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for Lifelong Adverse Experiences**

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Monitoring Health Inequalities in France: A Short Tool for Routine Health Survey to Account for Lifelong Adverse Experiences

Emmanuelle Cambois^{a*} and Florence Jusot^b

Abstract

Conventional health surveys focus on current health and social context but rarely address past experiences of hardship or exclusion. However, recent research shows how such experiences contribute to health status and social inequalities.

In order to analyse in routine statistics the impact of lifelong adverse experiences (LAE) on various health indicators, a new set of questions on financial difficulties, housing difficulties due to financial hardship and isolation was introduced in the 2004 French National health, health care and insurance survey (ESPS 2004).

Logistic regressions were used to analyze associations between LAE, current socioeconomic status (SES) (education, occupation, income) and health (self-perceived health, activity limitation, chronic morbidity), on a sample of 4308 men and women aged 35 years and older.

In our population, LAE were reported by 1 person out of 5. Although more frequent in low SES groups, they concerned above 10% of the highest incomes. For both sexes, LAE are significantly linked to poor self-perceived health, diseases and activity limitations, even controlling for SES (OR>2) and even in the highest income group. This pattern remains significant for LAE experienced only during childhood.

The questions successfully identified in a conventional survey people exposed to health problems in relation to past experiences. LAE contribute to the social health gradient and explain variability within social groups. These questions will be useful to monitor health inequalities, for instance by further analyzing LAE related health determinants such as risk factors, exposition and care use.

Keywords: Health inequalities; Lifelong adverse experiences; Health surveys.

JEL codes: I12; I32.

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Résumé

Les enquêtes santé usuelles renseignent l'état de santé et le statut socio-économique actuels des individus mais ne permettent que rarement d'aborder les expériences passées de précarité ou d'exclusion. Des recherches récentes montrent pourtant l'impact de ce type d'expérience sur l'état de santé et qui expliquent en partie les inégalités sociales.

En 2004, de nouvelles questions ont été incluses dans l'Enquête sur la santé et la protection sociale (ESPS) afin d'étudier l'influence sur l'état de santé de plusieurs types d'expériences difficiles vécues au cours de la vie : difficultés financières, difficultés de logement dues à des problèmes financiers, période d'isolement. Les régressions logistiques sont utilisées pour analyser les associations entre ces expériences difficiles vécues au cours de la vie, le statut socio-économique actuel (éducation, occupation, revenu) et l'état de santé (santé perçue, limitation d'activité et maladie chronique) pour un échantillon de 4 308 hommes et femmes âgées de 35 ans et plus.

Dans cette population, une personne sur cinq déclare avoir connu au cours de sa vie au moins l'une des expériences considérées. Même si les personnes appartenant aux groupes sociaux les plus défavorisés sont plus fréquemment concernées, 10 % des personnes appartenant au plus haut quintile de revenu le sont également. Chez les hommes comme chez les femmes, la déclaration d'expériences difficiles passées est associée à une plus mauvaise santé, quel que soit l'indicateur de santé utilisé, y compris après contrôle par le statut socio-économique actuel. Enfin, les résultats restent très similaires lorsque l'on ne considère que les expériences difficiles vécues pendant l'enfance.

Ces questions permettent donc d'identifier avec succès dans une enquête traditionnelle des personnes vulnérables en termes de santé en raison d'expériences difficiles passées. Ces expériences difficiles vécues au cours de la vie contribuent non seulement à expliquer les inégalités de santé entre groupes sociaux mais également les inégalités de santé au sein de chaque groupe. Ces questions constituent donc un bon instrument de surveillance des inégalités de santé, par exemple à travers l'analyse des comportements de santé et du recours aux soins en lien avec ces expériences.

Mots-Clefs : inégalités de santé ; expériences difficiles au cours du cycle de vie ; enquêtes santé.

JEL codes : I12 ; I32.

1. Introduction

In France, social inequalities in mortality are large and persistent over time¹⁻³. Education, occupation and income, which reflect current social and material context, are predictors of mortality and are significantly associated with the risk of diseases or disability⁴⁻⁷. However, life course epidemiology points out that not only the current socioeconomic status but also past trajectories are linked to health. The accumulation of exposure to risk factors over the life course (childhood deprivation, damaging work conditions, etc.) and their impact at critical periods of life and health construction contribute to health deterioration⁸⁻¹⁴.

Regarding the impact of social context during childhood, studies show clear associations with mortality risk and specific causes of death such as stomach cancer^{10, 15}. The childhood context is significantly linked to various health problems in later life such as chronic diseases, psychological and psychosocial problems¹⁶⁻¹⁹ and in France with poor functional health, poor self-assessed health status or obesity²⁰⁻²². The health impact of childhood circumstances is explained by specific early life factors has to do with material deprivation but also stress and conflict on a child²³, or isolation, social support and attachment^{24, 25}.

In later life, adverse experiences such as hardship, downward occupational mobility or family disruptions are also significantly associated with poor health or high mortality risks²⁶⁻²⁹. In France, mortality is associated with occupational careers or experience of isolation³⁰⁻³³.

Such adverse experiences can lead to social marginalization and can contribute, together with the current context of hardship and deprivation, to a higher health risk for groups of the population considered as excluded. For Shaw and colleagues, social exclusion “refers not only to the economic hardship of relative economic poverty but also incorporates the notion of the process of marginalization”³⁴. The triggers of a marginalization process, such as job loss, migration, isolation or conflict could indeed be health damaging through a disruption in social networks, habits and support. Research in the field of exclusion and health in France has shown that the poor health status of specific groups such as homeless people or free-care center users, can be explained by the lack of material resources, poor living conditions, inadequate access to health care and health-damaging behaviors but also may be due to psychosocial factors such as lack of emotional and social support, poor self-esteem and life control³⁵⁻³⁷. For these groups of people, the combination of current material deprivation, psychosocial disadvantage and past experiences of disruptions and failures that led to exclusion might explain their poor health. Moreover whilst these circumstances may be only temporary, having undergone them over the life course might still be health damaging.

Therefore, lifelong adverse experiences, leading or not to exclusion, can increase health risks beyond the current social context. They are important social factors to be considered in monitoring population health, but routine statistics lack accurate tools. The link between adverse experiences and health is generally analyzed through ad-hoc surveys or cohorts, which are not fully representative of the general population and are usually not repeated, preventing time trends analysis. When population based surveys incorporate information on past experiences, collected through biographic tools, they have limited data on health outcomes. Finally, biographic tools are generally too large to be included on a regular basis in population health surveys.

In this study, we have explored the feasibility of identifying lifelong adverse experiences in conventional health surveys with a simple and short tool in order to provide more regular general information on this topic to complement specific studies. This would be a relevant tool to document variations in health exposure and behaviors and explain the health and mortality social gradients. The issue is to identify experiences over the life course rather than concentrating on the current situation while regular survey samples tend to exclude people currently experiencing them (not living in households, hard to reach, not willing to participate etc.). Indeed, we consider that most of the adverse experiences are temporary and do not systematically result in permanent social exclusion. In 2004, a short set of questions on lifelong adverse experiences (LAE) was introduced in a population health survey in France. The questions relate to selected situations of material and social difficulties that might have occurred during the whole life. This study explores how these LAE questions are reported in the general population, how they are associated with current social situation and impact on health and finally how they can bring new insights in the analysis of social health inequalities.

2. Methods

2.1. The National Health, Health Care and Insurance Survey

The National Health, Health Care and Insurance Survey is a biannual health interview survey coordinated by the Institute for Research and Information on Health Economics (IRDES), with a sample based on an ongoing random sample of French major health insurances' beneficiaries (covering over 95% of the household community). In 2004, about 40% of households sampled could not be reached (mostly due to incomplete or wrong addresses); 70% of the contacted households agreed to participate³⁸. Initially, households are contacted by telephone to obtain a key respondent to answer the core questionnaire eliciting the demographics of the household members and a selection of questions including, in the 2004 wave, the set of questions on lifelong adverse experiences (LAE). As a second step, a self-completion health questionnaire is sent to each household member for return by mail. In 2004, 75% of the initial sample returned the questionnaire.

2.2. Lifelong adverse experiences

LAE were assessed through three questions aimed at identifying lifetime experiences of deprivation and hardship in a general population. We adapted existing questions on financial deprivation but which had focused only on recent experiences of financial difficulties or housing difficulties. An additional question was included to elicit social disruption through experiences of isolation. The question wording was as follows: Has the person ever, during his/her life, 1) "experienced serious financial difficulties so that he/she could not meet basic needs or that he/she did not cope with these difficulties"; 2) "needed to move in with relatives or friends or to move into sheltered housing as a result of financial difficulties"; 3) "experienced a long term period of isolation following an event such as a breakup, conflict or a move to another area or country". In order to assess the long term impact of LAE, for the last two questions, individuals were asked whether these experiences had occurred during childhood only, during adulthood only or both (financial difficulties might be less obvious to children and therefore less reliably reported as childhood experience by the surveyed persons).

2.3. Health indicators

We used the Eurostat Minimum European Health Module ³⁹ incorporated to this survey and which contains three questions: chronic morbidity (“Do you have any chronic or long-lasting illness or health problem?”); self-perceived health (“How is your health in general?”); long term activity limitations (“Because of health problems, to what extent have you been limited, for at least 6 months, in activities people usually do?”). They cover complementary health dimensions which reflect potential need for care. Three binary indicators were built based on the three questions: reporting chronic illness *vs* no to the others, reporting being limited *vs* not limited, and reporting to have fair to very poor health *vs* good or a very good.

2.4. Indicators of current social status

To control for current socioeconomic status (SES), three indicators were used: education, income and occupation. Income was measured as household income, whatever the source, divided by the OECD equivalence scale (1 for the first household member, 0.5 for the second one, and 0.3 for the additional ones). Five quintiles were defined and an additional category was added corresponding to missing information (approximately 12%). We considered four educational levels and the occupational status was measured by current occupation, or the previous occupation for those retired or unemployed. We used the French professional and social status classification: Highly qualified occupations (professionals, managers, and intellectual professions); Skilled white-collar workers (nurses, elementary school teachers, technicians...); Farm owners; Other self-employed (trade and craft business owner); Trade and craft clerks; Clerical employees; Skilled manual workers; Unskilled manual workers and farm workers; Inactive (other than retired).

2.5. Statistical method

In order to explore the long-lasting influence of LAE on health status, we used a series of logistic regression models, with adjustment for age, to assess:

- a) the association between LAE and each SES indicator (income, occupation, education separately (model 1) and in the presence of the others (model 2),
- b) the association between each health indicator of the LAE and SES, considered separately (model 3) and together (model 4),
- c) the association between each health indicator and the period in which the LAE occurred (model 5 and 6).

Men and women were analyzed separately due to the gender specific association between the usual SES indicators and health or mortality ^{30,40}.

The LAE are based on self-reported retrospective information, and therefore respondents may be more likely to report LAE that have resulted in diseases or activity limitations and to omit others, and it is difficult to test for such bias. Furthermore, respondents currently experiencing health problems and poor psychological well-being, and/or material and emotional difficulties, may be more likely to “darken” their past (reconstruction phenomena) ²⁴. To control this, we ran additional models integrating

variables for current emotional well-being and psychological distress and see if a LAE effect remains. We used survey variables corresponding to “self-reported symptoms of depression” and/or “reported intake of psychotropic medication” in a self-reported medication intake classified *a posteriori* by physician.

3. Results

3.1. Frequency of LAE and current SES

This study is based on 1915 men and 2393 women, aged 35 and over who responded to both the background and health questions. Table 1 provides the distribution of the sample according to the SES status, LEA and health indicators.

Table 1: Descriptive analysis of the study Sample (2004 ESPS survey)

Age and SES		Male		Female	
		N	%	N	%
<i>Age groups</i>	35-44	518	27.1	691	29.0
	45-54	509	26.6	650	27.2
	55-64	392	20.5	442	18.5
	65-74	291	15.2	330	13.8
	75 and over	205	10.7	280	11.7
<i>Level of education</i>	Primary	422	22.0	621	26.0
	1st level of secondary school	788	41.2	843	35.2
	2d level of secondary school	236	12.3	359	15.0
	Post-secondary education	466	24.3	561	23.4
<i>Occupational class</i>	Highly qualified occupations	390	20.4	220	9.2
	Skilled white collar occupations	376	19.6	486	20.3
	Farmers	118	6.2	101	4.2
	Self-employed	185	9.7	110	4.6
	Clerk, clerical employees	114	6.0	603	25.2
	Trade and craft clerks	33	1.7	435	18.2
	Skilled blue collar workers	555	29.0	163	6.8
	Unskilled blue collar workers	141	7.4	185	7.7
	No (or unknown) occupation	3	0.2	90	3.8
	<i>Equivalent income</i>	1st quintile	255	13.3	373
2d quintile		284	14.8	413	17.6
3 rd quintile		346	18.1	417	17.4
4 th quintile		340	17.8	422	17.6
5th quintile		470	24.5	465	19.4
Unknown		220	11.5	303	12.7
Health indicators		N	%	N	%
<i>Self-perceived health</i>	Very good or good	1 379	72.0	1 599	66.8
	Fair, poor or very poor	536	28.0	794	33.2
<i>Chronic diseases</i>	None	1 271	66.4	1 562	65.3
	At least one	644	33.6	831	34.7
<i>Activity limitation</i>	Not limited	1 514	79.1	1 855	77.5
	Limited	401	20.9	538	22.5
Lifelong adverse experiences (LAE)		N	%	N	%
<i>LAE At least one</i>	Have ever experienced	339	17.7	485	20.3
<i>Financial difficulties</i>	Have ever experienced	155	8.09	246	10.28
<i>Housing difficulties</i>	Have ever experienced	94	4.91	138	5.77
	Experienced during childhood	27	1.41	53	2.21
	Experienced during adulthood	65	3.39	85	3.55
	Both in childhood and adulthood	2	0.10		
<i>Period of isolation</i>	Have ever experienced	176	9.19	259	10.82
	Experienced during childhood	83	4.33	121	5.06
	Experienced during adulthood	82	4.28	114	4.76
	Both in childhood and adulthood	11	0.57	24	1.00
<i>Housing or isolation</i>	Have ever experienced	231	12.1	332	13.9
	At least during childhood	110	5.7	165	6.9
	At least during adulthood	140	7.3	201	8.4
<i>Number of LAE</i>	Only 1 type of experiences	268	14.0	349	14.6
	2 types of experiences	56	2.9	114	4.8
	3 types of experiences	15	0.8	22	0.9
Total number		1 915	100	2 393	100

In our sample, 20% of women and 18% of men reported one or more LAE, being in majority a long term period of isolation and financial difficulties. One third of those who reported housing difficulties and/or isolation experienced them in childhood only. Adverse experiences in both childhood and adulthood were scarce. LAE were reported in all SES groups with a decreasing gradient with increasing social advantage, for instance income. Farmers reported less LAE than the other occupational groups. Women were more likely to report LAE than men, except for farmers, self-employed and clerks. After controlling for age (model 1), LAE remained strongly associated with current SES (Table 2). Once age and the other SES indicators were controlled for (model 2), only income remained strongly associated with LAE. Farmers is the only occupation remained with remaining significant relationship while much of the association with education disappeared.

Table 2: Odds ratios of lifelong adverse experiences (LAE) associated with the level of education, occupation and income. Men and women aged 35 years and over

	Male				Female			
	Model 1		Model 2		Model 1		Model 2	
Post-secondary education	1.0		1.0		1.0		1.0	
2d level of secondary school	1.5	[1.0-2.3]	1.2	[0.8-2.0]	1.2	[0.8-1.6]	1.0	[0.7-1.4]
1rst level of secondary school	1.7	[1.2-2.3]	1.1	[0.7-1.6]	1.4	[1.1-1.9]	1.0	[0.7-1.5]
Primary education	2.2	[1.5-3.2]	1.3	[0.8-2.1]	2.3	[1.6-3.1]	1.5	[0.9-2.3]
Highly qualified occupations	1.0		1.0		1.0		1.0	
Skilled white collar occupations	1.2	[0.8-1.9]	1.0	[0.7-1.6]	0.9	[0.6-1.4]	0.8	[0.5-1.3]
Farmers	0.7	[0.3-1.4]	0.4	[0.2-0.8]	0.4	[0.2-1.0]	0.2	[0.1-0.4]
Self-employed	1.8	[1.2-2.9]	1.4	[0.8-2.3]	1.2	[0.7-2.3]	0.8	[0.4-1.5]
Clerk, clerical employees	1.5	[0.9-2.7]	1.0	[0.6-1.9]	1.3	[0.9-2.0]	0.9	[0.6-1.5]
Trade and craft clerks	2.7	[1.2-6.1]	1.8	[0.7-4.2]	1.7	[1.1-2.6]	0.9	[0.6-1.6]
Skilled blue collar workers	2.1	[1.5-3.0]	1.4	[0.9-2.2]	1.3	[0.8-2.2]	0.7	[0.4-1.4]
Unskilled blue collar workers	2.1	[1.3-3.4]	1.1	[0.6-2.0]	2.1	[1.3-3.4]	1.0	[0.6-1.8]
No (or unknown) occupation	*		*		3.0	[1.7-5.4]	1.4	[0.7-2.8]
5th income quintile	1.0		1.0		1.0		1.0	
4 th income quintile	1.3	[0.8-2.0]	1.2	[0.7-1.8]	1.1	[0.8-1.6]	1.1	[0.7-1.6]
3 rd income quintile	2.0	[1.4-3.0]	1.8	[1.2-2.8]	1.6	[1.1-2.3]	1.4	[1.0-2.1]
2d income quintile	2.4	[1.6-3.6]	2.1	[1.4-3.4]	1.9	[1.3-2.7]	1.7	[1.1-2.5]
1rst income quintile	3.2	[2.2-4.8]	3.1	[2.0-4.9]	4.0	[2.9-5.7]	3.8	[2.6-5.6]
Unknown income	2.0	[1.3-3.2]	1.9	[1.2-3.0]	1.4	[0.9-2.1]	1.3	[0.9-2.0]

* Less than 10 individuals (excluded from the model).

Model 1: Univariate logistic regression, adjusted on age only.

Model 2: Multivariate logistic regression, adjusted on age and all variables of model 1.

3.2. Health and LAE

In our study population, 34% of men and women reported chronic disease or health problems, 28% of men and 33% of women reported fair-to-poor self-perceived health and 21% of men and 22% of women reported long term activity limitations (Table 1).

Model 3 shows that LAE were significantly associated with poor self-perceived health, activity limitations and chronic disease for both men and women, with a more than doubling of the odds ratios compared to those who did not report LAE (Tables 3). In the multivariate model (model 4), reporting LAE remained strongly associated with deteriorated health for both sexes and for each health indicator, with only a slight attenuation of the odds ratios compared to model 3.

More detailed analysis (available upon request) showed that each of the three types of LAE contributed to the overall association with health (borderline significant effects for perceived health and chronic disease for men). We also found an interaction between LAE and income and repeating the models for those in the highest income quintile only, we found that LAE still impacted significantly on poor perceived health and chronic diseases after controlling for age, education and occupation (the odds ratio for long term activity limitation was only significant with a 10% confidence interval). Finally, incorporating indicators of current psychological distress led to a slight (not significant) reduction in the link between LAE and health, suggesting this may contribute to the association.

Table 3: Odds ratios of poor health associated with education, occupation, income and lifelong adverse experiences (LAE). Men and women aged 35 years and over

	Poor self-perceived health		At least one chronic disease		Activity limitations	
	Model 3	Model 4	Model 3	Model 4	Model 3	Model 4
Men aged 35 years and over						
Post-secondary education	1.0	1.0	1.0	1.0	1.0	1.0
2d level of secondary school	1.3 [0.9-2.0]	1.0 [0.7-1.6]	1.0 [0.7-1.4]	1.0 [0.7-1.4]	1.1 [0.7-1.7]	0.9 [0.6-1.5]
1st level of secondary school	1.9 [1.4-2.6]	1.2 [0.8-1.8]	0.8 [0.6-1.0]	0.8 [0.5-1.1]	1.4 [1.0-1.9]	1.1 [0.7-1.6]
Primary education	2.5 [1.8-3.5]	1.4 [0.9-2.1]	0.9 [0.7-1.3]	0.9 [0.6-1.4]	1.8 [1.3-2.6]	1.2 [0.7-1.9]
Highly qualified occup.	1.0	1.0			1.0	1.0
Skilled white collar occup.	1.4 [0.9-2.0]	1.2 [0.8-1.8]	0.9 [0.6-1.2]	0.9 [0.7-1.3]	1.3 [0.9-1.9]	1.2 [0.8-1.8]
Farmers	1.3 [0.8-2.1]	0.8 [0.5-1.5]	0.6 [0.4-1.0]	0.7 [0.4-1.1]	1.4 [0.8-2.3]	1.0 [0.6-1.8]
Self-employed	1.6 [1.1-2.5]	1.2 [0.8-2.0]	0.8 [0.5-1.2]	0.8 [0.5-1.3]	1.2 [0.7-1.9]	0.9 [0.5-1.5]
Clerk, clerical employees	2.8 [1.7-4.6]	2.2 [1.3-3.9]	1.5 [0.9-2.3]	1.6 [1.0-2.7]	2.0 [1.2-3.5]	1.7 [0.9-3.0]
Trade and craft clerks	2.1 [0.8-5.2]	1.4 [0.5-3.5]	1.0 [0.5-2.4]	1.1 [0.5-2.6]	1.6 [0.6-4.4]	1.1 [0.4-3.3]
Skilled blue collar workers	2.9 [2.0-4.0]	2.0 [1.3-3.0]	1.0 [0.7-1.2]	1.0 [0.7-1.4]	1.7 [1.2-2.5]	1.3 [0.8-2.0]
Unskilled blue collar workers	2.9 [1.8-4.6]	1.7 [0.9-2.9]	0.9 [0.6-1.4]	0.9 [0.5-1.5]	2.4 [1.4-3.9]	1.5 [0.8-2.7]
No (or unknown) occup.	*	*	*	*	*	*
5th income quintile	1.0	1.0				
4th income quintile	1.3 [0.9-1.9]	1.0 [0.6-1.4]	0.9 [0.6-1.2]	0.9 [0.6-1.3]	1.2 [0.8-1.8]	1.0 [0.7-1.5]
3rd income quintile	1.6 [1.1-2.2]	1.0 [0.7-1.5]	0.8 [0.6-1.2]	0.8 [0.6-1.2]	1.4 [0.9-2.0]	1.1 [0.7-1.6]
2d income quintile	2.3 [1.6-3.2]	1.5 [1.0-2.2]	0.9 [0.6-1.3]	0.9 [0.6-1.3]	1.7 [1.2-2.5]	1.3 [0.8-2.0]
1st income quintile	3.1 [2.2-4.5]	2.0 [1.4-3.1]	1.2 [0.9-1.7]	1.2 [0.8-1.8]	2.6 [1.8-3.9]	1.9 [1.2-3.0]
Unknown income	1.7 [1.2-2.6]	1.3 [0.9-2.0]	0.8 [0.6-1.2]	0.8 [0.6-1.2]	1.4 [1.0-2.2]	1.2 [0.8-1.8]
No LAE	1.0	1.0	1.0	1.0	1.0	1.0
At least one LAE	2.3 [1.8-3.0]	2.0 [1.5-2.6]	2.0 [1.6-2.6]	2.0 [1.6-2.6]	2.7 [2.0-3.6]	2.4 [1.8-3.2]
Women aged 35 years and over						
Post-secondary education	1.0	1.0	1.0	1.0	1.0	1.0
2d level of secondary school	1.3 [0.9-1.8]	1.0 [0.7-1.4]	0.8 [0.6-1.1]	0.8 [0.6-1.1]	1.3 [0.9-1.8]	1.1 [0.8-1.7]
1st level of secondary school	1.8 [1.4-2.4]	1.1 [0.8-1.6]	0.8 [0.7-1.0]	0.8 [0.6-1.1]	1.5 [1.1-2.0]	1.2 [0.8-1.8]
Primary education	2.8 [2.1-3.8]	1.4 [1.0-2.1]	0.7 [0.5-0.9]	0.6 [0.4-0.9]	1.7 [1.2-2.4]	1.2 [0.8-1.9]
Highly qualified occup.	1.0	1.0	1.0	1.0	1.0	1.0
Skilled white collar occup.	1.0 [0.7-1.5]	0.9 [0.6-1.3]	1.0 [0.7-1.4]	1.0 [0.7-1.5]	1.0 [0.6-1.5]	0.8 [0.5-1.3]
Farmers	1.3 [0.7-2.2]	0.7 [0.4-1.3]	0.4 [0.3-0.7]	0.5 [0.3-0.9]	0.9 [0.5-1.6]	0.6 [0.3-1.1]
Self-employed	1.5 [0.9-2.5]	1.0 [0.5-1.7]	0.7 [0.4-1.1]	0.7 [0.4-1.2]	1.6 [0.9-2.8]	1.1 [0.6-2.0]
Clerk, clerical employees	1.8 [1.2-2.7]	1.3 [0.8-2.0]	0.9 [0.6-1.2]	1.0 [0.7-1.5]	1.3 [0.8-2.0]	0.9 [0.5-1.5]
Trade and craft clerks	2.5 [1.7-3.8]	1.4 [0.9-2.4]	0.9 [0.6-1.2]	1.0 [0.6-1.5]	1.7 [1.1-2.6]	1.0 [0.6-1.8]
Skilled blue collar workers	2.3 [1.4-3.8]	1.4 [0.8-2.4]	0.8 [0.5-1.3]	1.0 [0.6-1.7]	1.1 [0.6-1.9]	0.7 [0.4-1.3]
Unskilled blue collar workers	3.4 [2.2-5.5]	1.7 [1.0-3.0]	1.1 [0.7-1.7]	1.2 [0.7-2.0]	1.8 [1.1-2.9]	1.0 [0.6-1.9]
No (or unknown) occup.	2.3 [1.3-4.1]	1.1 [0.6-2.0]	0.8 [0.5-1.4]	0.8 [0.5-1.5]	1.8 [1.0-3.2]	1.0 [0.5-1.9]
5th income quintile	1.0	1.0	1.0	1.0	1.0	1.0
4th income quintile	1.7 [1.2-2.3]	1.4 [1.0-2.0]	1.3 [0.9-1.7]	1.4 [1.0-1.8]	1.8 [1.2-2.6]	1.7 [1.1-2.5]
3rd income quintile	2.2 [1.6-3.0]	1.6 [1.1-2.2]	0.7 [0.5-1.0]	0.8 [0.6-1.1]	1.7 [1.2-2.5]	1.5 [1.0-2.3]
2d income quintile	2.3 [1.7-3.2]	1.6 [1.1-2.2]	1.0 [0.7-1.3]	1.1 [0.8-1.5]	1.9 [1.3-2.7]	1.6 [1.1-2.4]
1st income quintile	4.4 [3.1-6.0]	2.7 [1.9-3.9]	1.3 [1.0-1.8]	1.4 [1.0-2.0]	2.7 [1.9-3.9]	2.0 [1.3-3.1]
Unknown income	1.9 [1.3-2.7]	1.5 [1.1-2.2]	1.1 [0.8-1.4]	1.2 [0.8-1.7]	1.9 [1.3-2.8]	1.8 [1.2-2.7]
No LAE	1.0	1.0	1.0	1.0	1.0	1.0
At least one LAE	2.9 [2.3-3.6]	2.3 [1.9-3.0]	2.0 [1.6-2.5]	1.9 [1.5-2.4]	3.1 [2.4-3.9]	2.8 [2.2-3.5]

*Less than 10 individuals (excluded from the model)

Model 3: Univariate logistic regression, adjusted on age only

Model 4: Multivariate logistic regression, adjusted on age and all variables of model 3

Models 5 and 6 provided evidence of the long-lasting influence of LAE (Table 4): after controlling for age and current social status, LAE occurring during childhood only were still significantly associated with the risk of poor self-perceived health, chronic diseases and activity limitations.

Table 4: Odds ratios of poor health associated with the period of housing difficulties or long period of isolation. Men and women aged 35 years and over

	Poor self-perceived health		At least one chronic disease		Activity limitations							
	Model 5	Model 6	Model 5	Model 6	Model 5	Model 6						
Men aged 35 years and over												
None of the LAE	1.0	1.0	1.0	1.0	1.0	1.0						
in childhood only	2.4	[1.5-3.8]	2.3	[1.5-3.7]	1.9	[1.2-3.0]	2.0	[1.3-3.1]	2.4	[1.5-3.9]	2.4	[1.5-3.9]
in adulthood only	1.6	[1.1-2.5]	1.4	[0.9-2.2]	1.7	[1.2-2.6]	1.7	[1.1-2.6]	2.3	[1.5-3.6]	2.1	[1.4-3.3]
in childhood and adulthood	16	[5.1-53]	15	[4.5-51]	6.1	[2.2-17]	6.0	[2.1-17]	8.1	[3.0-22]	6.7	[2.4-19]
Women aged 35 years and over												
None of the LAE	1.0	1.0	1.0	1.0	1.0	1.0						
in childhood only	2.4	[1.6-3.5]	2.3	[1.6-3.4]	2.0	[1.4-2.9]	1.9	[1.3-2.8]	2.1	[1.4-3.1]	2.0	[1.3-3.0]
in adulthood only	2.2	[1.5-3.0]	1.7	[1.2-2.5]	1.9	[1.3-2.6]	1.8	[1.3-2.6]	3.4	[2.4-4.8]	3.0	[2.1-4.3]
in childhood and adulthood	7.1	[3.3-15]	6.1	[2.8-13]	3.4	[1.7-6.8]	3.3	[1.6-6.9]	6.1	[3.0-13]	5.9	[2.9-12]

Model 3: Univariate logistic regression, adjusted on age only.

Model 4: Multivariate logistic regression, adjusted on age and all variables of model 3.

4. Discussion

This study demonstrates that adverse experiences throughout lifetime (LAE) can be captured using a short and simple tool in a routine health population survey, and that up to 20% of the population reported them. Our results showed that, although more frequent in the most disadvantaged groups, LAE were reported by a significant proportion of men and women in all social groups. We found evidence of a strong and long-lasting association between LAE and deteriorated health for a number of health dimension and that differences remained significant after controlling for current socioeconomic status.

Although 20% reporting LAE seems high, it appears to be consistent with estimates from the late 1990's for France⁴¹. The LAE questions proved to be specific, targeting a relevant group with increased risk of deteriorated health. Furthermore, this 20% may even be an underestimate due to the survey methodology. First, since it is a household survey, as most conventional population health surveys, conducted on a selected population who could be contacted and agreed to participate, it misses those who currently experience adverse circumstances, specifically people not living in a household, and those who could not respond due to health problems. Second, the study sample excludes persons who did not return the health questionnaire, which may be related to health and/or social status and LAE. However, as we had collected the background questionnaire, we could test the magnitude of the bias related to non-responses to the health questionnaire by considering that they were 1) all in poor health status, 2) all in good health status. Neither of these scenarios significantly changed our conclusions:

the effect of LAE on health was slightly increased with the “missing in good health” assumption and decreased with the “missing in poor health” assumption.

Our questions may also overestimate LAE related health risks due to their retrospective nature and the possible *a posteriori* reconstruction effect. We did not find significant change in our results by incorporating information on current psychological distress. However, it is not possible to disentangle to what extent LAE actually induced psychological distress and poor health or whether current psychological distress and health problems increased the propensity to report LAE²⁴. Only a longitudinal approach could help clarify this point and since part of the ESPS survey is followed up and re-interviewed, we will have the opportunity of further testing this issue looking at the incidence of health problems rather than the prevalence.

Despite these limitations, LAE successfully identified a specific group exposed to health risks due various possible determinant: deleterious effect of economic hardship^{11, 12, 24, 42}, stressful events^{11, 13, 14}, job loss³³, disruption or isolation^{25, 27, 29, 32}. The increased health risks may also be explained by a reverse causation process: long term health problems may have been responsible for adverse experiences such as job loss⁴³, decreasing earnings⁴⁴, isolation, family breakups etc.

The contribution of life events to socioeconomic inequalities in health has been discussed in prior research⁴⁵. Our results show that the association between LAE and health remains strongly significant after adjustment for current social situations. Being much more frequent in lower social groups, LAE is a risk factor that contributes to the social health gradient. Nevertheless, this life time social factor has impact above and beyond the current socioeconomic situation. LAE in the highest income group also increased the probability of reported diseases and bad perceived health. Therefore, even when LAE did not prevent people attaining the highest income group, they are still at an increased risk of ill health. However, this is not true with respect to activity limitation which is not significantly higher for those reporting LAE in the highest income group. Interestingly, studies on disability show unequal risks of activity limitation due to differentiated mobilization of resources and accurate compensation strategies (assistive devices, workplace or home adaptation etc.)⁴⁶. This finding suggests that a favorable social status does not offset the health impact of such LAE but might help managing health problems and limiting their consequences in terms of disability. Analysis of health care consumption and behaviors would shed the light on this issue.

The recent report of the World Health Organization’s Commission on the Social Determinants of Health presents a wealth of evidence identifying social determinants as the most important determinants of health⁴⁷. It makes three broad sets of recommendations that taken together would help to ‘close the gap’ in various health inequities by: (1) improving daily living conditions – housing, early child development, health care, and social protection; (2) tackling the unequal distribution of resources; and (3) measuring and understanding the problem. While life course epidemiology pleads for lifelong experiences to be included not only in ad-hoc studies but in routine health statistics, our study shows the feasibility of this, using a short set of questions. It allows identification of the population at risk for poor health outcomes above and beyond the usual socioeconomic indicators.

There are few studies in France which permit the study of past experiences and health based on cohorts or population surveys using biographic tool. This is even more scarce that such a topic is studied in a routine population health survey exploring several health dimensions and many other health related variables. The results encourage us to go

further and analyze time trends and the LAE related determinants (exposition, use of care, risk factors) in order to explain the social health gradient as well as variability within social groups. This should contribute to better monitoring of lifelong social factors, health inequalities and lead to policies to reduce them.

Keypoints

→We explore the feasibility of accounting for lifelong adverse experiences (LAE) as health determinant in a conventional health survey.

→We analyse a short set of LAE questions included in a French population health survey in 2004.

→The LAE questions successfully identified a 20% adult group with an increased risks of poor health, whatever their current social situation.

→The LAE short set will be helpful for public health to monitor health inequalities through regular analysis of LAE related health factors (risk factors, use of care...).

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Monitoring Health Inequalities in France: A Short Tool for Routine Health Survey to Account for Lifelong Adverse Experiences

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Conventional health surveys focus on current health and social context but rarely address past experiences of hardship or exclusion. However, recent research shows how such experiences contribute to health status and social inequalities.

In order to analyse in routine statistics the impact of lifelong adverse experiences (LAE) on various health indicators, a new set of questions on financial difficulties, housing difficulties due to financial hardship and isolation was introduced in the 2004 French National health, health care and insurance survey (ESPS 2004).

Logistic regressions were used to analyze associations between LAE, current socioeconomic status (SES) (education, occupation, income) and health (self-perceived health, activity limitation, chronic morbidity), on a sample of 4308 men and women aged 35 years and older.

In our population, LAE were reported by 1 person out of 5. Although more frequent in low SES groups, they concerned above 10% of the highest incomes. For both sexes, LAE are significantly linked to poor self-perceived health, diseases and activity limitations, even controlling for SES (OR>2) and even in the highest income group. This pattern remains significant for LAE experienced only during childhood.

The questions successfully identified in a conventional survey people exposed to health problems in relation to past experiences. LAE contribute to the social health gradient and explain variability within social groups. These questions will be useful to monitor health inequalities, for instance by further analyzing LAE related health determinants such as risk factors, exposition and care use.

Surveiller les inégalités de santé en France : un outil de prise en compte des expériences difficiles vécues au cours de la vie dans les enquêtes santé

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Les enquêtes santé usuelles renseignent l'état de santé et le statut socio-économique actuels des individus mais ne permettent que rarement d'aborder les expériences passées de précarité ou d'exclusion. Des recherches récentes montrent pourtant l'impact de ce type d'expérience sur l'état de santé et qui expliquent en partie les inégalités sociales.

En 2004, de nouvelles questions ont été incluses dans l'Enquête sur la santé et la protection sociale (ESPS) afin d'étudier l'influence sur l'état de santé de plusieurs types d'expériences difficiles vécues au cours de la vie : difficultés financières, difficultés de logement dues à des problèmes financiers, période d'isolement. Les régressions logistiques sont utilisées pour analyser les associations entre ces expériences difficiles vécues au cours de la vie, le statut socio-économique actuel (éducation, occupation, revenu) et l'état de santé (santé perçue, limitation d'activité et maladie chronique) pour un échantillon de 4 308 hommes et femmes âgées de 35 ans et plus.

Dans cette population, une personne sur cinq déclare avoir connu au cours de sa vie au moins l'une des expériences considérées. Même si les personnes appartenant aux groupes sociaux les plus défavorisés sont plus fréquemment concernées, 10 % des personnes appartenant au plus haut quintile de revenu le sont également. Chez les hommes comme chez les femmes, la déclaration d'expériences difficiles passées est associée à une plus mauvaise santé, quel que soit l'indicateur de santé utilisé, y compris après contrôle par le statut socio-économique actuel. Enfin, les résultats restent très similaires lorsque l'on ne considère que les expériences difficiles vécues pendant l'enfance.

Ces questions permettent donc d'identifier avec succès dans une enquête traditionnelle des personnes vulnérables en termes de santé en raison d'expériences difficiles passées. Ces expériences difficiles vécues au cours de la vie contribuent non seulement à expliquer les inégalités de santé entre groupes sociaux mais également les inégalités de santé au sein de chaque groupe. Ces questions constituent donc un bon instrument de surveillance des inégalités de santé, par exemple à travers l'analyse des comportements de santé et du recours aux soins en lien avec ces expériences.