



# Housing Insecurity and Mental Health: the Effect of Housing Tenure and the Coexistence of Life Insecurities

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**Abstract** While the adverse effects of housing insecurity on mental health are known, much less is known about the modifiers underlying these effects. The aim of this study was to analyze the mental health of people with housing insecurity by housing tenure and considering the coexistence of other life insecurities (energy poverty and food insecurity). We conducted a cross-sectional study through a survey performed in all people attending the Platform for People Affected by Mortgages or the Alliance

against Energy Poverty of Barcelona for the first time between June 2017 and December 2019 and who reported housing insecurity. The dependent variables were the risk of poor mental health, self-reported anxiety and/or depression, and the use of psychotropic drugs. We fitted age-adjusted robust Poisson regression models for each dependent variable and estimated adjusted prevalence ratios (aPR). The study included 256 women and 104 men. The prevalence of poor mental health was 89% in women and 85.3% in men, which was much higher than that in the general population of Barcelona (19.5% and 14.5%, respectively). Among women, mental health was worse in those living in a squat (aPR 1.16; 95% CI: 1.02–1.31) and in those with food insecurity (aPR 1.11; 95% CI: 1.01–1.21). The number of coexisting insecurities showed a gradient effect (3 insecurities: aPR 1.21; 95% CI: 1.01–1.45). Among men, the results showed no clear pattern. Poor mental health was highly prevalent in people with housing insecurity and was exacerbated by the coexistence of life insecurities. Public policymakers should consider the complexity of persons with housing insecurity.

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## Introduction

Housing is often viewed as a commodity and an investment opportunity, rather than as a basic need [1]. In Spain, the great recession of 2008 and the concomitant austerity policies led to rising unemployment, over-indebtedness among families, and the erosion of the welfare state [2, 3]. In this context, people's ability to pay their mortgages and/or rent has been reduced, substantially increasing housing insecurity for economic reasons. Housing insecurity includes diverse situations such as living under the threat of eviction, squatting, or having to live with family or friends for economic reasons [1, 4–6]. In 2019, there were 54,006 evictions, 67.5% of which were for rent arrears and 32.2% for mortgage foreclosures. In 2019, the region with the highest number of evictions ( $n=12,446$ ) was Catalonia, representing 23% of the overall nationwide figure. That same year, there were 4687 infractions for usurpation of property [7].

Housing insecurity is associated with adverse mental health effects. Affected people are at higher risk of depression, anxiety, psychological distress, and suicide [8–10]. In Spain, similar results have been reported by several investigations. In Catalonia, a study carried out in people with housing insecurity from the Platform of People Affected by Mortgages reported that poor mental health was 6.7 times more likely among women and 9.4 times more likely among men than among the general population [11]. Similar results were found in a study performed in Barcelona city [12]. In Andalusia, people in the process of eviction had almost eight times the risk of depression, anxiety, or other chronic mental disorders than the general population [13]. This phenomenon was not evenly distributed among the population: a review indicated that its frequency and intensity were greater among the most disadvantaged social groups [10].

One factor that could modify the relationship between housing insecurity and health is the type of tenure. Mental health is better in owner-occupiers than in tenants, which, among other issues, is related to greater residential stability [14–18]. However, property owners who cannot meet mortgage payments can experience serious mental health problems [15, 16]. The available evidence on the association between mental health and squatting is very limited.

A qualitative study reported that squatters often experienced anxiety, insomnia, stress, and depression [17]. Therefore, evidence on the relationship between housing tenure and mental health is not yet unequivocal due to the complexity of the various interrelated factors involved in this relationship [18][18].

Housing insecurity is not an isolated phenomenon but can coexist with other problems, including food insecurity, energy poverty, and unemployment [6, 19–23]. These situations can aggravate poor mental health in a context of precariousness [6]. The term “trifecta of insecurities” has been used to refer to the association between housing insecurity, energy poverty and food insecurity, and its possible effect on the health of people who are forced to prioritize one life dimension at the expense of others [23].

However, evidence of the health effects of the coexistence of insecurities is scarce. Prior research has indicated that the combination of housing insecurity and energy poverty increases the probability of poor mental health in children [21] and adults [22], and that the coexistence of housing and food insecurity also impairs mental health [19]. However, as far as we know, the effect of the “trifecta of insecurities” on mental health has not been quantitatively assessed to date.

Equally, little is known on the modifiers underlying the abovementioned negative effects of housing insecurity on mental health, such as tenure type or the coexistence of insecurities. Given the magnitude of housing insecurity in Spain, deeper knowledge of the factors modifying its relationship with mental health is needed to adapt public policies to the prevention and solution of this issue. Therefore, this study aimed to analyze the mental health status of people with housing insecurity in Barcelona according to tenure type and the coexistence of insecurities in other areas of life.

## Methods

### Design, Study Population, and Information Sources

Using convenience sampling, we conducted a cross-sectional study of the population with housing insecurity who accessed the Platform for People Affected by Mortgages (PAH) or the Alliance against the Energy Poverty of Barcelona (APE). The PAH is a

self-organized civil movement created in 2009 to respond to problems of foreclosure, eviction, and debt faced by thousands of families at various stages of the eviction process. The APE is also a self-organized civil movement, created in 2014, that fights for universal access to energy as a human right, and one that should be guaranteed regardless of income level or material conditions. Individuals were invited to participate the first time they attended either of these organizations to request face-to-face support or information. The inclusion criteria were age  $\geq 18$  years, having signed the informed consent form and being affected by housing insecurity, defined as having difficulty paying the rent or mortgage, living under threat of eviction, living with family or relatives due to lack of access to housing, or living in squats. Respondents who reported that they did not experience housing insecurity were excluded, yielding a final sample of 360 individuals. The sample included only one member per household. The information source was an ad-hoc survey based on the Life Conditions Survey and the Barcelona Health Survey. Data were collected between June 2017 and December 2019. The survey was delivered face-to-face by trained independent interviewers.

The study protocol was approved by the Clinical Research Ethics Committee of Parc de Salut Mar (2016/6971/I).

### Study Variables

The dependent variables were risk of poor mental health, self-reported depression, and/or anxiety in the previous 12 months, and use of psychotropic medication. The risk of poor mental health was evaluated using the 12-item version of the General Health Questionnaire (12-GHQ). Participants scoring  $\geq 3$  were classified as having a high probability of poor mental health [24]. The use of psychotropic medication was assessed with a dichotomous variable (yes/no) based on the self-reported use of antidepressants, hypnotics, and/or anxiolytics in the last 2 days [25].

The independent variables were housing tenure, food insecurity, energy poverty, and the coexistence of insecurities. Housing tenure (mortgage, renting, or squatting) was measured with the question “What type of tenure has led you to a situation of residential insecurity?” Food insecurity was measured by a dichotomous variable (yes/no) with the question

“In the last 12 months, have you ever reduced the size of your meals or skipped meals because there wasn’t enough money for food?” Energy poverty was assessed with a dichotomous variable (yes/no) indicating inability to keep the dwelling warm in the winter or having incurred one or more arrears in energy utility bills [26]. The coexistence of insecurities was measured by combining the two previous measures to obtain a three-category variable (one insecurity [housing insecurity only], two insecurities, or three insecurities). The other covariates were age, sex, country of birth (classified according to country income level [27]), household composition, employment status, educational level, and household income.

### Statistical Analysis

A description of the sample according to the covariates was performed, followed by a bivariate analysis between the explanatory variables and the mental health variables using the chi-square or the Fisher’s exact tests. Age-adjusted robust Poisson regression models (aPR) were fitted to estimate the association between independent variables and mental health variables. The aPR models to study the association of food insecurity with mental health were also fitted for energy poverty and vice versa.

All analyses were stratified by sex, using the statistical software STATA 14.0.

### Results

The following are the most relevant results. A total of 256 women (71.1%) and 104 men (28.9%) living in housing insecurity participated in the study. The mean age was 47.3 (SD  $\pm 11.7$ ) years among women and 48.0 (SD  $\pm 12.3$ ) years among men. Two-thirds of participants, both women and men, were born outside Spain. Among women, the most common household composition was single-parent households (38.8%) and couples with children (29.8%). Among men, the most common household composition was a couple with children (37.9%). Thus, 68.6% of women had dependent children, while this percentage dropped to 49.6% for men. Most women and men had completed secondary education, 66.9% and 60.4%, respectively. A large number of households lived on less than €750 per month,

both women (51.2%) and men (45.2%). Educational attainment and the household income level were low in both sexes. The most frequent housing tenure leading to housing insecurity was renting (women 40.6%, men 50.5%), while squatting also showed high rates (women 34.4%, men 27.2%). In addition to housing insecurity, more than half the participants experienced food insecurity (women 51.6%, men 53.1%) and/or energy poverty (women 63.3%, men 67.7%) (Table 1).

The prevalence of poor mental health was high in the three variables studied and was higher among women. A risk of poor mental health was reported by 89.0% of women and 85.3% of men. Depression and/or anxiety were reported by 63.5% of women and 44.2% of men. The use of psychotropic medication was 40.5% in women and 23.3% in men (Table 1).

The association between housing tenure and mental health showed that women living in squats had a higher prevalence of poor mental health (96.5%) than those with mortgages (82.3%) and this difference was statistically significant (aPR 1.16; 95% CI: 1.02–1.31) (Table 2). In men, the association between housing tenure and poor mental health showed an inverse pattern. The prevalence of poor mental health was higher among those with mortgages (90.9%) and was lower among those living in squats (74.1%). Male squatters had an aPR of 0.77 (95% CI: 0.595–0.997) compared with those with mortgages. In contrast, the prevalence of depression and/or anxiety was higher in male squatters (46.4%) and the use of psychotropic medication was higher among renters (25.0%), although these differences were not statistically significant (Table 3).

Mental health was also affected by the coexistence of insecurities. In women, the coexistence of housing insecurity and food insecurity conferred worse mental health than that of housing insecurity and energy poverty, or housing insecurity alone. The mental health analysis according to the number of coexisting insecurities showed a gradient relationship between the number of insecurities and poor mental health (3 insecurities: aPR: 1.21; 95% CI: 1.01–1.45) and self-reported depression and/or anxiety (3 insecurities: aPR: 1.55; 95% CI: 1.04–2.31) (Table 2). In men, mental health was also worse among those with both housing and food insecurity. This association was significant for self-reported depression and/or anxiety (aPR: 1.97; 95% CI: 1.20–3.22) (Table 3).

## Discussion

This study explored the issue of housing insecurity as a heterogeneous phenomenon depending on tenure status and the possibility of its coexistence with other life insecurities. Affected individuals were disproportionately women, migrants, households with dependent children—especially single-mother households—people with low educational levels, and the unemployed. These individuals had high levels of poor mental health, especially women. The mediation of housing tenure showed that, among women, those living in squats were more likely to have poor mental health. There was also a gradient effect in mental health in women according to the number of coexisting insecurities. The same gradient pattern was observed in men but was less clear, and the results of tenure mediation showed no clear pattern.

The present study shows the very high prevalence of mental health problems among people with housing insecurity, especially among women, which is several times higher than in the general population of Barcelona for the three variables studied [28]. This adverse relationship between housing insecurity and mental health also agrees with the evidence found in other studies carried out in the city of Barcelona [11] and in other settings [8–10]. The higher prevalence of poor mental health in women has been related to the sexual division of labor and gender roles due to a patriarchal system, which has adverse effects in all spheres of women's lives, including the area of housing security. Thus, for example, we observed that there were more single-mother families than single-father families, which could indicate a higher propensity to material deprivation among single women with children, as well as a heavier burden of family responsibilities than among their male counterparts, as reported by other studies [29, 30]. These economic and social conditions may explain women's higher exposure to material and psychosocial stressors in accessing and maintaining housing security and their association with worse mental health status.

In this study, women living in rented accommodation or squats had a higher prevalence of poor mental health than female property owners. The prevalence was significantly higher among those living in squats. One of the few existing studies on the effects of tenure on mental health reported that renters were more at risk of poor mental health than people with

**Table 1** Description of the population sample in residential insecurity by socioeconomic characteristics, housing tenure, coexistence of life insecurities and mental health status, stratified by sex

		Women ( <i>n</i> = 256) <i>n</i> (%)	Men ( <i>n</i> = 104) <i>n</i> (%)
Socioeconomic characteristics			
Age	18 to 34 years old	43 (17.0)	15 (14.4)
	35 to 49 years	104 (41.1)	41 (39.4)
	50 to 64 years old	89 (35.2)	41 (39.4)
	65 years or older	17 (6.7)	7 (6.7)
	Missing	3	-
Country of birth	Spain	80 (31.4)	34 (33.0)
	Low-or middle-income country	130 (51.0)	48 (46.6)
	High-income country	45 (17.6)	21 (20.4)
	Missing	1	1
Household composition	One-person household	45 (17.6)	27 (26.2)
	Couple with children	76 (29.8)	39 (37.9)
	Couple without children	16 (6.3)	9 (8.7)
	Single mother/Single father	99 (38.8)	12 (11.7)
	Other compositions	19 (7.5)	16 (15.5)
	Missing	1	1
Employment status	Employed	101 (40.1)	41 (40.6)
	Unemployed	115 (45.6)	51 (50.5)
	Domestic work	7 (2.8)	-
	Permanent disability	11 (4.4)	6 (5.9)
	Retirees and pensioners	18 (7.1)	3 (3.0)
	Missing	4	3
Educational level	Primary or less	45 (17.9)	27 (26.7)
	Secondary	168 (66.9)	61 (60.4)
	University	38 (15.1)	13 (12.9)
	Missing	5	3
Household income	< 750 €/month	130 (51.2)	47 (45.2)
	750–1500 €/month	91 (35.8)	43 (41.4)
	> 1500 €/month	33 (13.0)	14 (13.5)
	Missing	2	-
Housing tenure and coexistence of life insecurity characteristics			
Housing tenure	Owner with mortgage	62 (24.2)	23 (22.3)
	Renter	104 (40.6)	52 (50.5)
	Living in squat	88 (34.4)	28 (27.2)
	Missing	-	1
Food insecurity	No	123 (48.4)	52 (54.2)
	Yes	131 (51.6)	51 (53.1)
	Missing	2	1
Energy poverty	No	86 (35.1)	30 (31.3)
	Yes	155 (63.3)	65 (67.7)
	Missing	11	8

**Table 1** (continued)

		Women (n = 256) n (%)	Men (n = 104) n (%)
Coexistence insecurities	One	36 (14.9)	13 (13.7)
	Two	134 (55.4)	55 (57.9)
	Three	72 (29.8)	27 (28.4)
	Missing	14	9
Mental health status			
Poor mental health	Yes	227 (89.0)	87 (85.3)
	No	28 (11.0)	15 (14.7)
	Missing	1	2
Depression and/or anxiety	Yes	162 (63.5)	46 (44.2)
	No	93 (36.5)	58 (55.8)
	Missing	1	
Use of psychotropic medication	Yes	102 (40.5)	24 (23.3)
	No	150 (59.5)	79 (76.7)
	Missing	4	1

**Table 2** Mental health measure prevalences among women in residential insecurity and age-adjusted prevalence ratios (aPR)

	Poor mental health		Depression and/or anxiety		Use of psychotropic medication	
	n (%)	aPR CI 95%	n (%)	aPR CI 95%	n (%)	aPR CI 95%
Housing tenure						
Owner with mortgage	51 (82.3)	1	35 (57.4)	1	21 (34.4)	1
Renter	92 (87.6)	1.07 (0.93–1.23)	71 (67.0)	1.18 (0.91–1.52)	49(47.1)	1.33 (0.89–1.99)
Living in squat	84 (96.6)	1.16 (1.02–1.31)*	55 (63.2)	1.09 (0.82–1.45)	31 (36.1)	1.12 (0.71–1.78)
Food insecurity						
No	104 (84.6)	1	66 (53.7)	1	45 (36.9)	1
Yes	124 (94.7)	1.12 (1.02–1.23)*	95 (73.1)	1.35 (1.10–1.66)**	57 (44.2)	1.20 (0.87–1.63)
Energy poverty						
No	76 (87.4)	1	57 (64.8)	1	34 (39.5)	1
Yes	141 (89.8)	1.04 (0.95–1.15)	98 (62.4)	1.01 (0.83–1.23)	64 (41.0)	1.05 (0.76–1.44)
Coexistence of insecurities						
One	28 (77.8)	1	16 (44.4)	1	13 (37.1)	1
Two	120 (90.0)	1.15 (0.96–1.38)	87 (64.9)	1.46 (0.99–2.144)	53 (39.6)	1.07 (0.66–1.73)
Three	68 (94.4)	1.21 (1.01–1.45)*	50 (69.4)	1.55 (1.04–2.307)*	32 (45.1)	1.21 (0.73–2.01)

95%CI, confidence interval; aPR, age-adjusted prevalence ratio

\*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001

mortgages and those who owned their homes outright [14]. However, other studies suggest that mortgages may be an important source of mental health problems, with mortgage default having greater adverse

effects than the benefits provided by residential stability [15, 16]. Poor mental health among female squatters is probably related to the legal insecurity of their residential situation. Other factors are the economic

**Table 3** Mental health measure prevalences among men in residential insecurity and age-adjusted prevalence ratios (aPR) Prevalences and age-adjusted prevalence ratios (aPR) of poor mental health, depression and/or anxiety and use of psychotropic medications, in men

Men	Poor mental health		Depression and/or anxiety		Use of psychotropic medication	
	<i>n</i> (%)	aPR CI 95%	<i>n</i> (%)	aPR CI 95%	<i>n</i> (%)	aPR CI 95%
<b>Housing tenure</b>						
Owner with mortgage	20 (90.9)	1	9 (39.1)	1	4 (18.2)	1
Renter	46 (88.5)	0.96 (0.82–1.13)	23 (44.2)	1.13 (0.62–2.07)	13 (25.0)	1.40 (0.50–3.89)
Living in squat	20 (74.1)	0.77 (0.60–0.99)*	13 (46.4)	1.22 (0.61–2.46)	6 (21.4)	1.31 (0.38–4.62)
<b>Food insecurity</b>						
No	42 (80.8)	1	16 (30.8)	1	8 (15.4)	1
Yes	44 (89.8)	1.12 (0.97–1.30)	29 (56.9)	1.97 (1.20–3.22)*	15 (30.0)	1.86 (0.86–4.04)
<b>Energy poverty</b>						
No	27 (83.1)	1	16 (53.3)	1	9 (30.0)	1
Yes	55 (84.6)	0.91 (0.79–1.05)	27 (40.9)	0.87 (0.56–1.35)	21 (21.2)	0.77 (0.37–1.58)
<b>Coexistence of insecurities</b>						
One	12 (92.3)	1	4 (30.8)	1	2 (15.4)	1
Two	45 (83.3)	0.90 (0.74–1.08)	23 (41.8)	0.97 (0.40–2.33)	13 (23.6)	1.60 (0.39–6.37)
Three	24 (92.3)	1.00 (0.83–1.21)	15 (55.6)	1.32 (0.56–3.10)	7(25.9)	1.69 (0.40–7.10)

95%CI, confidence interval; aPR, age-adjusted prevalence ratio

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

deprivation experienced by these women and the possible accumulation of previous episodes of housing insecurity [19]. All of this currently occurs in a context of rising prices and difficulties in accessing properties, which has led to a highly restrictive housing market for vulnerable people.

In men, the pattern seemed to be reversed, although due to small sample size, caution must be exercised in interpreting the results. Men with mortgages were more likely to be in poor health than men living in squats. No significant differences were observed in the socioeconomic composition of the population according to tenure status, although we cannot exclude the possibility that this situation might be explained by other variables not studied (analyses not shown). Another possible explanation may be found in previous studies reporting that feelings of failure, shame, and stigma are common among people affected by foreclosures, with men, as a gender issue, being particularly vulnerable to their inability to be good citizens [19, 31] and breadwinners [29].

In this study, the prevalence of poor mental health was higher in people with food insecurity and/or fuel

poverty as well as housing insecurity. In addition, the greater the number of life areas affected, the higher the prevalence of poor mental health. These results point to a cumulative effect on the mental health of people affected by more than one insecurity. In high-income countries, the cost of housing represents a large percentage of household income, probably being the largest fixed expense in family or personal finances [22]. In Spain, where the role of the welfare state in housing is minimal, in situations of economic hardship, families resort to compensatory spending mechanisms, prioritizing the payment of housing to the detriment of other vital areas in the face of the adverse social and legal consequences of non-payment of housing. This decision results in fewer resources being allocated to other material needs, increasing the likelihood of food insecurity, energy poverty, or physical deterioration of housing, which in turn affects the health status of affected individuals [6, 19, 32, 33].

This study has several limitations. First, the sample size was small, which limited the statistical power and, consequently, some of the results should



be interpreted with caution, especially those relating to men. No records are kept on people with housing insecurity and they are poorly represented in population-based surveys. This hampers the study of this collective, which we therefore had to access through social movements, reducing the representativeness of our study. In contrast, the main strength of this study is that it makes this problem visible and provides evidence that could be used to help social collectives in their struggle for the right to decent housing. In addition, it focuses on studying the coexistence of housing insecurities with other life insecurities, an issue which has received little attention in housing research, although it is presumably common in such a vulnerable population.

## Conclusion

People affected by housing insecurity experience worrying levels of poor mental health. This relationship is exacerbated by the coexistence of other insecurities. Policy development should take into account the complexity of people affected by housing insecurity, who also experience insecurities in other areas of their lives.

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