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Foreclosure and Health in Southern Europe: Results from the Platform for People Affected by Mortgages

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ABSTRACT *Housing instability has been shown to be related to poorer health outcomes in various studies, mainly in the USA and UK. Affected individuals are more prone to psychiatric (e.g., major depression, anxiety) and physical disorders (e.g., hypertension). This situation has deteriorated with the onset of the economic crisis. One of the most affected countries is Spain, which has high rates of foreclosure and eviction that continue to rise. In response, a civil movement, The Platform for People Affected by Mortgages (PAH), works to provide solutions to its members affected by foreclosure and advocates for the right to decent housing. The aims of this study ware to describe and compare the health status of PAH members from Catalonia to a sample of the general population and to analyze the association between health status and mortgage status, foreclosure stage, and other socioeconomic variables, among members of the PAH. We conducted a cross-sectional study using a self-administered online questionnaire (2014) administered to 905 PAH members in Catalonia (>18 years; 559 women and 346 men). Results were compared with health indicators from The Health Survey of Catalonia 2013 (n = 4830). The dependent variables were poor mental health (GHQ 12 ≥ 3), and poor self-reported health (fair or poor). All analyses were stratified by sex. We computed age-standardized prevalence and prevalence ratios of poor mental and self-reported health in both samples. We also analyzed health outcomes among PAH members according to mortgage status (mortgage holders or guarantors), stage of foreclosure, and other socioeconomic variables by computing prevalence ratios from robust Poisson regression models. The prevalence of poor mental health among PAH members was 90.6 % in women and 84.4 % in men, and 15.5 and 10.2 % in the general population, respectively. The prevalence of poor self-reported health was 55.6 % in women and 39.4 % in men from the PAH, and 19.2 and 16.1 % in the general population, respectively. These health inequalities were independent of socioeconomic status. The prevalence of poor mental health was higher among individuals in the non-payment stage of foreclosure than among those who were up to date with their payments (e.g., $PR_c = 1.16$ [95 % CI 1.04–1.28]). In contrast, self-reported poor health was more prominent in later stages of foreclosure, such as in post-eviction without dation in payment stage in men ($PR_c = 2.24$ [95 %CI = 1.35–3.72]). We observed a considerably higher prevalence of poor mental and self-reported health*

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among male and female PAH members than in the general population. Public policies that tackle housing instability and its consequences are urgently needed in Spain.

KEYWORDS *Housing instability, Foreclosure, Evictions, Health, Crisis*

BACKGROUND

Following the collapse of the "housing market bubble" in 2007, and the ensuing economic crisis and consequent rise in unemployment, housing systems with a large fraction of ownership began to collapse, and the number of families who could not pay their mortgage began to increase rapidly. This situation resulted in serious housing instability problems in several European countries, particularly in Southern Europe, where the crisis has been more severe, triggering a significant increase in the number of foreclosures and the eviction of thousands of families to date.[1]

The Foreclosure Process and Health

Recent reports have explored the effects of the foreclosure process (from payment arrears to the post-eviction stage) on mental health and well-being and to a lesser extent on physical health. Cross-sectional studies, conducted mainly in the USA, have reported poorer mental health and well-being among individuals subject to foreclosure than those in stable housing.[2–4] In two successive studies, Pollack et al. found that people who were more than 2 months behind on their mortgage payments or who were involved in a foreclosure judgment had a higher prevalence of psychiatric disorders such as depression, anxiety, or dysphoria compared to people without housing instability.[5,6] Houle[7] recently reported that an increase in the rate of mortgage foreclosures at county level was associated with poorer mental health after adjusting for individual and contextual variables, while Fowler et al. suggested that housing loss is associated with increased suicide risk.[8] Foreclosure has also been reported to have physical health effects, including higher rates of hypertension and heart disease compared to the general population.[6,9]

This relationship has also been explored using cohort study designs. Data from the British Household Panel Survey in the UK show that individuals with mortgage payment arrears or who are in the later stages of eviction have poorer mental health and well-being than the general population.[10–12] Using data from a cohort of 662 women in Detroit, Osypuk et al. found that those who had recently experienced foreclosure had higher risk of severe symptoms of depression.[13] Finally, McLaughlin et al. observed in Detroit (USA) that individuals who had lost their dwellings due to foreclosure had higher rates of depression and generalized anxiety syndrome.[14]

While the mechanisms underlying this relationship are not entirely clear, foreclosure undermines the health-protecting effects of having a stable home, in addition to the burden and stress of the process itself. Qualitative studies using a psychosocial perspective suggest that the association between foreclosure and health outcomes is caused by fear and lack of control, the impact on social status, and shame or sense of failure.[10,15]

The Case in Spain

The Spanish housing system has some differentiating characteristics with respect to other European countries that may explain the serious foreclosure problem here. The current housing system is mainly market-driven, which limits the social response

to a public need for accommodation,[16] and ownership rather than renting is the main type of occupancy (currently ~85 %), with a very low percentage of social renting (<2 %).[17,18] Under Spanish law, a mortgage is a guarantee instated by the bank on a property to ensure payment of the loan. In the case of non-payment of the loan, and after notifying the debtor, the creditor can demand the auction of the property, whose price can be smaller than the original. Thus, while this sale is intended to pay the debt, if it is not sufficient, which is usually the case, the creditor can use the borrower's other assets to pay off the remaining debt; thus, dation, or surrender of the property, in payment is not a right.

The outbreak of the "subprime" crisis in 2007 and the international credit crunch strongly affected the Spanish economy and its housing market. This was accompanied by a progressive increase in unemployment rates, from 8 % in 2007 to 26.3 % in the second quarter of 2013(23.2 % in February 2015), and a decrease in disposable income, resulting in thousands of over-indebted families who were unable to pay their housing expenses.[19] Many families were compelled to make higher monthly mortgage payments than their income and had higher outstanding debts than the current value of their homes, which had decreased significantly.[20] Between 2008 and 2014, 604,489 foreclosure proceedings were initiated (~75 % of which were primary residences), and 378,693 evictions were ordered, of which 244,267 were executed.[21,22] Only one third of these cases were resolved through dation in payment.[23] Paradoxically, Spain has a stock of close to four million empty dwellings.[16–18] The administration has implemented some measures against this situation, such as a "code of good banking practices" and the "urgent measures to strengthen protection for mortgage holders" (Royal Decree-Law 27/2012), but none have effectively solved the problem.[21,24]

The Social Response: the Platform for People Affected by Mortgages

In response to this housing problem, civil society has self-organized alternatives for families affected by the crisis, including problems with housing payments. The Platform for People Affected by Mortgages (PAH) was created in 2009 with the aim of responding to problems of foreclosure, eviction and debt faced by thousands of families at various stages of the eviction process.[17] The PAH prevents the eviction of affected families, obtains reasonable relocation alternatives, and lobbies to increase the social housing stock and the creation of a dation in payment law.[20] The PAH has prevented 1663 evictions and re-housed 2500 people to date and have organized campaigns to position the housing issue on the public agenda.[25]

Objective

Given the distinctive characteristics of the Spanish housing market, and the particularly severe impact of the economic crisis in this country, the aim of this study was to generate knowledge on the impact of the foreclosure process on health in Spain. Our specific objectives are to:

i. Describe the socioeconomic profile and mental and self-reported health status of members of the Platform for People Affected by Mortgages (PAH), and compare these with the general population of Catalonia
ii. Analyze the association between the mental and self-reported health of PAH members and employment status, number of children, and various inequality axes (gender, social class, educational level, and immigration)

iii. Analyze the association between the mental and self-reported health of PAH members and the relationship with the mortgage loan and stage of foreclosure

METHODS

Design, Study Population, and Information Sources

Using convenience sampling, we performed a cross-sectional study of PAH members from Catalonia, or from the general population of Catalonia (to compare outcomes).

The main source of information was the 2014 Survey of People Affected by Mortgages, a self-administered web-based survey aimed at obtaining reliable information on evictions and people affected by mortgages. Data were collected from September 8 to November 19, 2014, and respondents were recruited via the PAH website, social networks (Facebook and Twitter) and through direct socialization by each of the PAH assemblies. One thousand two hundred eighty-one responses were received in the Autonomous Community of Catalonia during the survey period. The sample was mainly composed of people related to the PAH and was called "PAH members" in this study. Respondents who reported that they did not have a mortgage or had not had a mortgage in the last 5 years were excluded, giving a final sample of 905 individuals (559 women and 346 men).The sample included only one member per household.

Data for the general population were obtained via the 2013 Catalan Health Survey ($n = 3768$ adults), a cross-sectional study that has conducted two waves of data collection per year since 2010 (~2,400 interviews per wave). This survey recruits a representative multistage probability sample of the non-institutionalized population of each territorial health administration within Catalonia, stratified by age, sex, and municipality size, and updated in each wave. Interviews are conducted in participants' homes using a basic pre-coded and structured questionnaire, which is maintained in successive waves.[26]

Dependent Variables

We used two measures of health status for this study: mental health and self-reported health. Mental health was evaluated using the 12-item version of the General Health Questionnaire (12-GHQ), with participants scoring ≥ 3 classified as having a high probability of poor mental health.[27]Self-reported health was evaluated using the question, "How is your health in general?: Excellent, very good, good, fair, and poor". We created a dichotomous outcome variable, with the responses "fair" or "poor" coded as "poor self-reported health".[28,29] These two variables were asked in the same way in PAH and Catalonian surveys.

Independent Variables

We considered the following independent variables: employment status (due to its important relationship with housing payment problems), variables related to different inequality axes (gender, immigration, social class, and educational level, age), number of children (related to reproductive work and expenses), and housing instability (mortgage status [mortgage holders or guarantors] and foreclosure stage). Only the analysis of the PAH group considered the number of children, owing to the

difficulty of obtaining these data from the Catalan Health Survey. The categories used for each variable are shown in Table 1.

Mortgage status was evaluated using the question "Which is your relationship with the mortgage loan?": "I'm a current mortgage holder", "I'm a recent mortgage holder" (in the last 5 years), "I'm a guarantor" (someone who legally agrees to take on financial responsibility for another in the event of failure to meet debt obligations) and "I don't have and I haven't had a mortgage recently" (these people could be relatives of the affected or activists of the Platform). The latter were excluded from the analysis as already mentioned. Foreclosure stages were categorized into those who were up to date with payments (but in risk of default), those who were in default (non-payment stage), people who were in foreclosure waiting for the judgment of the court (foreclosure judgment stage), those who were evicted (post-eviction with dation in payment and without dation in payment stages) and people who could not be classified into one of the stages ("others"). These are the stages suggested by the Platform for People Affected by Mortgage and the researchers and reflect the usual steps of people with mortgage problem who end up evicted in Spain.

For evaluate the role of social class, we used the Spanish Society of Epidemiology's classification, which is based on the current or last occupation.[30] We used data on the interviewee's occupation, or if they had never worked, the occupation of another member of the household who was working at the time of the interview; responses were classified as *non-manual class* and *manual class*.

Data Analysis

We performed a descriptive analysis of all variables in PAH members and separately in the general population sample; we computed crude prevalence and standardized prevalence by the direct method, with the age distribution in the PAH sample as a reference (Table 1). We compared these distributions by fitting age-adjusted logistic or multiple/multivariable regression models.

We then compared the health status of PAH members to that of the general population sample by fitting robust Poisson regression models[31] to compute age-adjusted prevalence ratios (PR_a) of poor health status and their 95 % confidence intervals (95 % CI); we estimated PR_as overall and stratified by each explanatory variable. We obtained prevalence differences (PD) by subtracting the estimated age-standardized prevalence (Tables 2 and 3). We do not present the results for the *domestic workers* and *students* categories of employment status as they are not comparable between these samples (no observations among male PAH members); however, all observations were included in the analysis.

Among PAH members, we fit a distinct set of robust Poisson regression models to analyze the association between poor health and the explanatory variables, including those related to housing instability. We first estimated the age-adjusted prevalence ratios (PR_b) and 95 %CI, and then fit a multiple/multivariable model including all explanatory variables except social class and the relationship with mortgage loan. These variables were excluded due to collinearity with educational status and foreclosure stage, respectively.

All the data analysis was conducted separately for men and women[32] using STATA version 13.

TABLE 1 Crude ($\%_c$) and age-standardized ($\%_s$) percentage of explanatory variables and health outcomes in members of the Platform for People Affected by Mortgages (PAH) of Catalonia, and in a sample from the general population, stratified by sex

	Women					Men				
	PAH members ($n = 559$)		General population ($n = 1876$)		p value	PAH members ($n = 346$)		General population ($n = 1892$)		p value
	$\%_c$	$\%_s$	$\%_c$	$\%_s$		$\%_c$	$\%_s$	$\%_c$	$\%_s$	
Socioeconomic variables										
Employment status										
Paid workers	43.6	43.3	45.9	62.2	<0.001	45.7	46.8	53.8	68.4	<0.001
Unemployed with employment benefit	15.2	15.3	4.6	6.7		15.9	15.3	8.8	10.9	
Unemployed without employment benefit	24.5	24.3	5.3	6.9		23.7	23.8	6.4	7.3	
Retirees and pensioners	9.7	10	16.1	7.0		10.7	10.1	25.6	11.4	
Domestic work	3.8	3.8	22.4	15.5		–	–	–	–	
Students	0.5	0.5	4.8	1.5		–	–	5.1	1.7	
Missing	2.7	2.8	0.9	0.2		4.0	4.0	0.3	0.3	
Educational level										
Primary	19.7	19.8	23.1	14.1	<0.001	24.0	24.1	17.6	12.7	<0.001
Secondary	62.8	62.7	56.1	59.6		60.4	60.9	61.7	63.7	
College	16.1	16.1	20.7	26.3		14.2	13.5	20.6	23.5	
Missing	1.4	1.4	0.1	–		1.4	1.5	0.1	0.1	
Social class										
Non-manual	36.3	36.5	49.5	54.4	<0.001	30.3	29.3	47.3	49.1	<0.001
Manual	54.4	54	44.5	42.3		58.7	60.5	50.5	48.7	
Missing	9.3	9.5	6.0	3.3		11.0	10.2	2.2	2.2	
Immigration status										
Spanish	78.4	78.1	84.7	80.8	0.3	76.9	76.5	84.5	81.0	0.009
Foreign	19.7	19.9	15.3	19.2		21.4	21.7	15.5	19.0	
Missing	2.0	2.0	–	–		1.7	1.8	–	–	
Number of children										
None	44.9	44.5	–	–	–	42.8	43.7	–	–	–
1–2	48.8	49.4	–	–		49.4	48.3	–	–	
≥3	6.1	6.0	–	–		7.8	8.0	–	–	
Missing	0.2	0.1	–	–		–	–	–	–	

Housing instability data										
Mortgage status										
Mortgage holders	94.3	94.3	–	–	–	95.1	95.1	–	–	–
Guarantors	5.7	5.7	–	–		4.9	4.9	–	–	
Missing	–	–	–	–		–	–	–	–	
Stage of Foreclosure										
Up to date with payments	19.1	19.2	–	–	–	20.5	20.4	–	–	–
Non-payment	27.5	27.7	–	–		28.3	29.4	–	–	
Foreclosure judgment	22.5	22.5	–	–		20.2	19.5	–	–	
Post-eviction with dation in payment	12.7	12.5	–	–		11.8	12.6	–	–	
Post-eviction without dation in payment	2.5	2.5	–	–		2.6	2.5	–	–	
Others	7.0	8.3	–	–		13.6	10.6	–	–	
Not applicable (guarantors)	5.7	5.8	–	–		4.9	4.8	–	–	
Missing	1.4	1.5	–	–		0.3	0.3	–	–	
Health status										
Mental health										
Good	9.5	9.4	81.0	82.1	<0.001	16.2	15.6	86.9	87.9	<0.001
Poor	90.5	90.6	14.4	15.5		83.8	84.4	9.8	10.2	
Missing	–	–	4.6	2.9		–	–	3.3	2.1	
Self-reported health										
Good	45.3	44.4	75.0	80.8	<0.001	59.8	60.6	80.5	83.9	<0.001
Poor	54.7	55.6	24.9	19.2		40.2	39.4	19.5	16.1	
Missing	–	–	0.1	–		–	–	–	–	

TABLE 2 Age-adjusted prevalence (%) of poor mental health among members of the Platform for People Affected by Mortgages (PAH) and the general population (CAT), age-adjusted absolute (prevalence difference—PD) and relative (prevalence ratio—PR_a) differences, stratified by inequality axes and sex

	Women					Men				
	PAH	CAT				PAH	CAT			
	%	%	PD	PR_a	95 % CI	%	%	PD	PR_a	95 % CI
General	90.6	15.5	75.1	6.68	5.91–7.54	84.4	10.2	74.2	9.39	8.03–10.98
Educational level										
Primary	94.9	18.8	76.1	5.10	3.93–6.61	91.2	15.6	75.6	7.20	5.01–10.34
Secondary	92.1	14.9	77.2	7.14	6.07–8.4	82.2	10.6	71.6	9.06	7.46–11.01
College	81.1	15.0	66.1	6.36	4.75–8.52	72.5	6.4	66.1	12.05	7.71–18.83
Employment status										
Paid workers	85.7	13.7	72.3	7.20	5.96–8.72	78.0	6.4	71.6	15.00	11.33–19.80
Unemployed with employment benefit	95.3	21.4	73.9	4.57	3–6.95	80.7	21.0	59.7	3.70	2.66–5.17
Unemployed without employment benefit	94.5	22.4	72.1	4.14	2.77–6.2	93.5	14.0	79,5	6.80	4.30-10.70
Retirees and pensioners	93.6	41.1	52.5	3.47	2.44–4.95	94.4	18.0	76.4	7.60	5.06–11.51
Social class										
Non-manual	85.6	13.8	71.8	6.66	5.54–8	72.3	8.8	63.5	8.98	6.99–11.52
Manual	93.3	18.3	75.0	6.29	5.3–7.45	86.9	11.7	75.2	9.41	7.60–11.66
Immigration status										
Spanish	89.5	15.2	74.3	6.47	5.66–7.39	83.5	10.9	72.6	9.13	7.68–10.84
Foreign	93.9	15.2	78.7	7.76	5.54–10.85	82.1	8.0	74.1	11.76	7.79–17.79

TABLE 3 Age-adjusted prevalence (%) of poor self-reported health among members of the Platform for People Affected by Mortgages (PAH) and the general population (CAT), age-adjusted absolute (prevalence difference—PD) and relative (prevalence ratio—PR_a) differences, stratified by inequality axes and sex

	Women					Men				
	PAH	CAT				PAH	CAT			
	%	%	PD	PR_a	95 %CI	%	%	PD	PR_a	95 % CI
General	55.6	19.2	36.4	3.22	2.85–3.63	39.4	16.1	23.3	2.72	2.31–3.22
Educational level										
Primary	67.6	28.7	38.9	2.13	1.73–2.62	41.8	24.6	17.3	1.65	1.20–2.26
Secondary	54.0	19.9	34.1	3.28	2.79–3.86	38.4	17.0	21.4	2.75	2.20–3.43
College	45.7	10.8	34.9	4.87	3.3–7.17	32.4	6.70	25.7	5.00	2.97–8.46
Employment status										
Paid workers	47.5	13.4	34.1	4.09	3.26–5.12	30.7	10.4	20.3	3.58	2.63–4.86
Unemployed with employment benefit	47.7	23.1	24.6	2.21	1.44–3.38	46.7	24.5	22.2	1.98	1.32–2.97
Unemployed without employment benefit	63.6	27.2	36.4	2.71	1.78–4.11	39.4	26.9	12.5	1.87	1.18–2.96
Retirees and pensioners	74.0	74.5	−0.5	1.21	0.97–1.53	82.3	47.4	34.9	1.45	1.06–1.99
Social class										
Non-manual	47.1	14.7	32.4	3.31	2.67–4.09	36.4	11.6	24.8	3.32	2.46–4.48
Manual	58.9	23.9	35.0	2.94	2.51–3.44	38.5	20.7	17.8	2.30	1.85–2.86
Immigration status										
Spanish	54.8	17.9	36.9	3.18	2.77–3.64	41.7	15.7	26.0	2.89	2.41–3.46
Foreign	55.7	25.0	30.7	3.23	2.36–4.42	31.3	17.7	13.6	2.21	1.41–3.46

RESULTS

Sample Characteristics

Age-standardized results of the descriptive analysis of all variables in each sample are shown in Table 1. We observed a higher rate of unemployment and lower socioeconomic status in the PAH sample than in the general population sample, for both women and men. For example, the unemployment rate in the PAH sample (women, 39.5 %; men, 39.1 %) was more than double that in the general population (13.5 and 18.1 %, respectively). Similarly, the percentage of individuals from manual social classes was higher in the PAH sample, while that of people with a college education was lower. We found no significant differences in the proportion of immigrants between the samples.

Considering just the PAH sample, most members had one or two children (women, 49.4 %; men, 48.3 %), and were mortgage holders (women, 94.3 %; men, 95.1 %) rather than guarantors. Among mortgage holders, most PAH members were in the non-payment stage (women, 27.7 %; men, 29.4 %), followed by those subject to a foreclosure judgment (women, 22.5 %; men, 19.5 %), those who were up to date with their mortgage payments (women, 19.2 %; men, 20.4 %), and those who had already been evicted, with (women, 12.5 %; men, 12.6 %) or without (2.5 % in both sexes) dation in payment.

Health Status among PAH Members and the General Population

The prevalence of poor mental health and poor self-reported health among PAH members and in the general population are shown in Tables 2 and 3.

Mental Health The prevalence of poor mental health was 90.6 % among women and 84.4 % among men in the PAH sample, and 15.5 and 10.2 % in the general population sample, corresponding to a PR_a(95 %CI) of 6.68 (5.91–7.54) and 9.39 (8.03–10.98), respectively. As a measure of impact, the prevalence differences (PD) also are very high (women, 75.1 %; men, 74.1 %).

There were also notable differences between these groups after stratifying by explanatory variables (e.g., PR_a was 6.66 (95 % CI = 5.54–8; PD = 71.9 %) for women from the non-manual class was, and 6.29 (95 % CI = 5.3–7.45; PD = 75.1 %) for those from the manual class) (Table 2).

Self-Reported Health We observed important absolute and relative differences in self-reported health between PAH members and the general population sample, although these differences were less marked than for mental health. The prevalence of poor self-reported health was 55.6 % among women and 39.4 % among men from the PAH sample and 19.2 and 16.1 % in the general population sample, with a PR_a (95 %CI) of 3.22 (2.85–3.63) and 2.72 (2.31–3.22), and a PD of 36.4 % and 23.3 %, respectively (Table 3).

After stratifying, self-reported health was more affected in PAH sample in most of explanatory variable categories (Table 3).

Association between Socioeconomic Variables and Health Outcomes among PAH Members

The results of the association between the explanatory variables and health outcomes among PAH members are shown in Table 4.

TABLE 4 Age-adjusted prevalence (%) of poor mental health and poor self-reported health by explanatory variables, and relative differences (age-adjusted or prevalence ratio PR_b and multivariable adjusted or PR_c), in women and men from Platform for People Affected by Mortgage (PAH)

	Poor mental health										Poor self-reported health									
	Women					Men					Women					Men				
	%	PR_b	95 % CI	PRc	95 % CI	%	PR_b	95 % CI	PR_c	95 % CI	%	PR_b	95 % CI	PR_c	95 % CI	%	PR_b	95 % CI	PR_c	95 % CI
Socioeconomic variables																				
Educational level																				
College	81.1	1		1		75.5	1		1		45.7	1		1		32.4	1		1	
Secondary	92.1	1.16	1.04–1.30	1.15	1.03–1.27	82.2	1.09	0.92–1.30	1.06	0.89–1.28	54.0	1.28	0.98–1.63	1.20	0.93–1.55	38.4	1.07	0.72–1.61	1.01	0.67–1.53
Primary	94.9	1.20	1.07–1.35	1.18	1.06–1.32	91.2	1.21	1.02–1.44	1.18	0.99–1.41	67.6	1.52	1.15–2.00	1.37	1.03–1.82	41.8	1.21	0.78–1.88	1.07	0.70–1.65
Employment status																				
Paid workers	85.7	1		1		77.9	1		1		47.5	1		1		30.7	1		1	
Unemployed with employment benefit	95.3	1.11	1.04–1.19	1.07	1.00–1.15	81.8	1.05	0.90–1.22	1.02	0.87–1.18	47.7	0.96	0.74–1.24	0.85	0.65–1.11	46.7	1.53	1.06–2.20	1.47	1.02–2.13
Unemployed without employment benefit	94.2	1.10	1.03–1.17	1.08	1.01–1.16	92.7	1.10	1.07–1.32	1.15	1.03–1.29	63.6	1.32	1.09–1.38	1.19	0.99–1.44	39.4	1.38	0.98–1.94	1.25	0.87–1.79
Retirees and pensioners	92.6	1.08	0.99–1.18	1.06	0.97–1.16	86.5	1.11	0.95–1.30	1.10	0.93–1.29	74.0	1.45	1.17–1.80	1.39	1.09–1.76	82.3	1.93	1.31–2.85	1.87	1.22–2.88
Social class																				
Non-manual	85.6	1		–	–	72.3	1		–	–	47.1	1		–	–	–	1		–	–
Manual	93.3	1.10	1.03–1.17	–	–	86.9	1.15	1.01–1.29	–	–	58.9	1.28	1.08–1.53	–	–	–	1.03	0.77–1.38	–	–
Immigration status																				
Spanish	89.5	1		1		83.5	1		1		54.8	1		1		41.7	1		1	
Foreign	93.9	1.04	0.99–1.11	1.04	0.98–1.11	82.1	1.06	0.96–1.78	1.05	0.95–1.17	55.7	1.04	0.86–1.25	1.05	0.86–1.27	31.3	0.73	0.5–1.05	0.71	0.49–1.03
Number of children																				
None	86.8	1		1		82.6	1		1		52.6	1		1		39.8	1		1	
1-2	91.1	1.06	0.99–1.13	1.06	0.97–1.11	85.3	1.03	0.93–1.34	1.02	0.91–1.14	57.4	1.18	0.98–1.41	1.14	0.96–1.36	41.6	1.04	0.79–1.37	1.04	0.77–1.39
≥ 3	89.5	1.09	0.98–1.20	1.01	0.90–1.14	86.1	1.09	0.93–1.27	1.03	0.86–1.22	69.5	1.52	1.15–2.00	1.20	0.87–1.66	36.2	0.76	0.41–1.41	0.77	0.41–1.46
Housing instability data																				
Mortgage status																				
Mortgage holders	90.1	1		–	–	84.2	1		–	–	55.0	1		–	–	–	1		–	–
Guarantors	96.9	1.07	1.00–1.15	–	–	76.5	0.90	0.69–1.18	–	–	50.0	0.86	0.60–1.22	–	–	–	0.70	0.33–1.48	–	–
Foreclosure process																				

TABLE 4 ***Continued***

	Poor mental health										Poor self-reported health									
	Women					Men					Women					Men				
	%	PR_b	95 % CI	PRc	95 % CI	%	PR_b	95 % CI	PR_c	95 % CI	%	PR_b	95 % CI	PR_c	95 % CI	%	PR_b	95 % CI	PR_c	95 % CI
stages																				
Current on payment	80.6	1		1		66.7	1		1		43.4	1		1		31.0	1		1	
Non payment	94.9	1.18	1.07–1.30	1.16	1.04–1.28	88.9	1.26	1.07–1.49	1.23	1.04–1.47	55.8	1.26	0.97–1.64	1.25	0.95–1.65	36.5	1.14	0.75–1.73	1.14	0.74–1.75
Foreclosure judgment	92.9	1.16	1.04–1.28	1.12	1.01–1.25	81.8	1.22	1.02–1.46	1.15	0.96–1.38	65.5	1.53	1.19–1.98	1.47	1.12–1.93	40.3	1.28	0.93–1.98	1.27	0.83-1.96
Post-eviction with dation in payment	87.3	1.09	0.96–1.24	1.05	0.92–1.20	85.9	1.21	0.99–1.48	1.17	0.96–1.42	50.2	1.08	0.77–1.50	1.07	0.76–1.49	52.5	1.62	1.03–2.54	1.56	0.99–2.45
Post-eviction without dation in payment	77.5	1.16	0.97–1.37	1.10	0.91–1.33	82.0	1.26	0.96–1.66	1.13	0.86–1.50	73.2	2.02	1.48–2.76	1.89	1.32–2.70	75.3	2.42	1.49–3.93	2.24	1.35–3.72

Mental Health Compared to paid workers, we observed the poorest mental health in unemployed women and unemployed men without employment benefit. These associations remain significant after multivariate adjustment (PR_c), but only among those without unemployment benefit. Mental health was also worse among manual than non-manual workers, in both women [$PR_c = 1.10$ (95 %CI = 1.03–1.17)] and men [$PR_c = 1.15$ (95 %CI = 1.01–1.29)]. We observed a graded effect of educational level on poor mental health in both sexes, especially women. Finally, we found no significant association between mental health and immigration status or number of children among PAH members (Table 4).

Self-Reported Health We observed a significant difference in self-reported health status between female PAH members who were employed and those who were retirees or pensioners ($PR_c = 1.39$, 95 %CI = 1.09–1.76), but not between employed and unemployed women (receiving benefits or not). Among male PAH members, the greatest differences with respect to paid workers was observed among retirees and pensioners ($PR_c = 1.87$, 95 %CI = 1.22–2.88) and unemployed individuals receiving unemployment benefit ($PR_c = 1.47$, 95 %CI = 1.02–2.13). Unlike for mental health, we only observed a greater likelihood of poor self-reported health among women with a primary education (compared to those with college education), and those who were manual workers (compared with non-manual workers). The bivariate analysis showed that women with ≥3 children were significantly more likely have poor self-reported health status than those with no children ($PR_b = 1.5$, 95 %CI = 1.15–2.00), while those with 1 or 2 children showed no such difference. These effects disappeared after multivariate adjustment. We observed no significant differences for other categories of educational level or immigration status, under either the bivariate or multivariate models (Table 4).

Association between Foreclosure Stage and Health Outcomes

We observed differences in the distribution of poor mental and self-reported health among individuals in all foreclosure stages, compared to those who were either up to date with their mortgage payments or who had already been evicted. Women in the non-payment and judgment stage of foreclosure had 16 and 12 % greater probability of poor mental health than those who were up to date with their payments. We observed similar results among men, although these associations disappeared after multivariate adjustment, except among men in the non-payment stage of foreclosure ($PR_c = 1.23$ [95 %CI = 1.04–1.47]).

Self-reported health appears to be more affected in the later stages of the foreclosure process. Individuals who had been evicted without dation in payment had more than twice the prevalence of poor self-reported health than those who were up to date with their mortgage payments [PR_c(95 % CI): males, 2.24 (1.35–3.72); females, 1.89 (1.32–2.70)]. Men who had been evicted with dation in payment and women who were in the judgment stage of foreclosure had 56 and 50 % higher prevalence of poor self-reported health than those who were up to date with their mortgage payments (Table 4).

DISCUSSION

This is first Southern European study to show the high prevalence of poor mental and self-reported health among people affected by mortgages, and the striking

differences in these health outcomes with respect to the general population. Stratifying by axes of inequality such as gender, social class and education, or by employment status, these differences persist in almost all groups, indicating that the effect of foreclosure is independent of other variables. Moreover, we found significant socioeconomic inequalities in poor health outcomes among PAH members. We observed no marked differences between mortgage holders and guarantors in the prevalence of poor mental and self-reported health. Finally, poor mental health was more predominant during the early stages of the foreclosure process, whereas self-reported health is generally affected in later stages.

Health Status among PAH Members and the General Population

We observed various socioeconomic differences between PAH members and the general population, with the former having higher rates of unemployment, a lower educational level, and a larger proportion of manual workers. This reflects the reality of a disadvantaged group, which in turn has poor overall levels of mental and self-reported health. There is abundant evidence of the association between health and socioeconomic status, an indicator of power and resources.[33] However, this does not fully explain our results, since these differences remain in all categories, including the most disadvantaged groups, even after stratifying by inequality axes. We observe both relative (PR) and absolute (PD) differences, which reflect health inequalities between PAH members and the general population. Thus, our results indicate that the foreclosure process has a real effect on the health of those affected. These results are consistent with those of previous cross-sectional studies describing how people affected by foreclosure have poorer general health (measured using self-reported health) and poorer mental health (measured using the K6 scale and psychiatric diagnoses, such as depression and anxiety attack), compared with unaffected individuals.[2,3] This effect may be mediated by other unmeasured mechanisms, such as loss of one's dwelling, the consequent absence of a daily routine, fear and lack of control, loss of social status, shame, or sense of failure.[10,15]

In addition to socioeconomic variables, we also stratified our analyses by sex, as this is widely recognized as an important determinant of health inequalities. We found a higher prevalence of poor mental and self-reported health in women than men, which is consistent with previous evidence.[32]

Association between Socioeconomic Variables and Health Outcomes among PAH Members

In addition to the high prevalence of poor health outcomes among PAH members, we also observed differences within this group. We observed a higher likelihood of poor mental health outcomes in unemployed individuals, manual workers, and people with a primary education or less. The results for self-reported health were similar, although the associations were less clear among men. To our knowledge, previous studies of housing instability and health do not account for inequalities among people affected by foreclosure. This is an important issue because it highlights the ubiquity of social and health inequalities, even within groups that are already severely disadvantaged. Finally, we did not find an association between poor health and the number of children, unlike previous studies showing that family burden is a determinant of poor health in some circumstances.[34]

Relationship between Mortgage Status, Foreclosure Stage, and Health Outcomes

We did not observed remarkable differences in housing instability between mortgage holders and guarantors, but rather high rates of poor mental and self-reported health in both groups. However, guarantors accounted for only ~5 % of our study population, so further studies would be necessary in this group.

Moreover, we observed differences in the importance of each health outcome between stages, in that poor mental health was more affected in early stages of the process, while self-reported health was affected in later stages. This may be due to psychobiological mechanisms related to health inequalities.[35] Thus, job loss and problems with mortgage payments activate functional stress mechanisms that facilitate a better response to stress, but that also cause psychological distress in the short term. If maintained over time, i.e., during the later stages of the foreclosure process, this can lead to chronic stress, which increases risk of disease or functional disability, as reflected by poorer self-reported health.[28,29,35] However, it is important to note that these findings must be interpreted cautiously because it is a convenience sample and there are small effect sizes, so further research is needed to verify these suggestive patterns. We also observed a higher likelihood of poor self-reported health among individuals who were evicted without dation in payment and those with dation in payment, although this difference was not statistically significant. This difference may be due to the economic and social burden of having to maintain the mortgage debt, despite the loss of housing. The PAH has an important function in this respect, in that its members are more likely to obtain a better solutions to their mortgage problem than non-members: in our study, 83 % of evicted PAH members had obtained dation in payment, versus ~33 % of the general population.[36] The PAH has been an important pressure group since the beginning of the crisis, advocating for the right to decent housing, helping thousands of families to negotiate with financial institutions, and stopping evictions and re-housing of families.

Limitations and Strengths

This study has various limitations. First, the sample may not have sufficient power to detect significant differences between some categories (e.g., eviction with or without dation in payment), so our findings have to be interpreted cautiously. Second, as in all cross-sectional studies, reverse causality may occur, and in fact, some authors suggest that poor health is one of the causes of foreclosure.[6] However, some longitudinal studies show greater risk of poor health among individuals with a history of foreclosure or housing instability.[13,14] A recent systematic review on foreclosure and health found only two studies based on individual-level data, which accounted for this potential bias by adjusting for baseline (pre-foreclosure) comorbidity.[37] Third, we used a convenience sample, rather than a random sample, due to a lack of adequate records on the population of individuals affected by mortgage problems in Spain. This sampling method can introduce selection bias because it does not consider individuals who are affected by foreclosure but who are unable to actively participate (individuals with mobility problems, extreme poverty, the elderly, etc.). Such individuals would likely have even poorer health, so the associations would have been stronger. Also, we were unable to consider family type and reproductive work in the analysis because these data could not be compared between the PAH and general population samples. However, in comparable categories, PAH members had poorer health than individuals from the general population (Appendix).

Despite these limitations, this study provides new data on the association between housing instability and health in a distinct context to that of most previous studies, which have mainly focused on the USA and UK. Southern European countries have

been strongly affected by the economic crisis, and evidence on it effects in this context is particularly relevant. In addition, the work of the PAH has allowed us to study a hard-to-reach population: we recruited 905 individuals who were subject to foreclosure, which would otherwise not have been possible, due to a lack of records in this country. Similarly, another novel contribution of this study is that analyzes the health of individuals at different stages of the foreclosure process. This allows us to explore the mechanisms that underlie the effects of foreclosure on health.

Conclusions

The serious problem of foreclosure and evictions in Spain is far from being resolved and will likely continue in the coming years. This situation is associated with substantially poorer health in affected individuals, compared to the general population, which exacerbates social and health inequalities. This is an important motivation for further research and especially for implementing public policies (e.g., social rent, dation in payment, etc.) that tackle the housing instability that affects a sizeable proportion of the Spanish population.

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APPENDIX

TABLE 5 Age-adjusted prevalence (%) of poor mental health and poor self-reported health among the general population stratifying by family structure, in women and men

	Poor mental health				Poor self-reported health			
	Women (n = 2008)		Men (n = 1920)		Women (n = 2008)		Men (n = 1920)	
	n	%	*n*	%	*n*	%	*n*	%
Family structure								
Couple without children	53	14.4	32	7.2	119	18.6	127	13.2
Couple with children	143	14.3	107	9.7	213	19.6	170	15.1
Single parent	34	17.6	18	17.6	59	21.7	30	25.3
Two or more unrelated people	3	9.3	2	8.6	6	4.3	1	0.8
Household with two or more families	11	19.0	12	18.5	14	23.7	16	23.7
Living alone	43	35.3	13	6.9	83	16.5	25	13.5
Not classifiable	3	5.9	3	9.9	6	15.5	5	12.4

TABLE 6 Age-adjusted prevalence (%) of poor mental health and poor self-reported health among the people from PAH stratifying by family structure, in women and men

	Poor mental health				Poor self-reported health			
	Women ($n = 559$)		Men ($n = 346$)		Women ($n = 559$)		Men ($n = 346$)	
	n	%	*n*	%	*n*	%	*n*	%
Family structure								
Couple without children	116	90.9	67	72.2	72	55.9	38	37.7
Couple with children	191	93.8	138	85.1	117	62.9	61	39.1
Single parent	93	87.3	30	78.6	55	51.5	17	47.4
Single without children	105	82.8	55	88.5	62	49.4	23	38.6

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