

## RESEARCH REPORT

# Is cumulative exposure to economic hardships more hazardous to women's health than men's? A 16-year follow-up study of the Swedish Survey of Living Conditions

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**Background:** Previous research has shown an association between cumulative economic hardships and various health outcomes. However, the cumulative effects of economic hardships in regard to gender differences have not been given enough attention.

**Methods:** 1981 women and 1799 men were followed up over a period of 16 years (1981–1997), using data from the Swedish Survey of Living Conditions panel study. The temporal association between economic hardships and self-rated health, psychological distress and musculoskeletal disorders was analysed.

**Results:** A dose–response effect on women's health was observed with increasing scores of cumulative exposure to financial stress but not with low income. Women exposed to financial stress at both T<sub>1</sub> and T<sub>2</sub> had an increased risk of 1.4–1.6 for all health measures compared with those who were not exposed. A similar consistent dose–response effect was not observed among men.

**Conclusions:** There is a temporal relationship between cumulative economic hardships and health outcomes, and health effects differ by gender. Financial stress seems to be a stronger predictor of poor health outcomes than low income, particularly among women. Policies geared towards reducing health inequalities should recognise that long-term exposure to economic hardships damages health, and actions need to be taken with a gender perspective.

Access to economic and material resources shapes individuals' living conditions in a number of ways and constitutes one of the main determinants of health. Effects of low income and poor material standards on health outcomes are well documented.<sup>1–7</sup> Our knowledge of the mechanisms is so far incomplete but it is likely that the harm to health may come not only from material deprivation but also from the social and psychological problems of living in poverty. The knowledge of having less than others may create feelings of deprivation which may in turn affect health.<sup>8</sup>

The length of exposure has a role in the magnitude of the effect of economic hardships on health. Deprivation or economic hardships may vary from a temporary (acute) state to a sustained (chronic) state. To date, most of the documented evidence is based on cross-sectional data measures of economic hardships or poor resources and at only one point in time. The design of such studies fails to capture the health effects of sustained exposure to poor economic resources, or to account for transitions into and out of low-income groups.<sup>9</sup> The general finding from a small number of longitudinal studies available in international literature is that the effects of economic hardships are cumulative. Previous research has for instance found an association between cumulative economic hardships and various health outcomes ranging from poor self-rated health,<sup>10–11</sup> long-term illness,<sup>10–11</sup> poor psychological health or functioning,<sup>9–11–13</sup> poor physical health or functioning<sup>9–11</sup> to more severe health outcomes such as risk of coronary heart disease in women<sup>13</sup> and mortality risk.<sup>1–14–15</sup> Thus, the long-term lack of income is more harmful to health than occasional episodes, and economic hardships seem to affect health in various ways.

A large number of the previous studies of economic hardships have investigated a single health outcome, particularly cardiovascular disease, and rarely broad measures of health. Thus, the temporal associations between various measures of health status are not well documented and not

clearly understood. Furthermore, gender differences in relationship to the temporal association between economic hardships and health have rarely been evaluated. We analysed the temporal association between economic hardships and various health outcomes—self-rated health (SRH), psychological distress and musculoskeletal disorders.

SRH has been documented to be a robust and reliable measure of an individual's overall health status<sup>16–17</sup> and a strong predictor of mortality.<sup>18–19</sup> A vast literature has shown an association between psychological distress (negative emotions such as worries, anxiety and depressive symptoms) and adverse health outcomes such as coronary heart disease (CHD)<sup>20–24</sup> and also subsequent risks of suicide attempt, psychiatric disease, hospital care and all cause mortality.<sup>25</sup>

In Sweden, musculoskeletal disorders are the most reported causes of poor health and the leading causes of work absence, long-term work disability and early retirement, especially among women.<sup>26</sup> In 2001, 60% of people receiving disability pension or taking long-term sick leave had a diagnosed musculoskeletal disorder, most of whom belong to lower occupational status.<sup>27</sup> In addition, musculoskeletal disorders have been suggested to be associated with the inflammatory process that increases the risk for CHD<sup>28–29</sup> and to contribute substantially to the burden of disease (disability adjusted life years).<sup>30</sup>

We hypothesised that there is a temporal relationship between economic hardships and poor health outcomes. We also hypothesised that a higher cumulative exposure to economic hardships would predict poor health outcomes over a 16-year period. Therefore, we analysed the health effects of cumulative exposure to economic hardships from a gender

**Abbreviations:** CHD, coronary heart disease; SRH, self-rated health; ULF, Swedish Survey of Living Conditions

perspective using the panel data of the Swedish Survey of Living Conditions (ULF).

## METHODS

### Study population

We used the panel data from ULF, which has been conducted annually in Sweden since 1975. The ULF survey comprises a representative sample of the Swedish population aged between 16 and 84 years. Each individual participates in a 1-h face-to-face interview. Each year, half of the participants are selected for a panel investigation with 8-year intervals. The data in the present study were based on three-wave panel data from 1980–81 (expressed as  $T_1$ ), 1988–89 (expressed as  $T_2$ ) and 1996–97 (expressed as  $T_3$ ). The study sample comprises 3780 individuals (1799 men and 1981 women), aged between 16 and 68 years old (at  $T_1$ ), who participated in all the three panel waves. The present study was approved by the Stockholm Regional Ethics Committee (DNR 2005/1146-31) and conformed to the principles embodied in the Declaration of Helsinki.

### Main determinants

#### Economic hardships

Two variables were used to define economic hardships, financial stress and low income. Financial stress was measured on the basis of two variables, inability to pay ordinary bills (eg, food or rent) and lack of cash reserves (difficulty in raising 10 000 SEK within a week if anything unpredictable occurs). Low income was measured on the basis of records of disposable annual income in the tax office register being <60% of the median income ( $T_1 = 53\,700$  SEK,  $T_2 = 109\,800$  SEK,  $T_3 = 136\,400$  SEK).

Economic hardships were dichotomised and summed up at  $T_1$  and  $T_2$  (separately for financial stress and for low income). The sums for financial stress and for low income were 0, 1 and 2. A cumulative score was constructed and categorised as follows: 0 = not exposed at any time (reference category), 1 = being exposed at one instance, or 2 = being exposed at two instances.

#### Health outcomes

Health outcomes included three measures: SRH, psychological distress and musculoskeletal disorders. SRH was constructed based on the question "How do you assess your general health?" In 1988–89, there were three response alternatives (good, fair or poor), and poor or fair was regarded as poor SRH. In 1996–97, there were five corresponding response alternatives (very good, good, fair, poor or very poor); fair, poor or very poor was regarded as poor SRH. Psychological distress was measured based on the question "Do you suffer from nervousness, uneasiness or anxiety?" The three alternative answers were: "no", "yes, mild" and "yes, severe". The two latter categories were categorised as psychological distress. Musculoskeletal disorders were measured on the basis of a combination of three questions measuring different symptoms of musculoskeletal disorders. Questions were (1) "Do you suffer from pain in the neck or shoulder; (2) "Do you suffer from pain in the back or hips; (3) "Do you suffer from pain in the wrists; and elbows, legs or knees? The three alternative answers were "no", "yes, mild" and "yes, severe". The two latter categories were categorised as musculoskeletal disorders.

#### Covariates

Other covariates (confounding factors) included long-term illness (measured as whether the respondent had any long-term illness, after-effects from an accident or other ailment), age (years), family characteristics (categorised as married/cohabiting, living alone with children or living alone without

children), educational level (categorised as low if 9 years compulsory school or less), intermediate (if upper secondary school) or high (if university/college), occupational status (categorised as low if manual worker, intermediate if lower non-manual worker or high if intermediate or high non-manual worker), foreign born (measured as whether the respondent was born in or outside Sweden) and living in a metropolitan area (if respondents are living in a densely populated area).

### Statistical methods

Several articles in recent medical and public health literature have pointed out that, when the outcome event is common (with a prevalence of 10% or more), it is often more desirable to estimate the relative risk (RR) (using the prevalence ratio) than to estimate the odds ratio (OR).<sup>31–32</sup> To estimate the RR directly, binomial regression and Poisson regression are usually recommended. However, convergence problems may arise with binomial regression models<sup>32–33</sup> and the use of Poisson regression tends to provide conservative results.<sup>32–34–35</sup> In this study, a modified Poisson regression approach was used to estimate the effects of cumulative economic hardships at  $T_1$  and  $T_2$  on health outcomes at  $T_3$ . This method, unlike, for example, the ordinary logistic regression analysis, directly estimates the prevalence (risk) ratios of poor health in relation to economic hardships by using a robust error variance procedure known as a sandwich estimation.<sup>36</sup> Effects are presented as RRs and 95% confidence intervals (CIs).

To establish a causal relationship between economic hardships and health outcomes, economic hardships at  $T_1$  and  $T_2$  were regressed on health outcomes at  $T_3$ . Possible confounders (age, long-term illness, living alone with or without children, foreign born, living in metropolitan area, low educational level and low occupational status) that are known to influence both economic hardships and health outcomes were accounted for in all regression models. All analyses were conducted using SAS V.9.1.3.

## RESULTS

Tables 1 (women) and 2 (men) present the distribution of background characteristics of the study population across all three time periods. Women were more likely than men to be exposed to low income and to financial stress; 21% of the women, for example, were exposed to financial stress compared with 15% of the men in 1996–97. The corresponding figures for exposure to low income were 47% for women and 37% for men. The proportion of individuals with low income increased over time, whereas trends in financial stress were mixed, with the lowest prevalence in 1988–89. We also observed an increasing trend in poor health for all health measures among both women and men. Across all time periods, women were more likely to report poorer health than men.

### Cumulative effects of economic hardships on self-rated health

Relative risks from Poisson regression models, after adjusting for age, long-term illness, living alone with or without children, foreign born, living in a metropolitan area, low educational level and low occupational status, showed that women's health responded more strongly and persistently to exposures of cumulative economic hardships than that of men. We found that cumulative exposure to economic hardships as measured by financial stress showed persistent and statistically significant effects on all health outcomes among women (table 3). Furthermore, a dose–response effect on women's health was observed with increasing score of cumulative exposure to financial stress or low income. Women who were exposed to

**Table 1** Characteristics of study population over time; women (n = 1981)

	T <sub>1</sub> 1980–81 % (n)	T <sub>2</sub> 1988–89 % (n)	T <sub>3</sub> 1996–1997 % (n)
<b>Exposure</b>			
Financial stress (inability to pay ordinary bills or lack of cash reserves)	19.1 (377)	16.4 (323)	21.2 (413)
Low income (income below 60% of median income)	42.7 (845)	38.8 (769)	47.0 (930)
<b>Background factors</b>			
Age (range, mean, standard deviation)	16–68, 39 (15)	24–76, 47 (15)	32–84, 55 (15)
<b>Family characteristics</b>			
Living alone, without children	24.3 (481)	20.8 (411)	26.3 (520)
Living alone, with children	5.6 (111)	5.3 (104)	4.8 (94)
<b>Living in a metropolitan area (living in a densely populated area)</b>			
Foreign born (born outside Sweden)	10.6 (209)	10.7 (210)	10.2 (203)
Low educational level ( $\leq 9$ years of compulsory school or less)	44.8 (888)	34.4 (682)	33.2 (657)
Low occupational status (manual workers)	54.0 (943)	54.1 (943)	47.5 (939)
<b>Health outcomes</b>			
Long-term illness	36.7 (726)	45.9 (909)	57.4 (1137)
Poor self-rated health	19.3 (383)	22.9 (452)	31.4 (621)
Psychological distress	15.5 (306)	14.2 (279)	20.5 (399)
Musculoskeletal disorders	36.7 (436)	48.9 (665)	60.0 (855)

financial stress at both T<sub>1</sub> and T<sub>2</sub> had an increased risk of 1.4 (95% CI 1.1 to 1.7) for poor SRH, 1.6 (95% CI 1.2 to 2.2) for psychological distress and 1.6 (95% CI 1.4 to 1.8) for musculoskeletal disorders compared with women who were not exposed to financial stress at any time period. Cumulative exposure to low income did not show statistically significant effects on women's health (table 3).

Men who were exposed to financial stress at both T<sub>1</sub> and T<sub>2</sub> had an increased risk of 1.7 (95% CI 1.3 to 2.3) for poor SRH compared with men who were not exposed to financial stress at any time period. Furthermore, men who were exposed to low income at both T<sub>1</sub> and T<sub>2</sub> had an increased risk of 2 (95% CI 1.2 to 3.3) for psychological distress compared with men who were not exposed to low income at any time period. We did not find the same consistent or clear dose–response effect among men as we did among women. Men's musculoskeletal disorders did not seem to be affected by exposures to cumulative economic hardships (table 3). Further adjustments for employment

status (whether the respondent had employment the week before the interview or not) did not change our results.

## DISCUSSION

After multivariate adjustments, cumulative exposure to economic hardships as measured by financial stress showed persistent and statistically significant effects on women's health (all health outcomes), whereas cumulative exposure to low income did not show statistically significant effects on women's health. The results for men were more inconclusive than the results for women. Cumulative exposure to financial stress seemed to affect men's SRH, exposure to low income seemed to affect men's psychological distress, whereas neither exposure to low income nor financial stress seemed to affect men's musculoskeletal disorders. Hence, we did not find the same consistent or clear dose–response effect on the various health measures among men as we did among women.

**Table 2** Characteristics of study population over time; men (n = 1799)

	T <sub>1</sub> 1980–81 % (n)	T <sub>2</sub> 1988–89 % (n)	T <sub>3</sub> 1996–1997 % (n)
<b>Exposure</b>			
Financial stress (inability to pay ordinary bills or lack of cash reserves)	16.4 (292)	10.2 (182)	14.6 (261)
Low income (income below 60% of median income)	20.1 (361)	21.4 (384)	36.8 (661)
<b>Background factors</b>			
Age (range, mean, standard deviation)	16–68, 38 (14)	24–76, 46 (14)	32–84, 54 ( $\pm 14$ )
<b>Family characteristics</b>			
Living alone, without children	33.9 (609)	24.0 (432)	23.6 (425)
Living alone, with children	33.0 (593)	22.7 (408)	22.1 (397)
	0.9 (17)	1.3 (24)	1.6 (28)
<b>Living in a metropolitan area (living in a densely populated area)</b>			
Foreign born (born outside Sweden)	9.9 (177)	10.1 (182)	10.2 (184)
Low educational level ( $\leq 9$ years = compulsory school or less)	40.0 (719)	30.4 (546)	31.5 (566)
Low occupational status (manual workers)	56.5 (915)	56.4 (910)	50.8 (913)
<b>Health outcomes</b>			
Long-term illness	30.6 (551)	38.9 (700)	48.0 (864)
Poor self-rated health	14.5 (261)	17.5 (314)	24.3 (436)
Psychological distress	7.2 (128)	6.55 (117)	10.3 (183)
Musculoskeletal disorders	26.0 (161)	34.8 (442)	40.6 (523)

**Table 3** Cumulative exposure to economic hardships in relation to various health outcomes; risk rate ratios (95% CI)

Instances of cumulative exposure to economic hardships	Women			Men		
	Poor SRH T <sub>3</sub>	Psychological distress T <sub>3</sub>	Musculoskeletal disorders T <sub>3</sub>	Poor SRH T <sub>3</sub>	Psychological distress T <sub>3</sub>	Musculoskeletal disorders T <sub>3</sub>
Financial stress T <sub>1</sub> and T <sub>2</sub> *†						
0 (none)	1 (reference)	1 (reference)	1 (reference)	1 (reference)	1 (reference)	1 (reference)
1 (once)	1.22 (1.04 to 1.42)	1.23 (0.96 to 1.57)	1.38 (1.23 to 1.56)	1.18 (0.93 to 1.51)	1.26 (0.84 to 1.90)	1.20 (1.00 to 1.44)
2 (twice)	1.36 (1.11 to 1.68)	1.57 (1.15 to 2.15)	1.57 (1.36 to 1.81)	1.74 (1.32 to 2.31)	1.66 (0.95 to 2.88)	0.97 (0.69 to 1.37)
p Value for trend	<0.0001	<0.0001	<0.0001	<0.0001	0.0009	<0.0001
Low income T <sub>1</sub> and T <sub>2</sub> *‡						
0 (none)	1 (reference)	1 (reference)	1 (reference)	1 (reference)	1 (reference)	1 (reference)
1 (once)	1.27 (1.06 to 1.52)	1.20 (0.94 to 1.52)	1.109 (0.97 to 1.24)	1.05 (0.83 to 1.32)	1.06 (0.71 to 1.58)	0.82 (0.66–1.01)
2 (twice)	1.23 (1.01 to 1.50)	1.21 (0.92 to 1.60)	1.11 (0.96 to 1.29)	1.21 (0.93 to 1.60)	2.00 (1.22 to 3.27)	1.03 (0.77–1.36)
p Value for trend	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001

SRH, self-rated health.

†Inability to pay ordinary bills or lack of cash reserves.

‡Income below 60% of the median income.

\*Adjusted for age, long-term illness, living alone with or without children, foreign born, living in a metropolitan area, low educational level and low occupational status.

Previous research has found an association between cumulative economic hardships and various health outcomes ranging from poor SRH to mortality risk. Consistent with the present study, Lynch *et al*<sup>9</sup> have found strong consistent graded associations between the number of times the respondents in the Alameda County study were exposed to an income less than 200% of the federal poverty level and their physical, mental and cognitive functioning over a 29-year follow-up period. Benzeval and Judge<sup>11</sup> have investigated the relationship between income (income dynamics, the role of long-term income, etc) and various health measures (SRH, GHQ, general health problems and limiting illness) for adult participants in the British Household Panel Survey with data from 1991 to 1996–97 and conclude that the findings from their study confirms the results from previous longitudinal studies: “Long-term income is more important for health than current income; income levels are more significant than income change; persistent poverty is more harmful for health than occasional episodes; and income reductions appear to have a greater effect on health than income increases”.

In the field of life-course epidemiology, Harper *et al*<sup>12</sup> found that life-course socioeconomic position (measured in terms of parental occupation and education in childhood and income in adulthood) is associated with adult psychosocial functioning and McDonough *et al*<sup>10</sup> have found that life-course trajectories of poverty are associated with poor self-rated health. These findings are consistent with the findings from the present study but previous research has also touched upon more severe health outcomes which are not investigated in our study. Wamala *et al*<sup>13</sup> have for instance examined various life-course socioeconomic indicators in relation to CHD risk in women and found that exposure to cumulative socioeconomic disadvantage across all stages in the life-course shows strong graded associations with CHD risk. Hart *et al*,<sup>15</sup> Smith and Zick<sup>14</sup> and Menchik<sup>1</sup> have found similar associations when analysing mortality risk.

However, many of these previous longitudinal studies have used a single measure of economic hardship based on income (subjects living under subsistence level or a poverty level) whereas our study is based on two measures. In addition to a measure of low income, we have analysed the effect of financial stress—inability to pay ordinary bills, for example, food or rent and lack of cash reserves.

The results from our analyses indicate that financial stress seems to be a stronger predictor of poor health outcomes than low income, especially for women. Women’s exposure to financial stress was cumulatively hazardous to their overall health. Among men, a similar exposure only worsened their

SRH, whereas low income caused psychological distress. These results indicate that for women, it is not low income in itself but the ability to financially manage daily life that seems to be most important for their health and well being. Traditionally men have had the main responsibility of ensuring financial welfare of the household for many decades. However, in recent decades, Sweden has witnessed a marked flow of women into the labour market; for instance, the labour force participation rate of Swedish women increased from 54.1% in 1965 to 75% in 2000 in the age group of 16–64 years.<sup>37</sup> Compared with many other countries, these figures are relatively high; the corresponding figure for the United States was 54.1% in 2000.<sup>37, 38</sup> Hence, Sweden is one of the countries which have moved the furthest away from the traditional breadwinner society.<sup>39</sup> Due to a high labour participation rate in combination with comprehensive welfare state support for children (such as day care, schools, child allowance and advance maintenance payment), Swedish women are nowadays financially more independent than their counterparts in most other countries. Concurrently, the divorce rate has increased and during the 1990s was among the highest in Europe, ranging from 44% to 55%.<sup>40</sup> Hence, our study indicates that there has been a shift towards gender equity concerning responsibilities for the financial situation. Today, Swedish women have similar concerns to men when it comes to their own or their families’ financial situation.

The fact that there was a higher proportion of single mothers (5%) than men (1%) may partially explain why the magnitude of the effect of financial stress on poor health outcomes appeared to be stronger for women than men. This is because single parenting has been associated with economic hardships<sup>41</sup> and increased mortality.<sup>42</sup> Nevertheless, single parenting seems an unlikely explanation of the results observed. We adjusted for family characteristics and these attenuated the association between financial stress and poor health outcomes only in part, and the results remained statistically significant.

Results of the present study should be interpreted with consideration of its strengths and limitations. First, the associations between low income and poor health outcomes may be due to inadequate measurement of income—which was based on individual rather than household annual income. Data on equalised disposable income from the household are usually preferable to income based on individual annual earnings, as the former include after tax household total income, including all transfers and adjustments for household size. However, these two measures have been documented to be compatible in relation to health effects. Fritzell *et al*<sup>7</sup> have found

### What is already known

- Exposure to cumulative economic hardships has been shown to influence health outcomes and mortality risk.

### What this paper adds

- Results in this paper indicate that financial stress seems to be a stronger predictor of poor health outcomes than low income, particularly among women.
- The magnitude of the causal relationship between cumulative economic hardships and poor health outcomes differs by gender.

### Policy implications

- Policies geared towards reducing health inequalities should counteract long-term exposure to economic hardships.
- Gender-sensitive policies are needed to reduce socio-economic inequalities in health.

a clear association with health for both measures although the association was steeper for individual earnings. Similar associations were found for both women and men.

The advantage is that data on income was collected via tax office registers, which usually gives more reliable data on income (particularly in Sweden) than that based on the respondents' self-reports. However, we have a larger number of subjects (mainly women), whose annual income from work was zero, or very low in our dataset. It is possible that at least some of our subjects have been misclassified as having a low income owing to incomplete data on transfers. This is because some of the subjects who were classified as having zero or low income may have received compensation from other monetary or non-monetary resources such as transfers (eg, unemployment benefit, compensation from spouse), that are not included in our measure.<sup>43–47</sup>

Our results might hence partly be explained by measurement errors of income or misclassifications of low income in one direction or the other. It is also plausible that our second measure of economic hardship, financial stress, is more directly measuring an individual's experience of his or her own financial situation, regardless of whether the person is classified as poor or not according to his or her income. As pointed out in previous research on poverty, individuals with low income do not necessarily have to show any signs of living in poverty or feel impoverished at the same time as individuals with incomes over the poverty line do not necessarily have to show any obvious "poverty symptoms".<sup>44–49</sup> Hence, financial stress might possibly be a stronger predictor of ill health than low income as it encompasses the actual experience of financial circumstances. Our findings support Sen's argument that "It is not so much what one has that is important but rather what one can do with what one has".<sup>50</sup>

Secondly, the choice of health outcomes used here is based on their relevance for morbidity of major causes of death and longevity.<sup>16–25 28–30</sup> However, there are some concerns related to measurements. For example, the measure of psychological distress which is based on the respondent's report on one single-item question measuring feelings of nervousness, uneasiness and anxiety, may not be equated to that based

on psychiatric screening instruments used in a clinical setting. Nevertheless, a study by Ringbäck-Weitoft *et al*<sup>25</sup> has shown that this single-item question is strongly related to subsequent risks of suicide attempt and psychiatric disease and also associated with risks for all cause mortality, inpatient care and ischaemic heart disease (IHD) in the Swedish population.

Thirdly, unlike most previous studies, we have measured the association between economic hardships and health at more than one point in time and over a long period of time—16 years. This longitudinal study design with repeated measurements over a 16-year period enabled us to study and draw conclusions on temporal relationship between economic hardships and health outcomes. In addition, we have adjusted for health selection—that is, controlled for health status at baseline (evidence of long term illness at T<sub>1</sub>), thus minimising the possibility of baseline poor health affecting subsequent economic hardships. Thus, findings in the present study add to the evidence of income and health association as shown by some previous studies.

However, the measure of cumulative exposure to socio-economic hardships used in this study is limited to only three observation points in time. This implies that temporal fluctuations into and out of economic hardships in between these three time periods were not analysed. It also assumes that any particular instance of economic hardships has the same value regardless of when it occurs in time. The fact that the studied time periods correspond to some major changes in Swedish society, including a recession in the early 1980s, an economic boom of the late 1980s and a major economic crisis at the beginning of the 1990s, might have biased our findings. This pattern is supported by our observations that the proportions of individuals with economic hardships were larger at T<sub>1</sub> (1980–81) than T<sub>2</sub> (1988–89). Nevertheless, the consistent temporal associations between financial stress and women's health cannot be ignored.

Due to lack of data, the present study did not include exposure to economic hardships during childhood. To receive a more complete understanding of the impact of socioeconomic hardships on adult disease, circumstances throughout the entire life span should be taken into consideration alongside those in adulthood.<sup>51–53</sup> Furthermore, we did not analyse the underlying mechanisms—for example, material standards and social resources.<sup>54</sup> Nevertheless, unlike several population-based surveys, ULF has a major advantage of collecting data on the basis of face-to-face interviews which generally provide more reliable information than that obtained from mailed questionnaires.

## CONCLUSIONS

In conclusion, this study indicates that there is a temporal relationship between cumulative economic hardships and poor health outcomes and health effects differ by gender. Financial stress seems to be a stronger predictor of poor health outcomes, than low income particularly among women. Policies geared towards reducing health inequalities should recognise that long-term exposure to economic hardships damages health and actions need to be taken with a gender perspective to counteract long-term exposure to economic hardships.

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