housing problems is adverse to mental health. The fact that this study demonstrates the underlying process to account for the relation between housing quality and psychological distress is a particular strength. Prior to the present study, only two studies depicted mediators to account for the relation between housing problems and psychological distress. Evans et al. (2002) suggested place attachment and Wells and Harris (2007) proposed social withdrawal. Moreover, different from those two studies, the present study measured the independent variable, mediator, and dependent variable at three different time points. By investigating a mechanism underlying the relation between housing problems and mental health, the findings of this study provide insight into possible interventions to policymakers, planners, and designers.

### ***Limitation and future research***

Like many other studies, the present study also has some limitations. The primary limitation of this study is that although it is a prospective and longitudinal study, and therefore it is possible to examine a prospective association, it cannot be said that there is a cause-and-effect relation between housing problems and mental health. Future research might be designed as a true experiment with random

assignment to establish a clear causal relationship. For instance, one could randomly assign one group of people to relocate to better housing while the other group stays and compare the effect of the amount of reduction in housing problems with the reduction in psychological distress with the control group.

Another limitation is the study's weak external validity. Since this research was conducted in a rural area of upstate New York, and the participants were mostly European American and only women, caution is needed to generalize the findings to a more diverse urban population. Nevertheless, the value of rural sample should be noted as well since most of the prior research studies were conducted in urban area.

How and why housing problems lead to family conflict should be examined further. There can be various mechanisms underlying the association between housing problems and family conflict yet undiscovered. Another largely unexplored topic is which components of housing problems are particularly salient for psychological well-being or is 'housing problems' in the aggregate the primary driver? Crowding has been suggested as the housing stressor that has the biggest impact on the link between housing problems and psychological distress (Wells & Harris, 2007).

Future research can explore other underlying mechanisms linking housing problems to mental health. This is particularly important because family conflict mediates the relation between housing problems and maternal psychological distress only partially. In other words, there can be additional contributing factors to this relation. Prior research discovered that place attachment accounted for the association between housing quality and older adults' mental health (Evans et al., 2002) and social withdrawal mediated the relation between housing problems and psychological

distress among a group of low-income women (Wells & Harris, 2007). Other possible candidates include stress and low control. Future investigation could test whether housing problems lead to low control and poor mental health. Prior research reported that low control has been linked to reduced overall well-being (Rotter, 1966) as well as hopelessness and passivity (Rosenfield, 1989). Greenwood, Schaefer-McDaniel, Winkel, and Tsemberis (2005) studied homeless and mentally ill adults who were randomly assigned to immediate access to their own independent apartments (versus waiting for the permission to the housing while getting psychiatric treatment and sobriety). The results indicated that perceived choice increased for the homeowner group, compared to the control group, and the effect of choice on psychiatric symptoms was partially mediated by a sense of control.

### ***Conclusion***

The findings of the present study suggest that mothers with children who live in substandard housing are likely to have more conflict in their families. More familial conflict, in turn, leads to lower maternal mental health. Not only does this finding solidify existing evidence on the effects of housing problems on mental health, but it also emphasizes the significance of a social environmental stressor, specifically, family conflict on mothers' mental health. The finding is also meaningful in that it highlights the interrelationship between physical housing problems, social living conditions, and one's psychological well-being.

## APPENDICES

The appendices contain Housing Problem scale, Family Conflict scale, and Mental health scale.

## HOUSING PROBLEMS SCALE

### Kitchen

1. Odors

0= none

1= slight

2= bad

2. How much clutter is in the room?

0= little

1= some clutter

2= chaos

3. How clean is the room?

0= clean (can be rated clean if stained but washed)

1= satisfactory (Examples: Dirt in corners of floor, Dirt inside burners, One appliance dirty, but rest of kitchen clean)

2= dirty

4. Ventilation fan

0= yes

1= no

5. Electrical: Is there any exposed wiring or extension cords?

0= no

1= yes

6. Is there water-related ceiling or wall damage?

0= no

1= stained

2= stained and cracked or moldy

3= damp right now

7. Is there any visual mold growth or mildew in this room?

0= yes

1= no

8. Rate the worst surface (ceiling **or** wall **or** floor) in the room on its:

A. Protective surface (paint, wallpaper, molding, tiles, etc.)

0= good

1= less than 1sq ft loose or missing

2= more than 1sq ft loose or missing

B. Structural surface (includes wood, drywall, etc.)

0= good

1= less than 1sq ft loose or warped

2= less than 1sq ft hole

3= more than 1sq ft loose or warped

4= more than 1sq ft hole

## **Bathroom**

1. Odors

0= none

1= slight

2= bad

2. How much clutter is in the room?

0= little

1= some clutter

2= chaos

3. How clean is the room?

0= clean

1= satisfactory (Examples: Dirt in corners of floor,  
One item dirty, but rest of bathroom clean)

2= dirty

4. Ventilation fan

0= yes

1= no

5. Electrical: Is there any exposed wiring or extension cords?

0= no

1= yes

6. Is there water-related ceiling damage?

0= no

1= stained

2= stained and cracked

3= damp right now

7. Is there any visual mold growth or mildew in this room?

0= yes

1= no

8. Rate the worst surface (ceiling **or** wall **or** floor) in the room on its:

A. Protective surface (paint, wallpaper, molding, tiles, etc.)

0= good

1= less than 1sq ft loose or missing

2= more than 1sq ft loose or missing



B. Structural surface (includes wood, drywall, etc.)

0= good

1= less than 1sq ft loose or warped

2= less than 1sq ft hole

3= more than 1sq ft loose or warped

4= more than 1sq ft hole

**Bedroom (Target's Bedroom)**

**Privacy**

1. Do you have to walk through the bedroom to get to another room?

(not including a bathroom)

0= no

1= yes 1 other room

2= yes 2 or more rooms

2. How much clutter is there in the room?

0= little

1= some clutter

2= chaos

3. How clean is the room?

0= clean

1= satisfactory (Ex: Dirt in corners of floor, One item dirty, but  
rest of bedroom clean)

2= dirty

4. Electrical: Is there any exposed wiring or extension cords?

0= no

1= yes

5. Is there water-related ceiling or wall damage?

0= no

1= stained

2= stained and cracked or moldy

3= damp right now

6. Rate the worst ceiling **or** wall **or** floor in the room on its:

A. Protective surface (paint, wallpaper, molding etc.)

0= good

1= less than 1sq ft loose or missing

2= more than 1 sq ft loose or missing

B. Structural surface (includes wood, drywall, etc.)

0= good

1= less than 1sq ft loose or warped

2= less than 1sq ft hole

3= more than 1sq ft loose or warped

4= more than 1sq ft hole

**Bedroom (Guestroom or the other)**

1. Do you have to walk through the bedroom to get to another room? (not including a bathroom)

0= no

1= yes 1 other room

2= yes 2 or more rooms

2. How much clutter is in the room?

0= little

1= some clutter

2= chaos

3. How clean is the room?

0= clean

1= satisfactory (Examples: Dirt in corners of floor,  
One item dirty, but rest of bedroom clean)

2= dirty

4. Electrical: Is there any exposed wiring or extension cords?

0= no

1= yes

5. Is there water-related ceiling or wall damage?

0= no

1= stained

2= stained and cracked or moldy

3= damp right now

6. Rate the worst ceiling **or** wall **or** in the room on its:

A. Protective surface (paint, wallpaper, molding etc.)

0= good

1= less than 1sq ft loose or missing

2= more than 1 sq ft loose or missing

B. Structural surface (includes wood, drywall, etc.)

0= good

1= less than 1sq ft loose or warped

2= less than 1sq ft hole

3= more than 1sq ft loose or warped

4= more than 1sq ft hole

**Living room**

1. How much clutter is in the room?

0= little

1= some clutter

2= chaos

2. How clean is the room?

0= clean

1= satisfactory (Examples: Dirt in corners of floor,  
One item dirty, but rest of bedroom clean)

2= dirty

3. Electrical: Is there any exposed wiring or extension cords?

0= no

1= yes

4. Is there water-related ceiling or wall damage?

0= no

1= stained

2= stained and cracked or moldy

3= damp right now

5. Rate the worst ceiling **or** wall **or** in the room on its:

A. Protective surface (paint, wallpaper, molding etc.)

0= good

1= less than 1sq ft loose or missing

2= more than 1 sq ft loose or missing

B. Structural surface (includes wood, drywall, etc.)

0= good

1= less than 1sq ft loose or warped

2= less than 1sq ft hole

3= more than 1sq ft loose or warped

4= more than 1sq ft hole

### **General house inside**

1. If there are more than 2 stairs in the staircase, in what condition is the handrail?

0= good

1= wobbly, but useable

2= unuseable

3= no handrail

There are no stairs inside the house \_\_\_\_\_

2. If there are more than 2 stairs in the staircase, are there any loose or broken steps, damaged or uneven surfaces, disrepair or other safety threats?

0= no

1= yes

There are no stairs inside the house \_\_\_\_\_

3. How many books do you see in the house? (any books-child or adult) **note: books not magazines.**

0= more than 20

1= 10-20

2= less than 10

3= none

### **General house outside**

House type

1. Single family detached
2. Trailer

3. Small multi-family ( $\leq 3$  units)

4. Large multi-family

5. Other \_\_\_\_\_

1. If there are more than 2 stairs in the staircase, in what condition is the handrail?

0= good

1= wobbly, but useable

2= unuseable

3= no handrail

There are no stairs in the house \_\_\_\_\_

2. If there are more than 2 stairs in the staircase, are there any loose or broken steps, damaged or uneven surfaces, disrepair or other safety threats?

0= no

1= yes

3. Yard maintenance

0= well kept

1= not well maintained but also not run down (some clutter / unkempt weeds or grass)

2= not maintained, run down, junky (various objects, car parts, junk, litter, garbage, etc.)

4. Rate the exterior walls on (**rate the worst wall**)

A. Protective surface (e.g. Paint or siding)

0= good-no damage

1= less than 1/4 damaged/missing

2= between 1/4 and 1/2 damaged/missing

3= more than 1/2 damaged/missing

B. Structural surface

0= good-no damage

1= less than 1/4 damaged/missing

2= between 1/4 and 1/2 damaged/missing

3= more than 1/2 damaged/missing

**Interview**

1. How many people sleep regularly in the target bedroom? \_\_\_\_\_

2. Does this heat system keep you comfortable in the winter?

0= very comfortable

1= comfortable

2= uncomfortable

3= very uncomfortable

3. Do you ever have flooding in the basement?

0= never

1= once every 3 months

2= once a month or more

4. Electrical: How many times in a typical month do fuses blow or Breakers trip? \_\_\_\_\_

Do the lights dim when appliances are turned on?

0=no appliances cause this to happen

1=some appliances cause this to happen

2=any appliance will cause this to happen

5. Does the roof leak?

0= never

1= once every 3 months

2=once a month or more

## **FAMILY CONFLICT SCALE**

1. We fight a lot in our family.
2. Family members rarely become openly angry.
3. Family members sometimes get so angry they throw things.
4. Family members hardly ever lose their tempers.
5. Family members often criticize each other.
6. Family members sometimes hit each other.
7. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.
8. Family members often try to one-up or out-do each other.
9. In our family, we believe you don't ever get anywhere by raising your voice.

(1=True, 2=False)



**MENTAL HEALTH SCALE (PERI; Psychiatric Epidemiology Research Interview)**

1. How often have you felt you were bothered by all different kinds of ailments in different parts of your body?
2. How often have you been bothered by feelings of sadness or depression - of feeling blue?
3. How often have you had attacks of sudden fear or panic?
4. How often have you felt confident?
5. In the past 3 months, how often have you felt lonely?
6. How often have you been bothered by feelings of restlessness?
7. How often have you felt useless?
8. How often have you feared going crazy; losing your mind?
9. How often have you felt anxious?
10. How often have you feared something terrible would happen to you?
11. How often have you felt confused and had trouble thinking?
12. How often have you had trouble concentrating or keeping your mind on what you were doing?
13. How often have you felt that nothing turns out for you the way you want it to?
14. During the past 3 months, how often have you felt completely hopeless about everything?
15. How often have you had time when you couldn't help wondering if anything was worthwhile anymore?
16. How often have you felt completely helpless?
17. How often have you been bothered by cold sweats?
18. How often have you had trouble with headaches or pains in the head?
19. During the past 3 months, how often has your appetite been poor?
20. How often have you feared being left alone or abandoned?
21. How often have you been bothered by nervousness, being fidgety or tense?

(0=never, 1=almost never, 2=sometimes, 3=fairly often, 4=very often)

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