THE INTERACTIVE EFFECTS OF HOUSING AND NEIGHBORHOOD QUALITY ON PSYCHOLOGICAL WELL-BEING

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ABSTRACT

This study investigates the effects of housing quality, neighborhood quality, and the interaction of housing quality and neighborhood quality on psychological well-being for a sample of 5,605 European adults. This sample is from the Large Analysis and Review of housing and health Status conducted by the World Health Organization. Interviews and questionnaires were used to collect data on housing circumstances, the state of the surrounding environment, and individual health and well-being. Multilevel random coefficient modeling was used to statistically analyze the main and interactive effects of housing quality and neighborhood quality on psychological well-being. Socioeconomic status, gender, marital status, and employment status were used as statistical controls. Results of this study suggest that poor housing quality and poor neighborhood quality can contribute to lower psychological well-being. Furthermore, it appears that good neighborhood quality can buffer against the negative effects of poor housing quality on psychological well-being. These results fill in a gap in research concerning the ability of neighborhood quality to amplify or attenuate housing quality and have implications for designers, planners, and policy makers.

BIOGRAPHICAL SKETCH

McKenzie Jones-Rounds grew up in Middletown, PA among many trees, few sidewalks, and a pig. She has always been interested in where people live and how it affects their growth. She attended the Pennsylvania State University at University Park, PA as a Schreyer Honors Scholar and Bunton-Waller Fellow where she received her B.S. in Human Development and Family Studies in 2007. McKenzie conducted undergraduate research with Eva Lefkowitz in the Emerging Adulthood Lab. She also studied with Warner Schaie and Sherry Willis on the Seattle Longitudinal Study where she wrote her senior honors thesis on family environments. McKenzie joined the Department of Design and Environmental Analysis at Cornell University in 2008 to pursue her M.S. in Applied Research in Human-Environment Relations.

McKenzie lives with her husband, Jamie, and their son, Felix, who was born in September 2007. After graduating, she looks forward to spending uninterrupted time with her family and becoming part of a small urban ecovillage in Ithaca, NY.

Dedicated to all who search for home.

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INTRODUCTION

Statement of the Problem

Although much of the world has access to abundant technological, financial, and social resources, there are many people who suffer from a lack of even the most basic assets. According to the European Centre for Social Welfare Policy and Research (2008), a recent study of income throughout the European Union reveals that between 10 and 23 percent of people in member countries live in poverty, defined as having a disposable income below 60 percent of the national average.

Low-income families are often exposed to many health- and developmentally-related risks, such as unstable homes and family structures, air and water pollution, noise, crowding, and crime (Evans, 2004). Poverty and the many risk factors associated with it have been linked to families experiencing a lower psychological well-being (Park, Turnbull, & Turnbull III, 2002). Given the rates of poverty in Europe, it is safe to assume that many people living there are exposed to negative environments based on their income.

Two aspects of the built environment which will be discussed in this study are inadequate housing and neighborhood quality. They are often central characteristics of low-income settings. The relationship between these environmental characteristics and psychological well-being will be examined for a large sample of European adults. This will be done while statistically controlling for socioeconomic status so as not to attribute psychological well-being to income but rather to the quality of the home and neighborhood, as these are important environments across all income levels. Moreover, the interaction between housing quality and neighborhood quality will be investigated. The hypothesis for this study is that housing quality, neighborhood quality, and their interaction will have significant effects on psychological well-being.

More specifically, the interaction between housing quality and neighborhood quality is hypothesized to show that high neighborhood quality can help to attenuate the negative effects and stressors of poor housing quality. A case will be built for the positive design of neighborhoods in which inadequate housing is prevalent.

Psychological Well-Being

Psychological well-being can refer to a person's ability to socialize with others, sense of autonomy, purpose in life, and personal growth (Ryff, 1989). Like many complex issues, the distribution of resources and the ability of people to conduct their lives are regarded. Pertinent factors contributing to psychological well-being may include life expectancy, health care, medical expenses, education, employment, political privileges, and interpersonal relationships (Nussbaum & Sen, 1993). Control, income, and quality of the environment have also been linked to psychological well-being (Guyatt, Feeny, & Patrick, 1993), demonstrating that it is a broad construct.

This study will refer to psychological well-being in terms of mental health domains. Due to its extensive implications, it is important to study psychological well-being to better understand the ways in which people are connected to and affected by their environments and the pathways that may contribute to psychological well-being.

Housing Quality and Well-Being

There are many negative health outcomes associated with living in poor quality housing. People who cannot afford high quality housing are often subjected to mold, carbon monoxide, rodents, cockroaches, dust mites, and cigarette smoke in their homes. All of these environmental characteristics are linked to dangerous and sometimes fatal health outcomes, such as childhood asthma (Bashir, 2002). In addition to respiratory diseases, mold and dampness are related to hypothermia, fevers,

diarrhea, headaches, and aches and pains. Despite great strides in public health and infectious disease prevention, extremely poor housing conditions can still lead to tuberculosis (Shaw, 2004).

Other well documented physical health consequences of substandard housing include lung cancer from asbestos exposure, neurological and developmental irregularities due to lead poisoning, cardiovascular disease from poor thermal regulation, and an increased risk of accidents and physical injuries (Kreiger & Higgins, 2002). Thomson, Petticrew, and Morrison (2008) review eighteen publications on the topic of housing and health. Although the authors acknowledge some methodological limitations of the studies in the review, there is evidence that interventions to improve inadequate housing enhance self-reported health.

A British study utilizing data collected at six time periods between 1958 and 1991 for a sample of 11,407 participants (originally 17,415) concludes that multiple housing deprivation factors lead to a 25 percent increased risk of experiencing a disability or severe ill health across the life course (Marsh, Gordon, Heslop, & Pantazis, 2000). The prevalence of literature concerning housing related physical illnesses continues to grow and shed light on the bleak living conditions of people with access to few resources.

In addition to physical ailments, poor quality housing is associated with poor mental health. Children appear to be especially susceptible to this relationship. A recent study controlling for possible confounding variables such as household income, parent's education, child's gender, parent's mental health status, and the amount of time living in the residence finds that lower quality housing is significantly associated with lower socioemotional health in children (Gifford & Lacombe, 2006). Another study comparing two housing areas of different quality, the nicer of which acts as a social and economic control, finds that children experience more psychological

distress when residing in inadequate housing (Blackman, Evason, Melaugh, & Woods, 1989). Evans, Saltzman, and Cooperman (2001) find similar results for 277 low and middle income children. Even after controlling for the income-to-needs ratio of each household (household income divided by the federal poverty threshold), low quality housing as defined by an objective rater is associated with more behavioral problems, reduced task performance, and poor performance at school.

Women also seem to be at risk for experiencing negative effects of substandard housing. Adult women from two groups; a cross-sectional, rural, low to middle income population; and a longitudinal, urban, low-income population, are discussed in a study on housing quality and mental health (Evans, Wells, Chan, & Saltzman, 2000). After controlling for income among the rural sample, housing quality is found to be a determinant of psychological distress. Likewise, among the urban sample, changes in housing quality are significant predictors of psychological health.

A longitudinal study of 128 inner-city mothers who are positive for HIV finds that life stressors and psychological distress are strong predictors of not adhering to antiretroviral medications and medical services. Maintaining adherence to antiretroviral treatment plans has been proven to increase life expectancy and improve psychological well-being among persons infected with HIV/AIDS. Unstable or inadequate housing is found to be a possible life stressor that significantly correlates with infected mothers not continuing with treatment. This is in part because adherence to medical treatment plans often competes with other life stressors for the time and energy of overburdened, infected mothers (Mellins, Kang, Leu, Havens, & Chesney, 2003). While this may seem like an unconventional example of the links between housing and mental health, it simply serves to show the importance of good housing for an at-risk population.

Other populations who may be vulnerable to substandard housing are those already suffering from mental illness. A review of housing attributes and mental health finds that housing can be a physical determinant of mental health (Newman, 2001). According to a nine month randomized study conduced by Baker and Douglas (1990), people suffering from mental illness and living in inadequate housing are more likely to express maladaptive behavior than those suffering from mental illness and living in adequate housing. This is found to be the case regardless of the amount of support services received by the mentally ill person. Conversely, physically adequate housing appears to result in increased functioning of participants. While limitations in housing and health methodology are present, this instance also suggests the necessity of providing good quality housing for people in disadvantaged situations.

In addition to people experiencing various hardships, the population at large appears to be affected by the quality of their homes. A longitudinal case study in England (Halpern, 1995) suggests that housing improvements including window and bathroom repairs and fencing semiprivate spaces lead to increased self esteem, reduced fear of crime, greater perceived friendliness, and reduced depression and anxiety. Furthermore, a review of available literature on housing and mental health Evans, Wells, and Moch (2003) reveals that across many studies representing various populations, there is a positive correlation between psychological well-being and housing quality.

Some mechanisms exist to potentially explain the pathways between housing quality and psychological well-being. Place attachment is a variable that may explain the effects of housing quality on mental health. In a study that controls for seven potentially confounding variables, Evans, Kantrowitz, and Eshelman (2002) report that place attachment mediates the relationship between housing quality and psychological well-being among elderly people. If older adults are living in adequate

housing, then they feel able to connect to their homes. These feelings of ownership and belongingness are significantly related to positive affect and well-being.

Additional mechanisms linking housing quality and psychological well-being are empowerment and self worth. Housing is perceived as a reflection of its inhabitants, enabling or hindering an individual's ability to view the home as a haven and place of opportunity to develop autonomy (Bratt, 2002). If a house is in poor condition, it reflects poorly on those living in it. People who do not feel empowered or a strong sense of self worth may not experience psychological well-being, and it is possible that housing may be a contributing factor to empowerment and self worth. Ultimately, for people who struggle to find homes that are affordable and in good quality, housing acts as a stressor which can contribute to mental illness (Kearns & Smith, 1993). While these mechanisms serve a purpose in positing some likely conduits between housing and health, further research is needed to uncover and interpret more pathways between housing quality and psychological well-being.

To obtain a greater understanding of the relationship between housing quality and psychological well-being, it is useful to investigate factors that may alleviate the negative effects of inadequate housing on mental health. A longitudinal study observing randomly chosen males and females finds that social support and psychological distress are inversely related (Holahan & Moos, 1981). In a study controlling for income, ethnicity, location, age, and household composition, social support is shown to act as a buffer between moderate levels of stress caused by housing discomfort and psychological distress (Smith, Smith, Kearns, & Abbott, 1993). It is possible that people living in poor quality housing must rely on friends and family to alleviate some of their life stressors. If social support is lacking for residents of inadequate housing, people may experiment psychological distress. Neighborhood

quality will be discussed in this study as having a potential buffering effect between inadequate housing and psychological well-being.

Neighborhood Quality and Well-Being

Neighborhoods have become a topic of interest among researchers and policy makers in regards to human health and well-being due to a growing body of literature linking community design to physical activity and eating patterns. It is believed that a combination of factors such as cheap and easy fast food, sedentary jobs, and stressful lifestyles contribute to an increasingly overweight and obese population (DeAngelis, 2004). Urban sprawl and people's subsequent dependence on automobiles have decreased purposeful walking, creating physically inactive people who are at risk for diabetes, osteoporosis, hypertension, colon cancer, and coronary heart disease (Ewing, Schmid, Killingsworth, Zlot, & Raudenbush, 2003).

A study of traffic calming patterns finds that implementing speed cushions, zebra crossings, and parking bays can significantly increase the amount of walking among residents (Morrison, Thomson, & Petticrew, 2004). Physical activity is more common among people who live near large, attractive open spaces and have access to green spaces free of litter and graffiti (Giles-Corti et al., 2005; Ellaway, Macintyre, & Bonnefoy, 2005). Clearly, the built environment of a neighborhood can influence the health and wellness of its residents, not only negatively, but also in positive ways.

Social structures of neighborhoods have also been linked to psychological well-being. Neighborhoods of higher socioeconomic status are related to children and adolescents who are more prepared for school, have higher achievements in school, and display fewer behavioral and emotional problems than their peers in neighborhoods with lower socioeconomic status. (Leventhal & Brooks-Gunn, 2000). It may be difficult to decipher whether people reside in poor neighborhoods because

they are not successful or if they are not successful because they reside in poor neighborhoods. Regardless of the order of events, it is indisputable that one link between neighborhood quality and psychological well-being is access to necessary resources. Poor neighborhoods are less likely to contain valuable amenities than wealthier neighborhoods (Frank, Engelke, & Schmid, 2003).

While there is a lot of literature about the relationship between neighborhoods and health, most of the research on neighborhood quality focuses on the built environment and pathways to physical health or the social environment and pathways to mental health. Very little research on the topic crosses over to specify physical characteristics of a neighborhood as they relate to mental health (Evans, 2003). The previous examples demonstrate this gap. Most of the research studies conducted in this area relate neighborhood quality to community resourcefulness and networks of social support. Even studies which investigate neighborhood interventions meant to improve mental health tend to ignore the physical design of neighborhoods (Wandersman & Nation, 1998).

There are, however, studies suggesting that some physical elements of the built environment can have positive effects on mental health, perhaps the most commonly observed being visual and physical access to nature (Jackson, 2003). For children experiencing stressful life events, living near nature has been shown to result in less psychological distress (Wells & Evans, 2003). In a study observing 145 adults randomly assigned to identical apartment complexes, Kuo (2001) finds that participants living near vegetation are more capable of managing their major life issues. This could be explained by a strong relational pathway between vegetation, recovering attention, and life functioning.

Other features of the built environment which have been shown to positively affect mental health among certain populations are porches, stoops, and buildings

which are situated above ground level. A very recent study finds that Hispanic elders who live in neighborhoods featuring these characteristics are able to participate in spontaneous interaction and monitoring of their neighborhoods. This allows them to perceive higher levels of social support, which in turn reduces feelings of psychological distress (Brown et al., 2009). Here, social support is posited as a mechanism that possibly explains the effects of neighborhood quality on psychological well-being.

There are additional links between the built environment and psychological well-being. Three case studies of American cities show that conceptually simple changes to the built environment such as adding yards and fences and creating fewer road entrances to a neighborhood can drastically reduce crime rates and increase resident feelings of ownership. This is likely through the mechanism of creating defensible space (Newman, 1995). When residents have a stake in their neighborhood, they are more likely to take control and feel pride in their surrounding environment. Using the built environment to design defensible space can allow people to protect themselves from crime, strengthen their sense of community, and increase psychological well-being. When urban regeneration efforts incorporate public involvement into decision making processes, there are positive effects on well-being (Curtis, Cave, & Coutts, 2002).

Gifford and Lacombe (2006) report that neighborhood quality is related to children's socioemotional health, although they acknowledge it is difficult to assign causality when a randomized trial is lacking. The authors define neighborhood quality by street level traffic, the condition of the sidewalk, the amount of litter on the block, and the general condition of the exterior of neighbor's houses on the block. While relatively new studies like this are valuable additions to the body of literature concerning the built environment and human health and well-being, further research

must be conducted to understand the effects of neighborhoods as defined by a greater scope than the block. Incorporating more examples and more specific elements of the built environment could also help to strengthen connections between neighborhoods and psychological well-being.

While it is helpful to review studies that suggest connections between the built environment and psychological well-being, it is important to note that there may be inconsistencies in the research. For instance, if some researchers promote porches and spaces for social interaction (Brown et al., 2009) while others suggest reducing social interaction by building fences and reducing road entrances (Newman, 1995), there could be a conflict between the most effective methods of neighborhood design intervention to promote psychological well-being. Increasing research and insight may be necessary to investigate the specific contexts in which some neighborhood features are more advantageous than others. Furthermore, the potential interaction between housing quality and neighborhood quality has received very little attention, especially as it could pertain to certain populations in certain situations.

Housing and Neighborhood Quality and Psychological Well-Being

The interaction between housing quality and neighborhood quality has not received much attention in terms of its effect on psychological well-being. One study investigates the pathways between physical, economic, and social features of neighborhoods as they relate to life satisfaction (Sirgy & Cornwell, 2002). Subjective ratings of home and yard upkeep, neighborhood landscape, lighting, crowding and noise, nearness to needed facilities, and environmental quality are significantly associated with both neighborhood and house satisfaction. It appears that satisfaction with the neighborhood leads to life satisfaction through the mediating process of housing satisfaction. This suggests the impact of neighborhood design on

psychological well-being, although the authors admit that there is limited theoretical understanding behind the study. While these results do not specifically disentangle the interactional relationship of housing quality and neighborhood quality, they do reinforce that the relationship may exist.

Another study highlights the connections between housing and neighborhood quality on psychological well-being. Two London neighborhoods are discussed in a study by Weich et al. (2002), one of which is the recipient of urban regeneration efforts. Using a new survey developed for the study, the built environment is rated in terms of housing unit age, height, and form, distance to shops and amenities, use of public space, amount of derelict land, security, number of dwellings and type of access, and provisions of gardens. Individual characteristics and housing quality of participants are also included. An interesting finding of the study is that when controlling for age and gender, several characteristics of the built environment seem to be related to higher rates of depression, such as few private gardens, properties built after 1970 (i.e. nontraditional housing units), housing units with predominantly deck access, and many patches of graffiti. However, once housing quality is added as a control, the occurrence of all of the neighborhood characteristics predicting depression becomes less likely, and in many cases, no longer statistically significant. Again, while these authors are not explicitly investigating the interaction of housing quality and neighborhood quality, their results sustain the argument that the effects of poor neighborhood quality may be felt more strongly by those in poor quality housing.

Other research may provide more evidence for the interaction of housing and neighborhood quality on psychological well-being. One study finds that psychological distress is only strongly apparent among people living in high-rise flats as opposed to low- and middle-rise flats when those high-rises are located in slum-like areas (McCarthy, Byrne, Harrison, & Keithley, 1985). Another study compares the effects

of housing quality and neighborhood conditions among five types of socioeconomically and racially similar neighborhoods. Based on interviews with women in the household to investigate mental health outcomes from housing and neighborhood quality, the quality of the neighborhood does not seem to statistically interact with good housing, but poor quality neighborhoods appear to amplify the negative effects of poor housing (Kasl, Will, White, & Marcuse, 1982). There are some potential reasons to explain why neighborhood quality may have a stronger impact on those living in substandard housing.

Perhaps the strongest link between housing and neighborhood quality and psychological well-being is social support. Research on housing and health implies a need for spaces within neighborhoods that can provide what poor quality housing cannot, such as strong social ties and safe play areas for children. When people are connected to their neighbors and communities, they are more likely to experience good mental health (Northridge, Sclar, & Biswas, 2003). This could be true regardless of income, but people are more likely to be connected to their neighbors and communities if they reside in good quality neighborhoods that support and enhance social interaction through pedestrian oriented design and mixed use zoning (Leyden, 2003). When neighborhood infrastructure encourages people to get out and meet their neighbors, people are likely to experience psychological well-being.

In this sense, the neighborhood can be viewed as a context in which people experience their lives and daily stressors. Those living in poor quality neighborhoods with little social control or support, a lack of resources, and exposure to physical stressors might be more vulnerable to depression when stress and negative events occur (Cutrona, Wallace, & Wesner, 2006). Since poor quality housing is a major life stressor (Kearns & Smith, 1993), this theory further bolsters the interaction of housing quality and neighborhood quality on psychological well-being. Ultimately,

neighborhoods could act as places of restoration and relief for people living in poor quality housing. If home is not a comfortable place, the surrounding environment could make up for it.

The issue of mobility can also aid in constructing a theoretical link between housing quality, neighborhood quality, and psychological well-being. Data from a study in Nashville suggest that housing circumstances are great predictors of residential mobility (Lee, Oropesa, & Kanan, 1994). To put it simply, people living in poor quality housing have aspirations of moving to better quality housing. There is additional research claiming that people aspire to leave poor quality neighborhoods and are more likely to escape distressed areas when there is an availability of mixed income housing (South & Crowder, 1997). It may be that people moving from poor quality housing are not only trying to escape poor housing, but are also trying to escape poor neighborhoods. On the other hand, if poor housing exists in higher quality mixed income neighborhoods with opportunities for employment and social interaction, people may feel less inclined to leave. This suggests that both the quality of the house and the neighborhood are factors contributing to people's desire to stay in or leave a home or neighborhood, potentially indicating psychological well-being.

The Moving to Opportunity (MTO) program provides a unique ability for researchers to observe the effects of housing and neighborhood quality. Participating low-income families in the United States are randomly assigned to houses in neighborhoods where they can have more economic and social opportunities. This is in contrast to control group families who receive Section 8 vouchers to move from poor quality housing to better quality housing but not necessarily to neighborhoods experiencing less poverty. Results from Chicago find that MTO and Section 8 families receive similar improvements in housing, but that MTO families report greater satisfaction with their new neighborhoods (Rosenbaum & Harris, 2001). Similar

results are found in Boston in which post-move improvements to mental health are stronger for those participating in MTO (Katz, Kling, & Liebman, 2001). Results are similar for a New York MTO program after which symptoms of depression, distress, and anxiety are significantly less for adults moving to higher income neighborhoods compared to Section 8 adults receiving housing vouchers in low-income neighborhoods (Leventhal & Brooks-Gunn, 2003). While it is unavoidable to contribute improvements in psychological well-being to better housing, these examples continue to demonstrate that neighborhood quality, as well as housing quality, can have great impacts on mental health and well-being.

The present study aims to discover additional characteristics of the physical neighborhood environment in relation to housing quality that are related to psychological well-being. Specifically, this study will attempt to answer the following questions: Are there connections between housing quality and psychological well-being, are there connections between neighborhood quality and psychological well-being, and is there an interactive effect of housing and neighborhood quality on psychological well-being? Following more substantiation of the links between housing quality and neighborhood quality for well-being, these components could be incorporated into neighborhoods and cities to promote health and wellness for all people. These findings could be especially relevant for people living in poverty and poor quality housing.

METHOD

Sample

This study utilizes data collected by the Housing and Health program of the World Health Organization (WHO) Regional Office for Europe as part of the Large Analysis and Review of European housing and health Status (LARES). Data were collected during 2002 and 2003 in eight European cities: Forlì, Italy; Vilnius, Lithuania; Ferreira do Alentejo, Portugal; Bonn, Germany; Geneva, Switzerland; Angers, France; Bratislava, Slovakia; and Budapest, Hungary. Objective and subjective information on housing, neighborhoods, and health was gathered from 8,519 residents living in 3,373 households. A total number of 5,605 adult participants are included in this study. Table 1 provides basic descriptive information of the population.

Table 1. Participant age and gender information.

Age	Younger Adults	Adults	Older Adults
N	919	1,756	2,930
	Min.	Mean	Max.
Years	18	40.35	64
Gender	Male	Female	Missing
N	1,803	3,771	31

N = 5,605

Due to the wide geographic range and large number of study participants, a cross-sectional study design was implemented. Participants were selected by randomly sampling each city's population register, database of built properties, or health center management system database. Selected samples were chosen to represent the size of each city and ranged from 600 to 1,700. Survey tools were piloted and translated into appropriate languages. For a complete description and evaluation of LARES data

collection strategies and methods, see an article published by WHO representatives Bonnefoy, Braubach, Davidson, and Röbbel (2007). Study approaches, as well as the survey design and overall representativeness of the sample are discussed in greater detail.

Survey Tools

In order to comprehensively understand the health effects of housing and the surrounding environment, WHO researchers employed three survey tools. These are expected to define housing in four connected areas: the house as a physical shelter; the home as a mentally constructed refuge and safe haven where family life takes place; the immediate environment as a neighborhood with infrastructure and quality; and the community and residents as a social climate (Bonnefoy, Braubach, Davidson, & Röbbel, 2007). Copies of the survey tools can be seen in the Appendix.

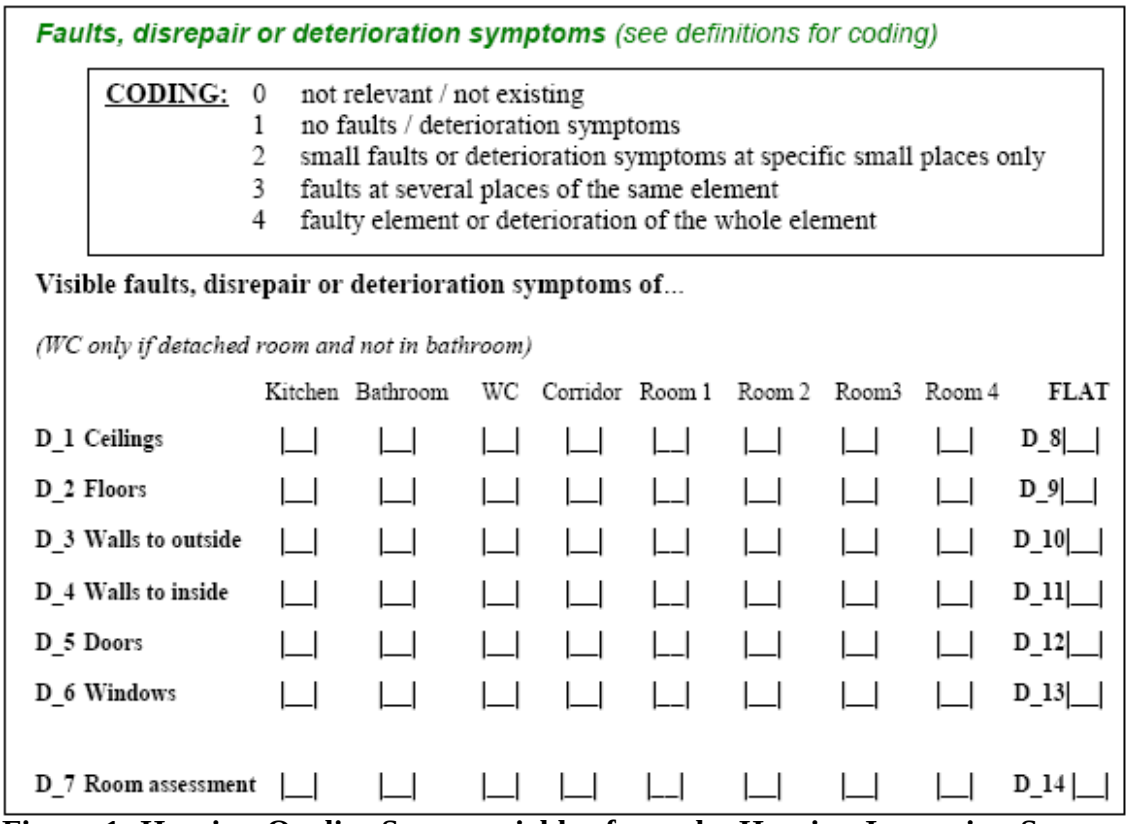
The Housing Inspection Survey Sheet was completed by a trained LARES surveyor who rated the house based on a visual inspection. No physical measurements were taken, but the inspector rated the type, quality, physical condition, and technical equipment of each house and immediate surrounding environment.

The Inhabitant Questionnaire was completed during face-to-face interviews conducted between LARES surveyors and the head of each household. It provides data for each residence concerning the social and physical makeup and functionality of the house, satisfaction with the house, and descriptions of the surrounding environment.

The Housing and Health Questionnaire was completed by each capable resident of each household. In addition to demographic information, data were collected regarding such information as perceptions of health, satisfaction with the house, and feelings about the surrounding community and neighborhood.

Measures

Housing quality is determined by the Housing Inspection Survey Sheet and based on a LARES surveyor's rating of visible faults, disrepair, or deterioration symptoms of ceilings, floors, walls to the outside, walls to the inside, doors, and windows in the kitchen, bathroom, corridor, and one bedroom of each household. The Housing Quality Score is an aggregate of these ten variables. It has been categorized into tertiles representing low quality housing, average quality housing, and high quality housing. The Housing Quality Score is a very reliable measure of housing adequacy (α = .900). Figure 1 shows the specific portion of the survey tool used to determine housing quality.



Faults, disrepair or deterioration symptoms *(see definitions for coding)*

CODING:
0 not relevant / not existing
1 no faults / deterioration symptoms
2 small faults or deterioration symptoms at specific small places only
3 faults at several places of the same element
4 faulty element or deterioration of the whole element

Visible faults, disrepair or deterioration symptoms of...

(WC only if detached room and not in bathroom)

	Kitchen	Bathroom	WC	Corridor	Room 1	Room 2	Room3	Room 4	FLAT
D_1 Ceilings	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_8|__|
D_2 Floors	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_9|__|
D_3 Walls to outside	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_10|__|
D_4 Walls to inside	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_11|__|
D_5 Doors	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_12|__|
D_6 Windows	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_13|__|
D_7 Room assessment	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_14|__|

Figure 1. Housing Quality Score variables from the Housing Inspection Survey Sheet.

Neighborhood quality is determined by the Housing Inspection Survey Sheet and the Inhabitant Questionnaire. The score is a combination of subjective values determined by household residents and objective values determined by a LARES surveyor. Thirteen participant items contributing to the Neighborhood Quality Score include resident feelings about how others would evaluate their neighborhood; household connections to the city center by public transportation, walking, and bicycling; resident satisfaction with parking arrangements at the household; annoyance by litter or trash in the immediate environment; enough private and public recreational spaces for children, teenagers, and the elderly near the household; whether or not parents encourage children to play on local playgrounds; public and private places in the neighborhood where residents can sit and relax, or talk peacefully to neighbors and friends; and perceived safety when returning home in the dark.

Three surveyor items contributing to the Neighborhood Quality Score include open or green spaces belonging to the household or building which are accessible to residents; graffiti on the household or nearby buildings; and an evaluation of dog droppings or animal excrement in the immediate housing environment. The Neighborhood Quality Score is an aggregate of these 16 variables. It has been categorized into quartiles representing low neighborhood quality, average neighborhood quality, good neighborhood quality, and high neighborhood quality. Sample questions include:

With which of the following means of transport can you easily reach the city center of *Name of Survey City***?**

By public transport	( )
Walking	( )
By bicycle	( )
By private car	( )

Is there any open or green space that belongs to the building, which can be used by the household residents (except streets, parking, etc.)?

Yes, private garden	1
Yes, commonly shared area	2
No	3

How do you think this residential area is evaluated by other people who are not living in this area?

1	2	3	4	5
Very bad				Very good

The reliability of the Neighborhood Quality Score suggests moderate internal consistency ($\alpha = .582$). There is a need for future research to investigate elements of the physical neighborhood environment which are consistent and interrelated enough to make a more reliable scale. Increasing reliability will contribute to stronger research connecting the neighborhood environment to psychological well-being. This will be important for the education of community designers and planners.

Psychological well-being is determined by the Housing and Health Questionnaire. It is made of six point self-rated questions measuring the mood and emotions of residents for one month prior to completing the survey, including feeling particularly nervous, being down in the dumps, feeling calm and peaceful, feeling downhearted and miserable, being happy, having a lot of energy, feeling worn out, feeling full of life, and feeling tired. Some questions include:

During the past month, have you felt so down in the dumps nothing could cheer you up?

1	All of the time
2	Most of the time
3	A good bit of the time
4	Some of the time
5	A little of the time
6	None of the time

During the past month, have you felt calm and peaceful?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

During the past month, did you have lots of energy?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

All individual variables have been added together to make a Psychological Well-Being Score for each resident of each household. The nine items in the Psychological Well-Being scale are very reliable ($\alpha = .898$).

Socioeconomic status (SES) is evaluated based on many household factors including number of people in the household; whether the household contains a couple, couples, or a single person; the highest educational level of any adult in the household; the size of the dwelling; the number of people between 18-59 years old in the household working full-time; the number of full-time equivalent jobs being held by people in the household; the number of rooms in the household; and the number of people over 60 years old living in the household.

Due to a large amount of missing data, income is not included in each household SES score, although the two variables are highly correlated. Given its comprehensive nature and the purpose of this study to investigate the effects of housing quality and neighborhood quality on psychological well-being, SES will be used as a control when analyzing the interaction of housing and neighborhood quality on psychological well-being. This will allow for a clear interpretation of the effect of

the interaction on psychological well-being, as opposed to attributing differences in psychological well-being to SES.

Analysis

Several factors needed to be considered before analyzing this dataset. Given the hierarchical qualities of this dataset (i.e. people nested within households, households nested within cities), multilevel random coefficient modeling (MRCM) was used. MRCM can account for event-contingent data structures in which relationships at both the between- and within-subject levels are treated as independent (Nezlek, 2001).

The city of each resident was treated as a fixed as opposed to a random effect, assuming that participants generally have a choice in the city of their residence. As mentioned before, SES was used to control for variability in housing and neighborhood quality, allowing a stronger causal link to be established between housing quality, neighborhood quality, and psychological well-being. Additional statistical controls included gender, marital status, and employment status, because these may have independent impacts on psychological well-being. SPSS Statistics 17 and SPPS/PASW Statistics 18 were used for all statistical analyses.

RESULTS

This section provides information about results from statistical analyses pertaining to the main and interactive effects of housing and neighborhood quality on psychological well-being. SES, gender, marital status, and employment status are included as statistical controls. Table 2 provides descriptive data of the quantitative variables used. Correlations between the main variables can be seen in Table 3.

Table 2. Descriptive statistics for housing quality, neighborhood quality, psychological well-being, SES, age.

Variable	N	Minimum	Maximum	Mean	Std. Dev.
Housing Quality	5271	1	3	2.57	.680
Neighborhood Quality	5266	1	4	2.49	.968
Psychological Well-Being	5018	8	44	30.76	6.66
SES	5373	7	36	22.98	4.98
Age	5605	18	64	40.35	13.41

Continuous variables were used to analyze the overall interaction while categorical comparisons were used to test between each level of the variables. Housing quality is divided into three groups. A value of one means that a house is very deprived and in poor condition, a value of two means that a house is in moderately livable condition, and a value of three means that a house is in very good condition. Neighborhood quality is divided into four groups. A value of one means that the neighborhood is lacking many necessary or desirable characteristics, a value of two means that the neighborhood has an average amount of resources, a value of three means that the neighborhood provides access to many necessary or desirable characteristics, and a value of four means that the neighborhood is very well equipped and connected.

The data were analyzed using multilevel random coefficient modeling (MRCM). This type of analysis was employed because the data generated in this study follows an event-contingent structure from naturally occurring phenomena. Moreover, MRCM can account for nested data (i.e. people nested within households, households nested within cities). This type of analysis is seen as an effective tool for observing and interpreting differences in variables with multiple levels (Nezlek, 2001).

Table 3. Correlation data for housing quality, neighborhood quality, psychological well-being, gender, SES.

Variable	Neighborhood Quality	Psych. Well-Being	SES	Gender
Housing Quality	.003	.128*	.188*	.007
Neighborhood Quality		.057*	-.075*	-.017
Psych. Well-Being			.099*	-.140*
SES				-.068*

* $p < 0.01$

As shown in Table 4, the main effects of housing quality and neighborhood quality are significant in regards to psychological well-being. As hypothesized, there is also a significant interaction effect. To examine this significant interaction more closely, the categorical levels of housing quality and neighborhood quality were also analyzed.

Table 4. MRCM Type III Tests of Fixed Effects for dependent variable psychological well-being.

Variable	Numerator df	Denominator df	F	Significance
Intercept	1	78.451	1537.962	.000
Neighborhood Quality	3	4243.987	8.310	.000
Housing Quality	2	4246.198	7.069	.001
Gender	1	4144.740	78.837	.000
SES	1	2967.514	11.894	.001
Neighborhood Quality x Housing Quality	23	3171.804	1.710	.020

Table 5. Expected means of interaction on psychological well-being.

Neighborhood Quality	Housing Quality	Mean	Std. Error
Low	Low	28.137	.710
	Average	28.613	.617
	High	29.065	.534
Average	Low	28.066	.660
	Average	29.943	.562
	High	30.401	.483
Good	Low	28.015	.733
	Average	29.073	.588
	High	30.528	.470
High	Low	31.335	1.390
	Average	31.582	.850
	High	31.513	.498

The expected means for each level of the interaction between housing quality and neighborhood quality on psychological well-being are shown in Table 5. As expected, psychological well-being is generally higher for those living in houses and neighborhoods of the highest quality.

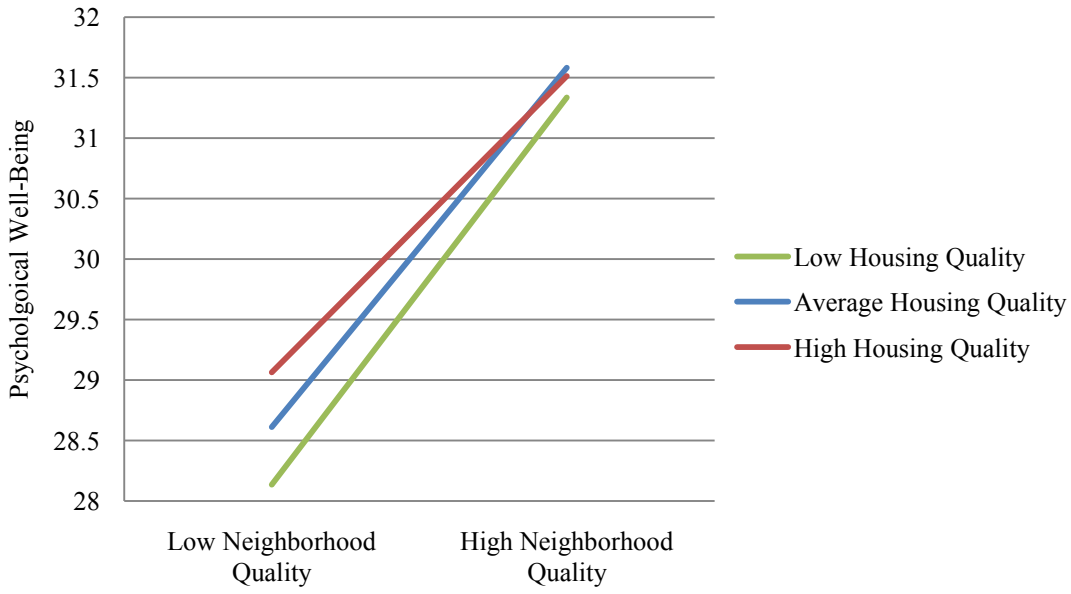


Figure 2. Mean psychological well-being in relation to neighborhood quality and housing quality.

Figure 2 shows that an improvement in neighborhood quality increases psychological well-being. There is a consistent increase in the mean values of well-being when comparing people from all housing qualities between the lowest and highest neighborhood quality. This suggests that as neighborhood quality improves, it significantly improves overall well-being. This significant interaction indicates that as housing quality increases, the effect of neighborhood quality becomes less dramatic.

Another interpretation of this interaction is depicted in Figure 3. This graph shows that higher housing quality and higher neighborhood quality are related to higher psychological well-being. However, for individuals living in the highest quality neighborhoods, a change in housing quality does not have as great of an effect on psychological well-being as it does in poor, average, or good quality neighborhoods. It appears that people living in high quality neighborhoods are the least susceptible to the negative effects of poor quality housing. High quality neighborhoods may act as a buffer against harmful outcomes from poor housing on psychological well-being.

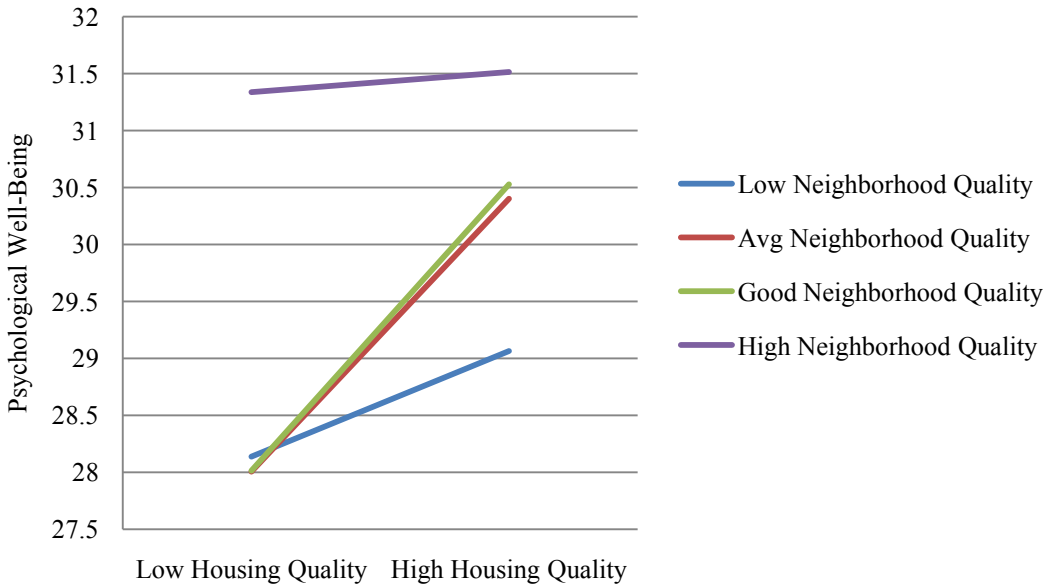


Figure 3. Mean psychological well-being in relation to housing quality and neighborhood quality.

The specific levels of increase in the mean psychological well-being for people in different levels of housing quality can be seen in Figure 4. While psychological well-being could be improved for all people when neighborhood quality is better, it appears to be most important for people living in the lowest quality housing. This may have intriguing implications for neighborhood design. Along with an overview of zoning and its historical connections to discrimination against poor people, these implications will be discussed in the following section.

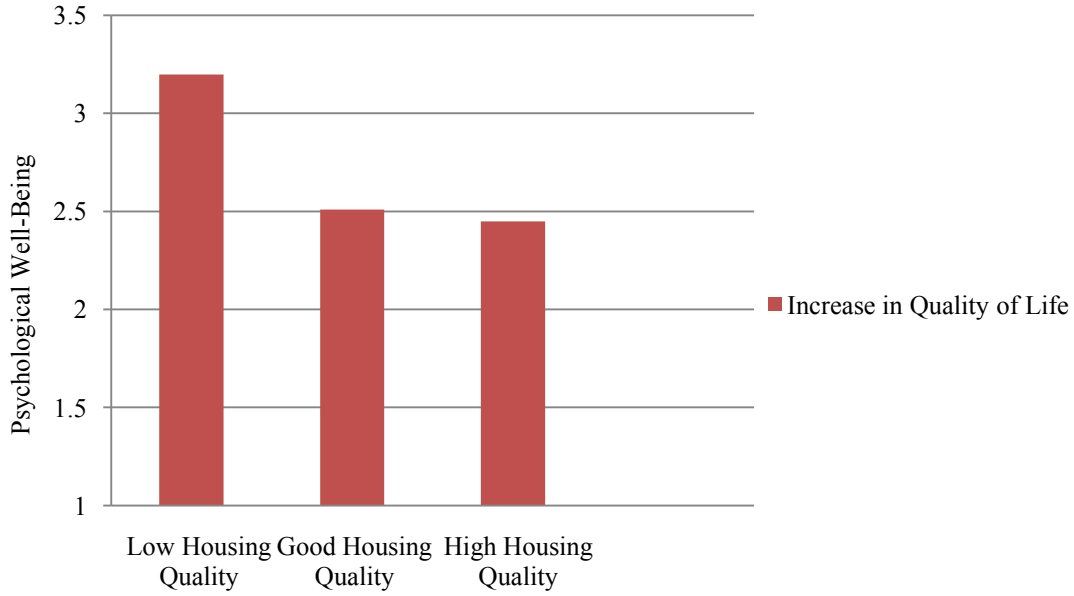


Figure 4. Increase in mean psychological well-being from low neighborhood quality to high neighborhood quality by low, average, and high housing quality.

The reason for speculating that the implications of these results will be more applicable to neighborhood design than to housing design is because it appears that the effect of the interaction is more potent when comparing a change in neighborhood quality as opposed to a change in housing quality.

Table 6 shows the mean increase in psychological well-being when comparing the lowest to the highest neighborhood quality for each level of housing quality.

Across all levels of housing quality, a change from low, average, or good neighborhood quality to the highest neighborhood quality demonstrates a significant increase in the mean psychological well-being (all $p < .05$). Again, the interaction is especially powerful for individuals and families residing in the poorest quality housing.

Table 6. Increase in mean well-being from low, average, and good neighborhood quality to high neighborhood quality by low, average, and high housing quality.

Housing Quality	Neighborhood Quality	Increase in Mean Well-Being	Significance
Low	Low to High	3.198	.027
	Average to High	3.269	.022
	Good to High	3.320	.022
Average	Low to High	2.969	.001
	Average to High	1.639	.050
	Good to High	2.509	.003
High	Low to High	2.448	.000
	Average to High	1.112	.001
	Good to High	0.985	.003

Contrastingly, Table 7 shows the mean increase in psychological well-being when comparing the lowest and average levels of housing quality to the highest level of housing quality across all levels of neighborhood quality. As can be seen, only a fraction of the results are significant, and even then, are not as consistently strong as are the results in Table 5. It may be more important to affect neighborhood quality than housing quality to improve psychological well-being.

Table 7. Increase in mean well-being from low and average housing qualities to highest housing quality by low, average, good, and high neighborhood quality

Neighborhood Quality	Housing Quality	Increase in Mean Well-Being	Significance
Low	Low to High	0.928	.157
	Average to High	0.451	.415
Average	Low to High	2.334	.000
	Average to High	0.457	.282
Good	Low to High	2.513	.000
	Average to High	1.455	.001
High	Low to High	0.178	.895
	Average to High	-0.069	.931

In other words, for people living in deprived environments, compared to improving housing quality, changing neighborhood quality for the better may have greater potential for enhancing psychological well-being. Possible explanations for this will be introduced in the next section.

DISCUSSION

Summary of Findings

This study explores the relationships among housing quality, neighborhood quality, and psychological well-being for a large sample of European adults. This sample is from the Large Analysis and Review of housing and health Status conducted by the World Health Organization. We hypothesized that poor housing quality and poor neighborhood quality, respectively, would be associated with lower psychological well-being. It was also hypothesized that higher quality neighborhoods would buffer against the negative outcomes of poor housing quality on psychological well-being. Results of this study support both hypotheses, as can be seen in Figures 2 and 3.

Socioeconomic status was used as a control variable so that the correlations of housing quality, neighborhood quality, and the interaction could not simply be attributed to income. Gender, marital status, and employment status were also used as control variables because psychological well-being can be influenced in part by these characteristics. The results of this study are in concert with the literature demonstrating that the effects of poor neighborhood quality are experienced more severely by people living in substandard housing (Kasl, Will, White, & Marcuse, 1982; McCarthy, Byrne, Harrison, & Keithley, 1985; Katz, Kling, & Liebman, 2001; Rosenbaum & Harris, 2001; Weich et al., 2002; Leventhal & Brooks-Gunn, 2003; Cutrona, Wallace, & Wesner, 2006). These results build upon and extend prior studies because the interactive effects of housing quality and neighborhood quality on well-being were at the forefront of hypothetical and statistical analysis, whereas this is often ad hoc in other studies.

Contributions of this Study

This study is beneficial to the literature concerning housing quality, neighborhood quality, and psychological well-being for several reasons. First, the sample size is very large. Even by limiting the population to adults, there are still 5,605 participants included. By observing so many people across eight different cities in eight different countries, the results of this study cannot only be attributed to personal or political factors, but to the actual environmental contexts in question. Secondly, the Neighborhood Quality Scale incorporates elements of the physical design of the neighborhood. Until recently, physical characteristics of the built neighborhood environment have not been included in studies investigating the links between neighborhood quality and psychological well-being (Evans, 2003; Weich et al., 2002). Thirdly, the Housing Quality Score is an objectively rated scale of physical attributes. This adds to its strength as a measure of housing quality. Most studies of housing quality rely on subjective resident perceptions. Lastly, this is one of the few studies to investigate the interaction of housing quality and neighborhood quality on psychological well-being. This could be the greatest contribution of this study as it adds breadth to a very important issue of policy, planning, and design.

Possible Explanations

There are some potential explanations for the interactive effects of housing quality and neighborhood quality on psychological well-being. One reason for the vulnerability of people in substandard housing to the negative effects of poor neighborhood quality is atomization. Lower income families often rely on vibrant social networks in the neighborhood to maintain psychological well-being. As evidenced by the failure of the Pruitt Igoe public housing project in St. Louis, if the environment surrounding a home does not support safe and informal social interaction,

families are forced to retreat and atomize within their own homes (Yancey, 1971). If the quality of the home is good, then these people may be able to maintain psychological well-being. However, if the quality of the home is bad, then atomized people may be at risk for having few places to experience positive social interactions and personal respite.

Another possible rationalization for more severe effects of poor neighborhood quality being experienced by those in inadequate housing is lack of access. People in poor neighborhoods are often located farther from healthy food stores, physical activity centers, safe places for social interaction, and adequate transportation than their counterparts in higher income neighborhoods (Frank, Engelke, & Schmid, 2003). This could serve to magnify the collective effects of poor housing and poor neighborhood quality on psychological well-being. If people are not only living in substandard housing but also do not have easily accessible outlets for obtaining healthy food, getting physical exercise, or interacting with other people, well-being is likely to suffer. Unfortunately, there is a historical precedent of exclusionary zoning whereby which low-income people are subjected to neighborhoods that do not meet their basic needs.

Exclusionary Zoning

In the past, zoning has been used as a way to separate people of different wealth classes. Suburban neighborhoods, which were once seen as the answer to traffic congestion and unhealthy urban lifestyles, have incorporated large lot sizes that some experts believe are simply a ploy to keep undesirable people out of the neighborhood (Knack, 1991). Many communities are zoned for low population densities, which typically leads to the development of very expensive houses on big parcels of land. There is an expectation that no low-income housing will be provided

in these neighborhoods, perpetuating the divide between people of different income levels, and often of different races (Mandelker, 1977). Low-income and minority neighborhoods are almost always chosen as sites for undesirable land uses, such as industrial factories and waste disposal facilities (Been, 1993). Policies that aim to improve housing situations for poor people often only serve to perpetuate the ill health and lack of access to resources experienced by low-income people because the policies do not change the fundamental social and economic structures contributing to underprivileged people living in disadvantaged environments (Saegert & Evans, 2003). It may not be as simple as luck or coincidence that poor people live in poor houses in poor neighborhoods.

Given the results of the present study, it is apparent that there is a need to create thoughtfully designed neighborhoods, and equally as important, to make these neighborhoods accessible to all people. Although European development is sometimes offered as an alternative to American growth, many European cities are currently experiencing similar effects of sprawl (Richardson & Gordon, 1999). The results of this study demonstrate that the adverse impacts of poor neighborhood design can be felt among a European sample. This extends the issues of exclusionary zoning and environmental justice to a universal level, including the adults involved in this study.

Solutions

It is possible to address some of the current issues surrounding housing quality and neighborhood quality. Among the first is to design neighborhoods, especially low-income ones, to provide a network of support and access to important resources so that they can foster positive mental, social, and economic health among residents (Wandersman & Nation, 1998). This could be done by improving access between homes and facilities such as medical centers, grocery stores, playgrounds, and

recreational facilities for all age groups. Also, as previously mentioned, people are more likely to escape poor neighborhoods when there is an availability of mixed-income housing (South & Crowder, 1997). This implies that even though poor quality housing may be a reality for many people, psychological well-being does not have to suffer if the neighborhood is supportive, inclusive, and diverse.

Similarly, the design of neighborhoods can incorporate site planning and physical elements that encourage social interaction. Mixed land use and accessible transportation by public transit and safe, continuous sidewalks are factors which seem to aid in elderly people maintaining independence in carrying out activities of daily living (Clarke & George, 2005). Residents of a new urbanist community in Maryland that incorporates design features encouraging pedestrianism and social interaction appear to experience a significantly stronger sense of community than their typically suburban neighbors (Kim & Kaplan, 2004). Participants of a study in Galway, Ireland are more likely to know their neighbors, trust others, participate politically, and feel socially involved if they live in walkable, mixed use neighborhoods (Leyden, 2003). Neighborhoods with places to walk have even been shown to have higher rates of physical activity, lower instances of air pollution, and higher rates of self-reported health (Frank et al., 2006; Rohrer, Pierce Jr, & Denison, 2004). Clearly, the incorporation of elements meant to support walking, such as sidewalks, can increase social interaction and physical health and have serious impacts on the well-being of people in neighborhoods. According to this study, bike lanes, places to relax, and street lights or other features that contribute to perceived safety also appear to be important neighborhood design characteristics potentially contributing to psychological well-being.

Limitations of this Study

Despite the benefits of this research design, there are still limitations that must be addressed. First, there is no information about the racial or ethnic makeup of the participants. It is possible that certain racial minorities are more vulnerable to the negative effects of poor housing quality or poor neighborhood quality, but that cannot be investigated with this dataset. Secondly, the data used for this study are archival. While the data used in this study are plentiful, the hypotheses had to fit into the context of the available information as opposed to data being collected specifically for the purposes of this study. Ideally, there could have been more information about the presence and quality of sidewalks, distance to necessary resources, and places to socially commune. An objective rating of these and other neighborhood features could strengthen the description of neighborhood quality. Thirdly, this study is cross-sectional. While this research design provides a snapshot of the participants and their environments at the time of questioning, it does not allow for researchers to implement any interventions or observe changes in participants over time.

Lastly, it is important to keep in mind that although this study controlled for some possible confounding variables and produced significant results, psychological well-being cannot be accounted for by the built environment alone. There could be other factors contributing to psychological well-being, such as children moving out of the home, temporary financial troubles, the loss of a family pet, or a change in leisure time activities. Despite the desire of some researchers and designers to want to improve well-being through the built environment, there are many issues and factors comprising psychological well-being that cannot be addressed by the surrounding environment. While improving neighborhood quality could lead to improvements in well-being, we cannot rely solely on the built environment to address all social, political, economic, or personal inequities or problems. It is possible that a selection

bias led to certain kinds of people participating in the study, potentially skewing the results based on perceived psychological well-being from similar persuasions or values. Although it has been demonstrated by this study that housing and neighborhood quality can have considerable effects on psychological well-being, researchers must remain open to other forms of influence on human health and well-being.

Further Research

The limitations of this and other similar studies warrant further research on the topic of the built environment and human health. Future studies could explicitly research more physical aspects of neighborhood quality as they relate to housing quality and psychological well-being. Some interesting candidates might be the layout of the neighborhood, placement of homes and garages in relation to streets and sidewalks, density of homes and resources, architectural design and aesthetics, and the presence of healthcare or wellness facilitates. In addition, subsequent studies need to develop scales and tools that measure valid and comprehensive data on the physical neighborhood environment. It could be investigated whether psychological well-being is the best measure of housing and neighborhood quality effects, or if other individual variables (physical health, attachment to place) or community level variables (school achievement, crime) should also be considered. Furthermore, stronger connections could be built by observing people in longitudinal studies to investigate changes over time as housing and neighborhood environments evolve. Participants of all ages, races, and backgrounds should be included to obtain the most comprehensive view of not only how the physical characteristics of housing and neighborhoods interact, but also how social, political, religious, and economic contexts might interact with housing and neighborhoods to contribute to psychological well-being.

Conclusions

This study adds to the recently growing body of research investigating the connections between housing quality, neighborhood quality, and psychological well-being. Results indicate that poor neighborhood quality is experienced most severely by people living in poor quality housing. Designers, planners, and policy makers need to provide good quality neighborhood environments to all people, but especially to those made vulnerable by living in substandard housing. Parks and greenery, places to relax, features contributing to perceived safety, recreational facilities, accessible public transportation, and cleanliness are all characteristics of the neighborhood environment that can lead to psychological well-being. According to this study, these and other factors should be included in neighborhood interventions that prioritize the improvement of neighborhoods for people living in inadequate housing.

APPENDIX

This appendix contains the Housing Inspection Survey Sheet, the Inhabitant Questionnaire, and the Housing and Health Questionnaire developed for the Large Analysis and Review of housing and health Status.

Housing Inspection Survey Sheet

ID: |__| | | | | | | | |

City quarter:_____ Time of survey:_____

Street:_____ Date of survey:_____

Housing information

HI_1 Neighbourhood type *(see definition)*

Panel block housing estate	1
Mainly detached houses	2
Mainly semi-detached houses	3
Mainly terraced houses	4
Mainly apartment-block-dominated	
- Up to four floors	5
- Five or more floors	6
Mixed neighbourhood	7

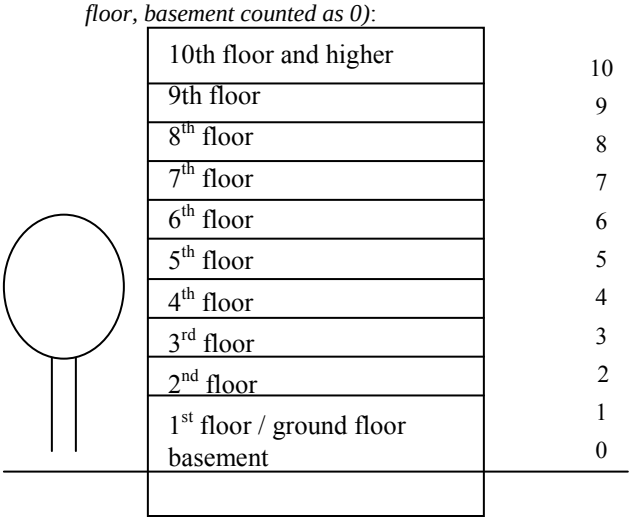
HI_2 Housing type *(see definition)*

Panel block	1
Brick house	2
Detached one-family house	3
Semi-detached housing unit	4
Terraced housing unit	5
Multifamily apartment block	
- Up to 6 residential units	6
- More than 6 residential units	7

HI_3 Which of the following housing circumstances / locations comes closest to the surveyed property / dwelling? *(see definition)*

in the urban centre close to a busy street	1
in the urban centre at a less busy street	2
in a (sub)urban neighbourhood close to a busy street	3
in a (sub)urban neighbourhood at a less busy street	4
in the rural area close to a busy street	5
in the rural area at a less busy street	6

HI_4 **Dwelling located on floor number** *(ground / entrance floor on street level counted as the 1st floor, basement counted as 0)*:



If dwelling is a house, or located on several floor levels, mark the lowest floor of the dwelling!

For one-family houses, put „1" even if they have rooms in basement

HI_5 **Is any inhabitable part of the dwelling (or the dwelling as such) located right under the roof?** *(see definition)*

Yes	1
No	2

HI_6Building age (Year of construction) *(ask residents if they know)*

Before 1900	1
1900-1920	2
1921-1945	3
1946-1960	4
1961-1970	5
1971-1980	6
1981-1990	7
1991-2000	8
2001 and after	9
Don´t know	99

General aspects in all parts of the flat *(see definition for rooms and room selection)*

The following matrix asks about the existence of rooms, their functions and their conditions.

In each room, go through the list from top to bottom and fill out the different questions.

Fill in WC only if there is a single detached toilet outside the bathroom.

The toilet in the bathroom is considered part of the bathroom.

Faults, disrepair or deterioration symptoms *(see definitions for coding)*

CODING:		
	0	not relevant / not existing
	1	no faults / deterioration symptoms
	2	small faults or deterioration symptoms at specific small places only
	3	faults at several places of the same element
	4	faulty element or deterioration of the whole element

Visible faults, disrepair or deterioration symptoms of...

(WC only if detached room and not in bathroom)

	Kitchen	Bathroom	WC	Corridor	Room 1	Room 2	Room3	Room 4	FLAT
D_1 Ceilings	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_8|__|
D_2 Floors	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_9|__|
D_3 Walls to outside	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_10|__|
D_4 Walls to inside	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_11|__|
D_5 Doors	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_12|__|
D_6 Windows	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_13|__|
D_7 Room assessment	|__|	|__|	|__|	|__|	|__|	|__|	|__|	|__|	D_14 |__|

Kitchen

K_1 Is there a ventilation system in the kitchen? *(see definition)*
(*Not the exhaust system above cooking place!)*

Yes – free ventilation	1
Yes – forced ventilation	2
Yes – don't know which	3
Not existing	4

K_2 Water access is available in the kitchen

Yes	1
No	2

K_3 Hot water is available in the kitchen

Yes	1
No	2

K_4 Is there a gas water heater in the kitchen? *(see definition)*

Yes – connected to the outside	1
Yes – not connected to the outside	2
No	3

K_5 Fridge

Yes	1
No	2

K_6 Deepfreezer

Yes	1
No	2

K_7 Kitchen sink

Yes - one sink	1
Yes - two sinks	2
No	3

K_8 Kitchen workspace next to the sink *(see definition)*

Yes	1
No	2

K_9 Separate solid waste disposal facility / waste bin *(see definition)*

Yes – in a cupboard	1
Yes – bin without lid	2
Yes – bin with lid	3
Yes – on balcony or terrace	4
No	5

K_10 Is there an exhaust system above the cooking place? *(see definition)*

Yes – connected to the outside	1
Yes – not connected to the outside	2
No	3

K_11+12 Energy source in the kitchen

	K_11 Cooking place		**K_12 Oven**
1	No cooking place	1	No oven
2	Solid fuel (coal, wood)	2	Solid fuel (coal, wood)
3	Gas	3	Gas
4	Electricity	4	Electricity
5	Oil	5	Oil
6	Other:_____	6	Other:_____

Bathroom / Toilet

BT_1 Is there a ventilation system in the bathroom? *(see definition)*

Yes – free ventilation	1
Yes – forced ventilation	2
Yes – don't know	3
No	4

BT_2 Water access is available in the bathroom

Yes	1
No	2

BT_3 Hot water is available in the bathroom

Yes	1
No	2

BT_4 Is there a gas water heater in the bathroom? *(see definition)*

Yes – connected to the outside	1
Yes – not connected to the outside	2
No	3

BT_5 What type of floor does the bathroom have?

Tiles	1
Carpet	2
PVC / plastic	3
Concrete	4
Wood	5
Other:_____	6 _____

BT_6 *(if there is a detached toilet)* **Is there a ventilation system in the toilet?**

No toilet:	99
Yes – free ventilation	1
Yes – forced ventilation	2
Yes – don't know	3
No	4

BT_7 *(if there is a detached toilet)* **Is there a wash-hand basin in the toilet?**

No toilet:	99
Yes – cold and warm water	1
Yes – cold water only	2
No	3

BT_8 Total number of flush / water toilets in dwelling |__|

BT_9 Total number of showers and / or bath tubes |__|

BT_10 Total number of hand-wash basins |__|
(not including kitchen sink)

Safety / Accessibility

SA_1 Are there any doorsteps in the door frames (Multicode)? *(see definition)*

( ) No doorsteps

( ) Dwelling entrance door
( ) Between rooms
( ) To the bathroom
( ) To balcony / terrace / garden
( ) Other:_____ _____

SA_2 Are there any installations / locations in the flat that you see as potentially harmful? *If yes, please fill in keywords! (see definition)*

_____ _____
_____ _____
_____ _____

SA_3+4 **Are there any rooms in the dwelling with loose carpets, or slippery or unfixed floor materials?** *(see definition)*

	SA_3	**SA_4**
Yes	1 => Which ones:	_____ _____
No	2	_____ _____
		_____ _____

SA_5 **Can most streets or pathways be overlooked from the dwelling through windows?**

Yes	1
No	2

SA_6 **Can most open spaces and play areas be overlooked from the dwelling through windows?**

Yes	1	
No	2	
Not relevant	3	*(if no spaces / play areas)*

Steps & staircase

SC_1 **Does the <u>dwelling</u> have steps or a staircase inside the dwelling?**
(NOT general staircase in building!!)

Yes	1
No	2 *(go to SC_5)*

SC_2 **Do the steps or the staircase have handrails?**

Yes	1
No	2

SC_3 **Are there any loose or broken steps, damaged or uneven surfaces, disrepair or other safety threats?** *(see definition)*

Stairs are perfect and safe	1
Stairs are slightly damaged or loose	2
Stairs are heavily damaged and unsafe	3

SC_4 **Are there many height differences where people can stumble?**

Yes	1
No	2

SC_5 **Are there any steps or height differences in front of the building entrance?**

Yes	1
No	2

The following questions SC_6 to SC_14 apply only to multi-family houses.
In case of one-family houses, go to HE_1

SC_6 **Does the <u>building</u> have steps or a staircase?**

Yes	1
No	2

SC_7Does the staircase have adequate, working light equipment?

Yes – operational and sufficient	1
Yes – operational but not sufficient	2
Yes – but not operational	3
No light equipment	4

SC_8Do the steps or the staircase have handrails?

Yes	1
No	2

SC_9 Are there any loose or broken steps, damaged or uneven surfaces, disrepair or other safety threats? *(see definition)*

Stairs are perfect and safe	1
Stairs are slightly damaged or loose	2
Stairs are heavily damaged and unsafe	3

SC_10 Are there many height differences where people can stumble?

Yes	1
No	2

SC_11 Are there any signs of decoration or appropriation in the staircase (flowers, pictures, carpets, furniture etc.)? *(see definition)*

Yes	1
No	2

SC_12 Are there any signs of vandalism in the staircase (graffiti, destroyed wallpaper, broken handrails etc.)

Yes	1
No	2

SC_13 Lift / elevator in the building? *(see definition)*

Yes – operational	1
Yes – not operational	2
No	3 *(go to HE_1)*

SC_14 Does the lift serve all floors in the building?

Yes	1
No	2

Housing environment

HE_1 Is there any open or green space that belongs to the building, which can be used by the household residents (except streets, parking etc.)? *(see definition)*

Yes, private garden	1
Yes, commonly shared area	2
No	3 *(go to HE_3)*

HE_2 How would you evaluate the general condition / impression of these spaces?

Well maintained / taken care of	1
Not well maintained but also not run-down	2
Not maintained and run-down	3
Mix of all above	4

HE_3 **Are there any graffitis on the respective building or the buildings you can see around?**

No graffitis at all	1
One or two	2
Three to five	3
Six or more	4

HE_4 **How would you evaluate the amount of litter on the ground in the immediate housing environment?**

Very dirty / littered area	1
	2
	3
	4
Not at all dirty / littered	5

HE_5 **How would you evaluate the amount of dog droppings / animal excrements in the immediate housing environment?**

Extreme amount	1
	2
	3
	4
No excrements at all	5

HE_6 **Is any kind of vegetation / greenery visible in the immediate housing environment?** ***(Multicode)***

No	( )
Yes, along streets	( )
Yes, on public grounds	( )
Yes, on private grounds / gardens	( )
Yes, on facades / windows / balconies	( )

HE_7 **Is there a park or green open space close to the dwelling (up to 100m), which is accessible to the public?**

Yes	1
No	2

HE_8 **Are parking sites close to the buildings?** *(maximum distance = 50m)*

Yes	1
No	2

COMMENTS:

Inhabitant Questionnaire

ID-code: |__| |__|__| |__|__|__|__|

Date of survey:_____ City quarter:_____ Time:_____

Health questionnaires left behind in the flat to be filled out: |__|__|

Questionnaire pick-up:
Date:_____ Time:_____

For the selection of the interview partner, ask which person deals most with the day-to-day-questions of the household and has the best overview about the inhabitants and the things happening at home. If this person is available, we want to talk to him / her. Otherwise, ask who would be the best person now available for answering questions about the household and dwelling. If only one person is at home, the choice is clear.

Inhabitant information

Person to be interviewed

I_1 **Gender:** female 1
male 2

I_2 **How many people live permanently in this dwelling (in total)?** |__|__|
(see definition)

I_3 **How old are the inhabitants?…** *(ask for each resident, less than one year =1, don´t know*=99, 99 years = 98*)*

Interviewed person: |__|__|__|
Person 2: |__|__|__|
Person 3: |__|__|__|
Person 4: |__|__|__|
Person 5: |__|__|__|
Person 6: |__|__|__|
Person 7: |__|__|__|

I_4 **For how many years have you been living in this dwelling?**

|__|__| years (*less than one year*=0; *2,5 years*=2; *don´t know*=99)

I_5 **How satisfied are you with the dwelling?** *(use showcard)*

1 2 3 4 5

Building structure and equipment

Temperature and heating

T_1 **Do you perceive the temperature in the dwelling during the summer season as a problem?** *(if yes: read options 2 to 5) (if no: go to question T_3)* **(use showcard)**

T_2 **If you have a problem with the temperature in your dwelling in summer, is it because it is too warm or too cold?**

T_3 **Do you perceive the temperature in the dwelling during the transient season as a problem ?** *(if yes: read options 2 to 5) (if no: go to question T_5)* **(use showcard)**

T_4 **If you have a problem with the temperature in your dwelling in the transient season, is it because it is too warm or too cold?**

T_5 **Do you perceive the temperature in the dwelling during the winter season as a problem (with heating in use) ?** *(if yes: read options 2 to 5) (if no: go to question T_7)* **(use showcard)**

T_6 **If you have a problem with the temperature in your dwelling in winter, is it because it is too warm or too cold?**

	T_1 In summer	**T_3** in transient season	**T_5** in winter
Never / No	1	1	1
Seldom	2	2	2
Sometimes	3	3	3
Often	4	4	4
Permanent	5	5	5
Don´t know	99	99	99

	T_2 In summer	**T_4** in transient season	**T_6** in winter
Too warm	1	1	1
Too cold	2	2	2
Both too warm and cold	3	3	3

T_7* **If it is cold in winter or transient season, what are the reasons?** *(Read options. If not cold: mark first option)* **Multicode**

No such problem	( )
Household cannot afford it	( )
Flat is too big for efficient heating	( )
Low efficiency / standard of heating system	( )
Lack of heating system in some rooms	( )
Lack of control of heating	( )
Unfunctioning heating	( )
Wrong placement of heating devices	( )
Insufficient thermal insulation of the building	( )
Windows not tight or single-glazed	( )
No obvious reason	( )
Other (*please specify)*_____	( ) _____

T_8 **How would you all in all evaluate the quality of the heating system in your dwelling on a scale from 1 (highly dissatisfied) to 5 (highly satisfied)?** *(use showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

T_9 **Does this dwelling have a heating system in all inhabitable rooms (except corridor, bathroom, utility rooms and kitchenettes under 4sqm)?** *(see definition for "inhabitable")*

Yes	1 *(go to T_11)*
No	2
Don't know	99

T_10 **Which of the following rooms do not have a heating system** *(read options)***?** ***(Multicode)*** *(see definition for heating system)*

Kitchen	( )	*All rooms have heating system:* ☐
Bathroom	( )	
Separate toilet	( )	
Living room	( )	
Bedroom/s, Children room/s	( )	
Other:_____	( ) _____	

T_11 **Is there any room with a heating system that can NOT be regulated by the inhabitants?** ***(Multicode)*** *(see definition)*

Kitchen	( )	*All heating systems can be regulated:* ☐
Bathroom	( )	
Separate toilet	( )	
Living room	( )	
Bedroom/s, Children room/s	( )	
Other:_____	( ) _____	

Energy consumption & heating

E_1 **Are you connected to a central heating scheme that provides warmth for the dwelling?** *(read options) (see definition)*

Yes – heating source for dwelling	1 *(go to E_3)*
Yes – heating source for building	2 *(go to E_3)*
Yes – heating source for district / neighbourhood	3 *(go to E_3)*
No	4
Don't know	99

E_2 **If you don´t have central heating supply, what is the major heating material used to heat the dwelling (Multicode)?**

don't know	( )
Solid fuel (coal, wood)	( )
Gas	( )

Electricity	( )
Oil	( )
Kerosene	( )
Other:_____	( ) _____

E_3 **Do you use additional heating devices or heat sources during the cold or transient season?** *(if yes, read options 2 to 5) (see definition)*

No use of additional heating devices	1 *(go to question E_5)*
Yes – but less than once per week	2
Yes - once or twice a week	3
Yes - three times and more per week	4
Yes - everyday	5
Don't know	99

E_4 **If you use any additional heating devices in the dwelling, what energy source do they need?** ***(Multicode)***

don't know	( )
Solid fuel (coal, wood)	( )
Gas	( )
Electricity	( )
Oil stove	( )
Kerosene	( )
Other:_____	( ) _____

E_5* **What interventions and housing improvements could contribute to reduce your energy consumption (heating, electricity, hot water)?** ***(Multicode)***

Don´t know	( )
None	( )
Better standard / efficiency of heating equipment	( )
Better control / regulation of heating	( )
More / better thermal insulation	( )
Tight windows / double glazing	( )
Less window surface	( )
Better placement of heating devices	( )
Other:_____	( ) _____

E_6* **How would you all in all evaluate the thermal insulation in your dwelling on a scale from 1 (highly dissatisfied) to 5 (highly satisfied)?** *(use showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

E_7* **What proportion of the disposable annual household net income after taxes is spent for heating expenses?** *(read options) (see definition)*

Up to 5%	1
From more than 5 to 10%	2
From more than 10% to 20%	3
More than 20%	4
Don't know	99

E_8* **How would you rate the expenditure for heating in your dwelling?** *(read options) (see definition)*

Expensive	1
Rather expensive	2
Moderate	3
Rather cheap	4
Cheap	5

Lighting / Window view

Li_1 **On a clear day, do you sometimes need to turn on the lights during the day light hours because the natural lighting of the dwelling is not sufficient?**

Yes	1
No	2
Don't know	99

Li_2 Are you satisfied with the amount of natural lighting that you get through the windows, or do you sometimes miss the daylight?

Miss daylight	1
Satisfied with amount of natural light	2
Too much light / glaring	3
Don't know	99

Li_3 Is there at least one window in the following rooms? If yes, what is its orientation (south, north, west, east) (Multicode)? *(see definition)*

	No window	**South**	**North**	**West**	**East**	**Don´t know**
Living room	( )	( )	( )	( )	( )	( )
Bedroom	( )	( )	( )	( )	( )	( )
Bathroom	( )	( )	( )	( )	( )	( )
Kitchen	( )	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )	( )
_____	( )	( )	( )	( )	( )	( )

Li_4 How do you like the view or outlook from the building / windows on a scale from 1 (highly dissatisfied) to 5 (highly satisfied)? *(use showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

Air humidity

AH_1 **Do you have problems with dampness or condensation in your dwelling (including attic rooms and basement rooms)***(if yes, read options 2-5)***?** *(use showcard)*

Never / No	1 *(go to AH_3)*
Seldom	2
Sometimes	3
Often	4
Permanent	5
Don't know	99

AH_2 **In which rooms do you often find problems with dampness or condensation *(Multicode)*?** *(see definition)*

Don't know	( )
No specific problem rooms	( )
Kitchen	( )
Bathroom	( )
Separate toilet	( )
Corridor	( )
Living room	( )
Bedroom/s, Children room/s	( )
Utility room in dwelling	( )
Non-inhabitable rooms in basement	( )
Non-inhabitable attic / rooms right under roof	( )
Other:_____	( ) _____

AH_3 **Do you have problems with visible mould growth in your dwelling** *(if yes, read options 2-5)***?** *(use showcard)*

Never / No	1 *(go to AH_5)*
Seldom	2
Sometimes	3
Often	4
Permanent	5
Don't know	99

AH_4 **In which rooms did you already find visible mould growth *(Multicode)*?** *Ask for each room with mould:* **Where exactly (***e.g. wall, under window, behind furniture, corner of rooms, ceiling…***)?**

Don't know	( )	**Location:**
No specific problem rooms	( )	
Kitchen	( )	_____
Bathroom	( )	_____
Separate toilet	( )	_____
Corridor	( )	_____
Living room	( )	_____
Bedroom/s, Children room/s	( )	_____
Utility room in dwelling	( )	_____
Other:_____	( )	_____

AH_5 **Where do you dry your laundry most of the year (Multicode)?**

Don't know	( )
Kitchen	( )
Bathroom	( )
Corridor	( )
Living room	( )
Bedroom/s, Children room/s	( )
Utility room in dwelling	( )
Cellar / utility room / laundry room in building	( )
Outside of building / balcony	( )

Other:_____ ( ) _____

If answer is „outside building / balcony", ask in which room drying is done if outside / balcony is not possible (winter, rain etc.)

"Dryer" is not an answer! In which room is the dryer?

Air quality

AQ_1 **How would you evaluate the air quality in your dwelling on a scale from 1 (highly dissatisfied) to 5 (highly satisfied)?** *(use showcard) (definition)*

Highly dissatisfied 1
2
3
4 *(go to AQ_4)*
Highly satisfied 5 *(go to AQ_4)*

AQ_2 *If AQ_1 was answered with 1 – 3:* **What are the reasons for the dissatis-faction with the air quality in your dwelling ?** ***(****read options* **- *Multicode)***

Dampness	( )
Dryness	( )
Dust and particles	( )
Smell	( )
Smoke	( )
Not enough air exchange, stale air	( )
Too much air exchange, draught	( )
Outside air pollution	( )
Other:_____	( ) _____

AQ_3 **Why do you think the problem(s) mentioned in AQ_2 occur?** *(ask for causes such as not tight windows, access of humidity, insufficient insulation etc.)*

_____ _____

_____ _____

AQ_4 **Do you think that dust represents a particularly large problem in your dwelling?**

Yes	1
No	2
Don't know	99

Ventilation / Air exchange

V_1 **Do you have a ventilation system in your dwelling in at least one room?** *(if yes – what kind of system?) (see definition for ventilation systems)*

Yes – free ventilation	1
Yes – forced ventilation	2
No	3 *(go to V_4)*
Don't know	99

V_2 **Can the ventilation be regulated by the residents?** *(if yes, mark box) (see definition)*

Ventilation system can be regulated ☐

V_3* **How satisfied are you with the ventilation system(s) in your dwelling on a scale from 1 (highly dissatisfied) to 5 (highly satisfied)?** *(showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

V_4 **Do you – especially in winter time - have problems with moving air and draught in your dwelling because doors / windows cannot be closed tightly or have insufficient quality** *(if yes, read options 2-5)***?** *(showcard)*

Never / No	1
Seldom	2
Sometimes	3
Often	4
Permanent	5
Don't know	99

Environmental Tobacco Smoke

ETS_1 **How many cigarettes (or other tobacco products) are smoked in the dwelling per day by all residents?** *(not including balcony)*

|__|__|__| None=0, Don't know=99 *(if none, go to P_1)*

ETS_2 **Are people sleeping in the rooms where people have smoked?** *(if yes: read options 2 and 3)*

Never	1
Sometimes	2
Always	3

ETS_3 **Are children sleeping in the rooms where people have smoked?** *(if yes: read options 2 and 3)*

Never	1
Sometimes	2
Always	3

Pests and insects

P_1-5 **In the last 12 months until now, which of the following pests are - or were – present in <u>your dwelling</u>? *(Multicode)*** *(read options)*

	P_1 Never	**P_2** Past	**P_3** Present	**P_4** Past and Present	**P_5** Don´t know	
Mice	( )	( )		( )	( )	( )
Rats	( )	( )		( )	( )	( )
Cockroaches	( )	( )		( )	( )	( )
Mites	( )	( )		( )	( )	( )
Fleas	( )	( )		( )	( )	( )
Bedbugs	( )	( )		( )	( )	( )
Ants	( )	( )		( )	( )	( )
Flies	( )	( )		( )	( )	( )
Other:_____	( )	( )		( )	( )	( )_____

P_6 **No infestations:** ( ) *(go to P_8)*
(see definition)

P_7 **How do you think the pests come into <u>your dwelling</u>?**

_____

_____

P_8 *(P_8 only for buildings with more than one dwelling):* **Do you have, or have you ever had any pests, infestations or rats and mice in <u>this building</u> in the last 12 months?** *(If yes, read options 1-3. In case of one-family-house, mark option 98)*

Yes – in the past	1	
Yes - right now	2	
Yes - in the past and right now	3	
No, so far never	4	
One-family-house		98
Don't know		99

In case of one-family houses, where dwelling and building are the same, mark "98"

P_9 **In the last 12 months, has there been any pest control treatment carried out in order to control pest infestations in your dwelling?** *(If yes, read options 1-3)**(Multicode)***

Yes - non-chemical physical traps with or without bait	( )
Yes - bait for ingestion by pest (poisoned or not)	( )
Yes - insecticidal spray or contact poison	( )
No	( )
Don't know	( )

P_10 Do you have any pets / animals in <u>your dwelling</u>?
(If yes: **Which pets *(Multicode)*?)**

No pets	( )
Cat	( )
Dog	( )
Bird	( )
Fish	( )
Hamster / guinea-pig	( )
Other:_____	( ) _____

Layout & structure

L_1+2 **How big is your dwelling in square meters (dwelling in total)?** *(Write in the exact size and circle the according size group. If they don't know, leave L_1 empty and estimate dwelling size for L_2)*

L_1 |__|__|__| m^2 **L_2**

1	under 30 sqm	2	30-39 sqm
3	40-49 sqm	4	50-59 sqm
5	60-79 sqm	6	80-99 sqm
7	100-119 sqm	8	120 sqm +

L_3+4 **How many inhabitable rooms does this dwelling have?**
(see definition " inhabitable room")

L_3 |__|__| rooms

L_5 **How satisfied are you - on a scale from 1 (highly dissatisfied) to 5 (highly satisfied) – with the dwelling size?** *(use showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

L_6 **How satisfied are you - on a scale from 1 (highly dissatisfied) to 5 (highly satisfied) – with the layout of the dwelling?** *(use showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

L_7 **Would you need more or less rooms in your dwelling?**

Number of rooms is sufficient	1
More rooms needed	2
Less rooms needed	3
Don't know	99

L_8 **What is the maximum number of adult residents sleeping in the same room?**
|__| adults

L_9 **What is the maximum number of children sleeping in the same room?**

|__| children

L_10 **Is there a place in your dwelling where you can go when you want to be by yourself?**

Never want to be alone	1
Yes - always	2
Yes – but not always	3
No	4

Noise

N_1 **Do you ever feel disturbed by noise in your dwelling (with closed windows)** *(if yes - read options 2-5)***?**

Never	1
Seldom	2
Sometimes	3
Often	4
Permanent	5

N_2-5 **Considering the following noise sources, is there any disturbance by one or more of them?** ***(Multicode)(read all options)*** **?** *(mark "No" if no noise disturbance. For chosen sources, ask for noise intensity from 1 (weak) - 3 (strong) and frequency from 1 (rare) - 3 (often))*

	N_2 NO	**N_3** INTENSITY	**N_4** FREQUENCY
Noise from surrounding area (bars, disco, events)	( )	1 2 3	1 2 3
Playgrounds, schools, recreational facilities	( )	1 2 3	1 2 3
Traffic noise	( )	1 2 3	1 2 3
Airplane noise	( )	1 2 3	1 2 3
Train noise	( )	1 2 3	1 2 3
Parking & parking lots	( )	1 2 3	1 2 3
Neighbour flat (talking, music, TV, repairs, animals)	( )	1 2 3	1 2 3
Animals/birds (from outside)	( )	1 2 3	1 2 3
Noise from commercial, industrial or construction sites	( )	1 2 3	1 2 3
Staircase use	( )	1 2 3	1 2 3
Playing children in building	( )	1 2 3	1 2 3
Ventilation, heating or installation system, waste chute	( )	1 2 3	1 2 3
Lift	( )	1 2 3	1 2 3
Noise sources within own dwelling	( )	1 2 3	1 2 3
Other:_____ _____	( )	1 2 3	1 2 3

N_6 **Where in your dwelling do you think the sound insulation is a problem** ***(Multicode)*****?**

No problem with insulation	( )
Ceiling	( )
Floor	( )
Walls inside the dwelling	( )
Walls to the outside	( )
Walls to other dwellings / staircase	( )
Windows	( )
Roof	( )
Door to outside / staircase	( )
Other:_____	( ) _____

N_7 **Do you think that the noise annoyance may be due to an insufficient sound insulation?**

Yes	1
No	2
Don't know	99

If no noise exposure, mark option 2 : „No"

N_8 **Has noise already been discussed / mentioned as a reason for sleeping problems or regular disturbance of sleep of any household resident?**

Yes	1
No	2
Don't know	99

N_9 **Has there ever been any frustration and anger of any household resident due to the noise conditions?**

Yes	1
No	2
Don't know	99

N_10 **Do you in general feel vibrations, associated or not with noise, in your dwelling (caused by traffic, construction sites, subway, airplanes etc.)?**

Never	1
Seldom	2
Sometimes	3
Often	4
Permanent	5
Don´t know	99

Earthquakes are NOT included!

N_11 *(Ask only for people that have a noise problem in their flat: N_1 = 3, 4 or 5)*
You said that you were disturbed by noise in your dwelling. If you could have the same dwelling, but without the noise, how much money per month would you be ready to pay (either in addition to the rent you pay now, or as a general payment) for having this quiet dwelling?

_____ *(name of currency)*

Don´t know: write "99"

N_12 *(Ask only for people that do not have a noise problem: N_1 = 1 or 2)*
You said that you were not disturbed by noise in your dwelling. Imagine that from tomorrow on, there will be a new situation and noise from e.g. new traffic, outdoor restaurants or playgrounds close to your house will be perceptible in your dwelling. How much would you expect the monthly rent to go down (or which monthly compensation payment would be acceptable) so that you would be satisfied by the financial compensation for the new noise exposure?

_____ *(name of currency)*

Don´t know: write "99"

Would move out: write "-1"

Hygiene & sanitation

HS_1 **Did you ever experience any trouble with the quantity of the water supply during the last year?** *(if yes, read options 2 – 5) (see definition)*

HS_2 **Did you ever experience any trouble with the quantity of the hot water supply during the last year?** *(if yes, read options 2 – 5) (see definition)*

HS_3 **Did you ever experience any trouble with the quality of the water supply (colored water, bad smell, bad taste etc.)?** *(if yes, read options 2 – 5)*

HS_4 **Did you ever experience any trouble with the water drainage system?** *(if yes, read options 2 – 5)*

	HS_ 1	HS_2	HS_3	HS_4
Never	1	1	1	1
Seldom	2	2	2	2
Sometimes	3	3	3	3
Often	4	4	4	4
Permanent	5	5	5	5
Don't know	99	99	99	99

HS_5 **Is it necessary to treat the water that is provided to your dwelling before drinking?** *(e.g. boiling, cleaning, filtering etc.)*

Yes	1
No	2
Don´t drink the water	3
Don't know	99

HS_6How satisfied are you – on a scale from 1 (highly dissatisfied) to 5 (highly satisfied) - with the equipment and the installations in the bathroom? *(use showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

HS_7How satisfied are you – on a scale from 1 (highly dissatisfied) to 5 (highly satisfied) - with the equipment and the installations in the kitchen? *(showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

HS_8 *If in questions HS_6 and HS_7, the options 1,2 or 3 were chosen at least once, ask following question):* **What are the reasons for dissatisfaction with equipment and installations?**

_____ _____

_____ _____

_____ _____

HS_9 **Is there enough workspace in the kitchen in order to prepare food***? (see definition for "enough")*

Yes	1
No	2
Don't know	99

HS_10 **Is there a waste chute inside the dwelling or in the staircase?** *(If yes, read options 1 and 2) (see definition)*

in staircase	1
in dwelling	2 *(go to A_1)*
No	3 *(go to A_1)*

HS_11 **Is the waste chute in the staircase rather clean or rather dirty?**

Rather clean	1
Rather dirty	2
Don't know	99

Safety and accidents

Please read aloud for the interviewed person to understand what we are looking for in this section:
Every day, many accidents and injuries occur in homes which do not require medical treat-ment by a doctor, but still limit the quality of life and provide small-term handicaps and pain.
For the following questions, we would like you to think of both the dwelling and the commonly used building spaces (corridor, staircase, basement / utility rooms), and tell us about all the - small and big – accidents and injuries that happened to you and the other household members in the following cases:

- **a first aid kit was used**
- **a doctor / hospital / ambulance car was contacted**
- **pain or any kind of physical limitation was still existing the day after the event**

A_1-4 **Which of the following accidents or injuries – big or small - did already occur in the building in the last 12 months?** *(read list starting with "Falls / stumbling" – one by one, then ask for person type suffering this accident)* ***(Multicode)*** *(see definition for accident types)*

	A_1	**A_2**	**A_3 Child**	**A_4 Adult**	**>65**
Don´t know	( ) *go to A_6*				
None	( ) *go to A_6*				
Falls / stumbling	( )	( )	( )	( )	
Burns	( )	( )	( )	( )	
Cuts / puncture wounds	( )	( )	( )	( )	
Choking / suffocating / drowning	( )	( )	( )	( )	
Collisions / striking	( )	( )	( )	( )	
Poisoning / chemical agents	( )	( )	( )	( )	
Gas intoxication	( )	( )	( )	( )	
Electrical shock / accident	( )	( )	( )	( )	
Other:_____	( )	( )	( )	( )	

_____

A_5 **Which items have been involved in these accidents and injuries that have occurred (Multicode)?**

Don´t know	( )
Construction features (walls, floor, doors, windows, stairs)	( )
Electric equipment / installations	( )
Water / sanitary system	( )
Heating / cooling equipment, stove, oven	( )
Stairs, staircase	( )
Kitchen equipment	( )
Knives and silverware	( )
Furniture / furnishings (carpets, curtains etc.)	( )
Washing / cleaning products, detergents, liquids etc	( )
Gasses and fumes	( )
Food items	( )
Animals and pets	( )
Toys	( )
Other:_____ _____	( )

A_6 **Which places or equipment items do you assess as dangerous for the residents in general *(Multicode)*?**

Don't know	( )
Stove / Oven	( )
Kitchen equipment / water heater	( )
Bathroom	( )
Windows / window frames	( )
Doors / door frames, door steps	( )
Corridor	( )
Heating equipment	( )
Staircase	( )
Stairs and steps in dwelling	( )
Electric equipment / installations	( )
Cables on floor / walls / from ceiling	( )
Balcony / Terrace	( )
Lift / Elevator	( )
Floor coverings (carpet etc.)	( )
Furniture items	( )
Other:_____	( ) _____
No dangerous places / items	☐

A_7+8 Is there a place / item in the dwelling which is especially dangerous for children? *(if yes, which?)*

	A_7		**A_8**
Yes	1 =>	*Which place / item:*_____	
No	2		_____
Don´t know	99		

A_9+10 **Is there a place / item in the dwelling, where / with which at least two accidents / injuries occured already?** *(if yes, which?)*

	A_9		**A_10**
Yes	1 =>	*Which place / item:*_____	
No	2		_____
Don´t know	99		

A_11 Are your electrical installations earthed? *(see definition)*

Yes, all of them	1
Yes, but not all	2
No	3
Don't know	99

A_12 **Can the household members easily escape from the house in case of fire in the building?**

Yes	1
No	2
Don't know	99

A_13 **Is there any fire detection equipment in the building or in the dwelling?**

Yes	1
No	2
Don't know	99

Building quality & maintenance

B_1 *(For multi-family houses only)* **How many dwellings in this building are not inhabited and empty?** *(read options 1 to 5)*

All dwellings are inhabited	1
Under 10% are empty	2
11 – 20% empty	3
21 – 30% empty	4
more than 30% empty	5
Don't know	99

B_2 **Do you know whether the roof is waterproof?**

Roof is waterproof	1
Roof is not waterproof / is leaking	2
Don't know	99

B_3 **Has there ever been a renovation of the building (=outside envelope and / or indoor common spaces such as staircase, basement, roof) since you are living here?** *(see definition)*

Yes	1
No	2
Don't know	99

B_4 **Has there ever been a renovation of the dwelling since you are living here (except minor do-it-yourself-activities)?** *(see definition)*

Yes	1
No	2
Don't know	99

B_5 **Did your household – in the last year – do any do-it-yourself activities (repairs, new paint etc.) or bring in new furniture (Multicode)?**

Don't know	( )
No such work done	( )
Yes - new furniture	( )
Yes - do-it-yourself-work	( )
Yes – due to moving in	( )

B_6 **Is there a housekeeper who takes care of the maintenance and daily business?**

Yes	1
No	2
Don't know	99

B_7 **Who is responsible for the cleaning of the building and the staircases (Multicode)?** *(Read options) (see definition)*

Don´t know	( )
Private owner	( )
Housing agency as owner	( )
Municipality as owner	( )
Cooperatives	( )
Rental households themselves	( )
Service company contracted	( )
Combination of options above	( )
Housekeeper / caretaker	( )
Administrator	( )

B_8 **Who is responsible for the maintenance of the building and the staircases in case of repairs (Multicode)?** *(Read options) (see definition)*

Don´t know	( )
Private owner	( )
Housing agency as owner	( )
Municipality as owner	( )
Cooperatives	( )
Rental households themselves	( )
Service company contracted	( )
Combination of options above	( )
Housekeeper / caretaker	( )
Administrator	( )

Housing adaptability

Ha_1 **Is the <u>building</u> easily accessible for handicapped people with wheelchair, walking aids like canes or any other physical constraints (blind, deaf…)?** *(see definition)*

Yes	1
No	2
Don’t know	99

Ha_2 *(Ha_2 only for multi-family-houses)* **Is your <u>dwelling</u> easily accessible for handicapped people with wheelchair, walking aids like canes or any other physical constraints (blind , deaf…)?***(see definition)*

Yes	1
No	2
Don’t know	99

Ha_3 **Does anyone in the household have any kind of physical constraint or handicap?**

Yes	1
No	2 *(go to DS_1)*
Don’t know	99 *(go to DS_1)*

Ha_4 **Do you feel that the building / dwelling is well equipped and adapted for the specific needs that may arise from the existing physical constraint of this person?**

Yes	1 *(go to DS_1)*
No	2
Don’t know	99

Ha_5 **What are the specific needs of this person that are not being fulfilled by the dwelling?** *(ask for max. keywords such as bigger doors, no doorsteps, lift…)*

_____ _____
_____ _____
_____ _____

Ha_6 **Is it possible at all to realize the required adaptations in the dwelling?**

Yes	1 *(go to DS_1)*
No	2
Don't know	99

Ha_7 **If not, why is it not possible?** *(keywords only, maximum of three)*

_____ _____
_____ _____
_____ _____

Dwelling satisfaction

DS_1 **For how long would you like to live in this dwelling, on a scale from 1 (as short as possible) to 5 (forever)?** *(use showcard)*

1	2	3	4	5
As short as possible				Forever

For DS_2 and DS_3:
Ask people for building-related answers only. The immediate environment section comes later!

DS_2 **There may be some aspects or characteristics for which you are not satisfied with your dwelling / building. What are the main reasons for dissatisfaction with your dwelling / building? Please give up to three keywords!** *(see definition)*

1)_____ _____
2)_____ _____
3)_____ _____

DS_3 **On the other hand, there may be some aspects or characteristics for which you are satisfied with your dwelling / building. What are the main reasons for satisfaction with the dwelling / building? Please give up to three keywords!** *(see definition)*

1)_____ _____
2)_____ _____
3)_____ _____

DS_4 **Did you already discuss moving into another dwelling because you are not happy with the current living conditions?**

Yes	1
No	2
Don't know	99

DS_5 **If moving – would you prefer to move to…** *(read options)*

Another dwelling in this building - higher floor level	1
Another dwelling in this building - lower floor level	2
Another dwelling in this area / neighbourhood	3
Another housing area / neighbourhood	4
Another city	5

Please have DS_5 answered even if they don´t want to move – it is a hypothetical question!

=> **If you had to move – would you prefer to…**

Immediate environment

Please read out:
Now, I will ask you some questions on the immediate housing environment, which is the area around your dwelling that you pass through or see every day. This comprises both the space closely around your residential building (be it private or not) and the surrounding area with neighbouring streets, buildings, gardens, playgrounds, parks, etc.

IE_1 **Overall, how would you rate this area as a place to live on a scale from 1 (very bad) to 5 (very good)?** *(showcard)*

Very bad	1
	2
	3
	4 *(go to IE_3)*
Very good	5 *(go to IE_3)*

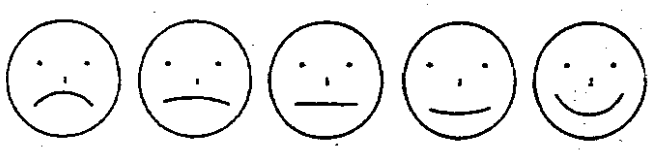
IE_2 **What are the major reasons for your dissatisfaction?** *(max. 3)*

1)_____ _____
2)_____ _____
3)_____ _____

IE_3 **What are characteristics of the immediate housing environment that you do like?** *(max. 3)*

1)_____ _____
2)_____ _____
3)_____ _____

IE_4 **How do you think this residential area is evaluated by other people who are not living in this area?** *(use showcard)*



1 2 3 4 5

IE_5 **Is this living place well connected to the city center so all household members can get there without problems (using the available transport means)?** *(read options)*

Yes, for all inhabitants	1
Yes, for some inhabitants	2
No	3
Don't know	99

IE_6 **With which of the following means of transport can you easily reach the city center of** *Name of Survey City*? ***(Multicode)***

By public transport	( )
Walking	( )
By bicycle	( )
By private car	( )

If they live in the city centre:

Cross option "Walking"

IE_7 **If there is public transportation to the city center, at what time in the evening is the last ride back?** *(please write time: 23.30; 0.45 etc.,*
(Coding: Living in city centre: 97, No public transport connection: 98, Don´t know: 99)

____

IE_8 **How satisfied are you with the parking arrangements on a scale from 1 (highly dissatisfied) to 5 (highly satisfied)?** *(showcard)*

Highly dissatisfied	1
	2
	3
	4
Highly satisfied	5

Only parking arrangements at living place are meant, not in city centre

IE_9 **How annoyed are you by litter and trash in the immediate environment on a scale from 1 (very annoyed) to 5 (not annoyed at all)?** *(showcard)*

Very annoyed	1
	2
	3
	4
Not annoyed at all	5

IE_10-12 **In your immediate housing environment (including private and public spaces), are there enough recreational areas for…***(read three population groups)***?** *(see definition)*

		Yes	To some extent	Not really	Don´t know	
IE_10	Children	1	2	3		99
IE_11	Teenagers	1	2	3		99
IE_12	Elderly	1	2	3		99

IE_13 **Would you encourage your children to play on the local playgrounds?**

Yes	1	
Only on some	2	
No, not at all		3
No playgrounds	98	
Don´t know		99

Or: If you had children, would you encourage...

IE_14 **Are there some places in the immediate housing environment (including private and public spaces), where you can sit and relax, or talk peacefully to neighbours and friends?**

Yes	1
No	2
Don´t know	99

IE_15 **Do you feel safe when returning to your home when it is dark?**

Yes	1 (go to IE_17)
To some extent 2	
No, not at all	3
Don´t know	99

IE_16 **What are the major reasons why you don´t feel safe in your immediate housing environment?** (max. 3)

1)_____ _____

2)_____ _____

3)_____ _____

IE_17 **What is the first thing you would change in your immediate housing environment?**

„Nothing“ is a valid answer option!

_____ _____

Socioeconomic information

Finance, housing and households

Fi_1 Is the dwelling owned or rented?

owned	1
rented	2
don’t know	99

Fi_2+3 **How many household members have an income that contributes to the total household income?** *(see definition)*

Fi_2 |__|__| residents

Fi_4 How many people in the household are currently unemployed (except children, teenagers, students, elderly and people unable to work)? *(see definition)*

|__|__| don't know 99

Fi_5 The next question would be important for us in order to find out whether income really has an impact on the housing conditions: What disposable income (after deduction of taxes etc.) does the household have per month? Please use one of the following income groups: *(read options 1 to 6) (see definition)*

EU cities (in Euro)	Vilnius (in Litas)	Bratislava (in SK)
1 under 500	1 under 250	1 under 5.500
2 501-1.000	2 251 – 500	2 5.501 – 10.000
3 1.001 – 1.500	3 501 – 750	3 10.001 – 20.000
4 1.501 – 2.000	4 751 – 1.000	4 20.001 – 40.000
5 2.001 – 2.500	5 1.001 – 1.250	5 40.001 – 60.000
6 above 2.500	6 above 1.250	6 above 60.000
7 no answer	7 no answer	7 no answer
99 don't know	99 don't know	99 don't know

Fi_6 **How many % of the disposable household net income after taxes are roughly spent for housing-related expenses as an average per month (including rent, loan, water, energy, maintenance, insurance etc.)?** *(see definition)*

|__|__|__| don't know 99

Fi_7 Is it a problem for the household to pay the total housing expenditure?

Yes	1
No	2
Don't know	99

Fi_8 Does this household receive a housing allowance? *(see definition)*

Yes	1
No	2
Don't know	99

Fi_9 Could you afford to move to a better dwelling - if you wanted to do so?

Yes	1
No	2
Don't know	99

Time of interview end: _____

It may be that after a first data analysis, several questions may arise about specific issues that remain unclear or need a more detailed explanation. In order to follow up on such new or still open questions, or in case we would need to explore a specific issue in detail, would you agree that we contact you or your household again?

If yes, we would need your street address and your phone number. Both will be kept confidential and will only be used for contacting you in case we have a specific information deficit.

Name:_____

Street address:_____

Zip code / city:_____

Phone: _____ **Signature:_____**

Thank the interviewee for their time and attention. Go to inspection part of survey visit.

Housing and Health Questionnaire

*Date:*_____ ID: |__| |__|__| |__|__|__|__| |__|

This questionnaire is about your health condition. It will help us to find out if any health problems you have might be related to the dwelling you are living in. The questionnaire will take around 10 minutes to fill out, and all information given will be handled confidential.
Please, circle the number, tick the boxes that are correct for you or write the figures:

General Information

HH_1 What is your gender?

1 Male
2 Female

HH_2 What is your age? |__|__|__| years

HH_3 How tall are you? |__|__|__| cm

HH_4 What is your weight? |__|__|__| kg

HH_5 Are you covered by a health insurance ?

1 Yes – public insurance
2 Yes – private insurance
3 Yes – both insurances
4 No
99 Don't know

HH_6 What is your marital status?

1 Married, living together with spouse
2 Married, separated from spouse
3 Single
4 Divorced
5 Widowed
6 You live together with a steady partner

HH_ 7 Which school leaving certificate do you have?

1 Primary/elementary
2 Secondary first stage
3 Secondary second stage
4 Post-secondary (university or similar)
5 No education at all
99 Don't know

HH_8 What is your current employment status?

1 Full time work
2 Part-time work
3 Student / Pupil
4 Pensioner
5 Unemployed or laid off
6 Taking care of your household or a family member
7 Recruit or non-military service
8 Other

HH_9 What is or was the main profession of your father?

_____

HH_9a Were you born in *name of respective country***?**

1 Yes *(please go to HH_10)*
2 No

HH_9b For how many years have you been living in *name of respective country***?**

|__|__| years

HH_10 Which statement do you think best describes your smoking behavior?

1 I have never smoked
2 I used to smoke
3 I now smoke occasionally
4 I smoke daily less than 5 cigarettes
5 I smoke daily 5-15 cigarettes
6 I smoke daily more than 15 cigarettes
7 I smoke daily other tobacco products than cigarettes

HH_11 Which statement do you think best describes your alcohol consumption?

1 I have never been drinking
2 I used to drink
3 I now drink occasionally
4 I drink daily 1 or 2 glasses of alcoholic beverages
5 I drink daily 3-4 glasses of alcoholic beverages
6 I drink daily more than 4 glasses of alcoholic beverages

HH_12 Which statement do you think best describes your amount of sport or physical exercise (both at work and during leisure time)?

1 I have never been doing sport / physical exercise
2 I used to do sport / physical exercise
3 I now occasionally do sport / physical exercise
4 I frequently do sports / physical exercise on moderate level
5 I frequently do sports / physical exercise on intense level

---

HH_13 How many hours per day do you in average spend <u>out of your dwelling</u> ? *(Please write number from 0 to 24 hours)*

(workdays) |__|__| hours
(week-ends) |__|__| hours

General health and constraints

Now we are coming to the questions, which are about your health. Please, circle the number or tick the boxes that are correct for you:

H_1 How is your health in general?

1	2	3	4	5
Very good	Good	Fair	Bad	Very bad

H_2 Do you have some kind of physical constraint or handicap?

1 Yes
2 No

H_2a Can you distinctly hear what is said in a conversation with one other person?

1 Yes, without a problem
2 No
3 Yes, but only with hearing aids or devices

H_3 Can you without difficulty go up and down a flight of stairs?

1 Yes
2 No

H_4 **Can you without difficulty use your fingers to grasp or handle a small object (like a pen)?**

1 Yes
2 No

H_5 **Can you without difficulty turn a tap on?**

1 Yes
2 No

H_6 **Can you without difficulty bend down and kneel down?**

1 Yes
2 No

H_7 **Do you feel that due to your age or general fitness, you have some problems to make a normal use of the dwelling as it is now?**

1 Yes
2 No

H_8 **Due to age, low fitness or any physical constraint / handicap, are there any specific adaptations of the dwelling (e.g. lift, broader doors, no doorsteps, specific installations, walk-in shower…) that you need in order to make the best-possible use of your dwelling?**

1 Yes
2 No *(please, go to H_11)*

H_9 **Please, give the three most important adaptations needed (under 9_1), and mark those adaptations already realized in the dwelling (under 9_2). If they have not yet been realized, please indicate if a realization is possible at all (under 9_3)**

H_9_1 Adaptation needed	**9_2** Adaptation realized	**9_3** Adaptation possible
_____	☐	☐
_____	☐	☐
_____	☐	☐

H_10 **If the required adaptation/s are not possible in your dwelling, would this be a reason to consider moving into another dwelling?**

1 Yes
2 No
99 Don't know

Quality of Life

H_11 **During the past month, have you felt particularly nervous?**

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time

5 A little of the time
6 None of the time

H_12 During the past month, have you felt so down in the dumps nothing could cheer you up?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_13 During the past month, have you felt calm and peaceful?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_14 During the past month, have you felt downhearted and miserable?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_15 During the past month, have you been happy?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_16 During the past month, did you have lots of energy?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_17 During the past month, did you feel worn out?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_18 During the past month, did you feel full of life?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_19 During the past month, did you feel tired?

1 All of the time
2 Most of the time
3 A good bit of the time
4 Some of the time
5 A little of the time
6 None of the time

H_20 Did you have sleep disturbance every day for a period of two weeks or more?

1 Yes
2 No

H_21 Did you have loss or decreasing of interest in activities every day for a period of two weeks or more?

1 Yes
2 No

H_22 Did you have low self esteem every day for a period of two weeks or more?

1 Yes
2 No

H_23 Did you have decreased appetite every day for a period of two weeks or more?

1 Yes
2 No

H_24 If you answered 'Yes' to any of H_20, H_21, H_22 or H_23, do you think that at least one of those is related to your dwelling?

1 Yes
2 No

Sleep disturbance

H_25 How long did it usually take for you to fall asleep during the past 4 weeks? *(Circle one)*

1 0-15 minutes
2 16-30 minutes
3 31-45 minutes
4 46-60 minutes
5 More than 60 minutes

H_26 On average, how many hours did you sleep each night during the past 4 weeks?

Write in numbers of hours per night |__|__|

H_27 Has your sleep been disturbed by noise during the past 4 weeks?

1 Yes
2 No *(please, go to H_29)*

H_28 If 'Yes', what was/were the source/s of noise? *(please, tick all appropriate boxes)*

☐ Noise from surrounding area (bars, disco, events)

☐ Playgrounds, schools, recreational facilities
☐ Traffic noise
☐ Airplane noise
☐ Train noise

☐ Parking and parking lots

☐ Neighbor flat (talking, music, TV, repairs, animals etc.)
☐ Animals/birds (from outside)

☐ Noise from commercial, industrial or construction sites

☐ Staircase use

☐ Playing children in building

☐ Ventilation, heating or installation system, waste chute

☐ Lift

☐ Noise sources within own dwelling

☐ Other, please, specify_____

H_29 Thinking about the last 12 months, when you are here at home, how much would you say that noise from following sources bothers or annoys you?

Please, circle the appropriate number for all noise sources!

	Not at all	**Slightly**	**Moderately**	**Strongly**	**Extremely**
Surrounding area (bars, disco, events)	1	2	3	4	5
Playgrounds, schools, recrea-tional facilities	1	2	3	4	5
Traffic noise	1	2	3	4	5
Airplane noise	1	2	3	4	5
Train noise	1	2	3	4	5
Parking and parking lots	1	2	3	4	5
Neighbor flat (talking, music, TV, repairs, animals etc.)	1	2	3	4	5
Animals/birds (outside)	1	2	3	4	5
Commercial, industrial or construction sites	1	2	3	4	5
Staircase use	1	2	3	4	5
Playing children in building	1	2	3	4	5

Ventilation, heating or instal-lation system, waste chute	1	2	3	4	5
Lift	1	2	3	4	5
Noise sources in own dwelling	1	2	3	4	5
Other source of noise, please, specify below					
✎ ……	1	2	3	4	5

Flat satisfaction

H_30 How would you evaluate your dwelling on a scale from 1 (very good) to 5 (very bad)?

1	2	3	4	5
Very good	Good	Fair	Bad	Very bad

H_31 How strongly do you agree or disagree with each of the following opinions that people might have about their home?

(Please, circle or tick one box for each statement)

	Strongly agree	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**
I feel I have privacy in my home	1	2	3	4	5
I can get away from it	1	2	3	4	5

all in my home					
I can do what I want, when I want in my home	1	2	3	4	5
Most people would like a home like mine	1	2	3	4	5
I feel in control of my home	1	2	3	4	5
My home makes me feel that I'm doing well in my life	1	2	3	4	5
I worry about losing my home	1	2	3	4	5
My home life has a sense of routine	1	2	3	4	5
My home feels safe	1	2	3	4	5
My home expresses my personality and values	1	2	3	4	5

Accidents/injuries

For the following questions, we would like you to think of both the dwelling and the commonly used building spaces (corridor, staircase, basement / utility rooms), and tell us about all the - small and big – accidents, injuries or mishappenings that happened to you in the following cases:

- *a first aid kit was used*
- *a doctor / hospital / ambulance car was contacted*
- *pain or any kind of physical limitation was still existing the day after the event*

H_32 **What kind of accidents did already happen to you in this dwelling (during the last 12 months)?** *(please, tick all appropriate boxes)*

☐ Falls

☐ Burns

☐ Cuts

☐ Choking/suffocating/drowning

☐ Collision/striking

☐ Poisoning/chemical agents

☐ Gas intoxication

☐ Electric accident

☐ Other, please, specify_____

☐ No accident at all *(go to H_36)*

H_33 Which items have been involved in these accidents that have happened to you? *(please, tick all appropriate boxes)*

- ☐ Construction features *(walls, floor, doors, windows, indoor stairs, lift)*
- ☐ Electric equipment
- ☐ Water/sanitary system
- ☐ Heating/cooling equipment
- ☐ Kitchen equipment
- ☐ Knives and silverware
- ☐ Furniture/furnishing (carpets, curtains, etc.)
- ☐ Washing/cleaning products, detergents, liquids etc.
- ☐ Gasses and fumes
- ☐ Food items
- ☐ Animals and pets
- ☐ Toys
- ☐ Other, please, specify _____

H_34 Which part of your body was/were injured? *(Please, tick all appropriate boxes)*

- ☐ Head
- ☐ Neck/throat

☐ Thorax/chest/upper back

☐ Lower trunk

☐ Arm/upper limb

☐ Leg/lower limb

☐ Surface area

☐ Whole body affected

☐ Other, please, specify _____

H_35 What was the outcome? *(Please, tick all appropriate boxes)*

☐ Self-help, bandaging

☐ Visit to a doctor, examination only

☐ Visit to a doctor, prescribed treatment

☐ Hospitalization

☐ Other outcome, please, specify
_____

Disease Prevalence

For the following questions, please have a look at the following example which will show you how to fill out the questions.

If you circled
(1) Yes → please go to the boxes on the right and fill in the answers

If you circled
(2) No ↓ please go to the next disease or symptom below

H_36 Do you have or have ever had any of the following chronic illnesses or conditions? *(reply to each of the illnesses)*

	Did you have it during the last 12 months?	**If YES → If NO ↓**	**Was it diagnosed by a physician?**	**Have you taken pre-scribed medicine for this?**	**Would you think it is related to your flat?**
Diabetes	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Hypertension (high blood pressure)	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Heart attack (myocardial infarction)	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Stroke, cerebral hemorrhage	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No

Malignant tumor (including leukemia and lymphoma)	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Asthma	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Chronic bronchitis, emphysema	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Arthrosis, (rheumatic) arthritis	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Chronic anxiety and depression	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Migraine and frequent headache	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
(continuation)	**Did you have it during the last 12 months?**	**If YES → If NO ↓**	**Was it diagnosed by a physician?**	**Have you taken pre-scribed medicine for this?**	**Would you think it is related to your flat?**
Serious skin diseases	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Allergy (excluding allergic asthma)	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Osteoporosis	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Cataract	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Gastric or duodenal ulcer	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Tuberculosis	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No

Other, please, specify below					
✎ …… …..	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
✎ …… …..	1 Yes 2 No	→	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No

H_37 Do you have or have you ever in the last 12 months had any of the following acute illnesses or conditions? *(reply to each of the illnesses)*

	Did you have it during the last 12 months?	**If YES → If NO ↓**	**Was it diagnosed by a phy-sician?**	**Have you taken pre-scribed medicine for this?**	**Would you think it is related to your flat?**
Cold or a throat illness	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Acute bronchitis or pneumonia	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Diarrhoeal diseases	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Other, please, specify below					
✎ …… …..	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
✎ …… …..	1 Yes 2 No	→	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No

H_38 Do you have or ever in the last 12 months had any of the following symptoms and conditions? *(reply to each of the illnesses)*

	Did you have it during the last 12 months?	**If YES → If NO ↓**	**Was it diagnosed by a physician?**	**Have you taken prescribed medicine for this?**	**Would you think it is related to your flat?**
Wheezing or whistling in your chest	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Attack of asthma	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Any nasal allergies, including hay fever	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Problem with sneezing, or runny or a blocked nose when you did not have a cold or the flu	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
(continuation)	**Did you have it during the last 12 months?**	**If YES → If NO ↓**	**Was it diagnosed by a physician?**	**Have you taken prescribed medicine for this?**	**Would you think it is related to your flat?**
Eczema or any kind of skin allergy	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Fatigue	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Headache	1 Yes	→	1 Yes	1 Yes	1 Yes

	2 No	↓	2 No	2 No	2 No
Watery eyes or eye inflammations	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
Other, please, specify below					
✎ ……	1 Yes 2 No	→ ↓	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No
✎ ……	1 Yes 2 No	→	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No

H_39 Have you taken any medicines without a prescription from a doctor during the last two weeks?

1 Yes
2 No

H_40 If 'Yes', what types of medicines did you take? Were they medicines for… *(please mark all options that apply)*

☐ Pain

☐ Cold, flu or sore throat

☐ Allergic symptoms

☐ Stomach trouble

☐ Vitamins, minerals or tonic

☐ Sleep

□ Some other medicines not prescribed by a doctor?

If ‘Yes’- what type?

_____

Thank you very much for your help!

Please give the questionnaire to the surveyor while he’s still in your home, or put the questionnaire into the envelope, close it and send it back when everyone filled out one questionnaire.

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