Lifestyles: a Channel of Intergenerational Transmission of Health Inequalities?

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In France, several recent studies have highlighted inequalities of opportunity in health directly related to social background. In order to better understand the long-term effects of childhood living conditions, specific questions were introduced in the Health, health care and insurance survey conducted by IRDES in 2006.

The results reveal the extent of inequalities of opportunity in health in France: having a poor social background, parents with a low education level, who also are in poor health or adopt risky health behaviours, are the factors explaining health inequalities in adulthood.

Risky behaviours adopted by the parents, mother's education level as well as difficult material conditions during childhood influence descendant's future lifestyles which in turn have an impact on her long-term health status. Adult health is thus influenced by a indirect effect of social background combined with a direct effects of living conditions during childhood.

Beyond government interventions aimed at improving equality of opportunities in education, or more globally, in living conditions, specific prevention and health promotion policies targeting underprivileged populations are potential avenues to reduce inequalities of opportunity in health.

Several recent studies have assessed the existence of social health inequalities in France related to social background including both living conditions during childhood and family characteristics [Melchior *et al.*, 2006; Trannoy *et al.,* 2010; Cambois and Jusot, 2010]. These inequalities are recognised as being inequalities in health opportunities in the sense that individuals cannot be held responsible for their parents' professional activity or living conditions during their childhood [Roemer, 1998; Dias and Jones, 2007; Trannoy *et al.,* 2010]. These determinants are seen as favoured targets for social policy interventions aiming the reduction of health inequalities [Marmot *et al.*, 2008].

Several hypotheses have been proposed to explain the influence of social environment on adult health. The first model considers the direct influence of childhood living conditions on adult health after a period of latency (*latency model*) [Barker, 1996; Wadsworth 1999]. Events that occurred during critical periods of early life (e.g. life *in utero* and childhood) would thus act as an early programming mechanism that, after remaining latent for a certain time, induces a very poor health or a serious illness later in life. The second model, described as the *pathway model*, supposes that social environment influences an individual's later outcomes such as her socio-economic status, which in turn has an impact on adult health [Power *et al.,* 1998; Case *et al.,* 2005]. Finally, the correlation between parental and descendants' health status suggests an *intergenerational transmission of health* [Ahlburg,

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1998; Trannoy *et al.*, 2010]. This has been seldom studied but the intergenerational transmission could stem from genetic inheritance or the transmission of health behaviours or lifestyles.

Most of the recent studies consider the father's social status to measure childhood living conditions. This indicator is rather incomplete and fails to identify all the different mechanisms by which health inequalities are transmitted between generations. Moreover it restricts all the potential levers for the elaboration of action plan to reduce these inequalities.

In 2006, a new module of questions was introduced in the Health, health care and insurance survey describing individuals' family background more precisely (see Sources insert). This module provides the opportunity of re-examining how the different aspects constituting social environment and living conditions during childhood influence self-perceived health status and thereby completes existing knowledge on social health inequalities in France. In addition, the mechanisms by which these inequalities are transmitted are identified by distinguishing the direct effects of living conditions during childhood from their indirect effects going through the determination of respondents' education

level and lifestyles (smoking, obesity[1], daily consumption of vegetables).

Almost half of the respondents reported that when they were 12 years old their parents were experiencing financial difficulties or serious financial difficulties

At the age of 12, the majority of respondents' fathers were skilled workers. A quarter of mothers had no professional activity and if they were working or had worked, they were mainly office workers (32%). Parents' education level was globally low; more fathers than mothers, however, had gone beyond an elementary level diploma. Finally, 45% of respondents reported that when they were 12 years old their parents had experienced financial difficulties or serious financial difficulties and 6% reported adverse life events during their childhood.

About 80% of respondents reported that when they were 12, both their fathers and mothers were in good or very good

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1 Similarly to the common practice in the literature, obesity is considered as a lifestyles factor even if it appears to be a health outcome which is influenced by certain deleterious behaviours such as sedentary lifestyles and an unbalanced diet

BACKGROUND

health. On the other hand, a majority of respondents assessed that their fathers adopted risky behaviours. Thus 63% of respondents declared that when they were 12 years old their father was smok-

SOURCES

This study is based on data from the 'Descendants' module of questions introduced in the Health, health care and insurance survey in 2006. This module describes the social background and living conditions during childhood of the main respondent in each household when he was 12 years of age.

It was mentioned that the questions concerned the man and/or woman who were living with the respondent when he was 12 years old, without specifying whether these persons were the respondent's natural parents, the CNIL (Commission Nationale informatique et liberté) failing to authorise that question to be asked. We nevertheless refer to them as the respondent's parents throughout the study. To facilitate retrospective reports, for older respondents, it was specified that 12 years old is the period when obtaining the elementary level diploma, and for younger respondents, the period when finishing primary school and beginning secondary school.

This module broached social background and living conditions during childhood by means of three types of factors: parents' socio-economic status, their health status and their lifestyles.

Parents' socio-economic status is firstly measured by their education level and professional activity when the respondent was 12 (or their last professional activity for parents that were unemployed when the respondent was 12). This is furthermore measured through the respondent's subjective appreciation of her parents' financial situation when he was 12. Finally, information on periods of isolation and housing difficulties experienced during childhood provided in

other sections of the survey are used as an indicator of adverse life events during childhood [Cambois and Jusot, 2010].

Parents' health status is firstly measured using parental vital status at the time of the survey and, if necessary, their date of death which enables the definition of a longevity indicator in relation to their cohort of birth [Trannoy *et al.*, 2010]. Here we distinguish parents that are alive at the time of the survey from those who died at a younger age than their expected life expectancy at 20 years old of their birth cohort and who died at an age greater or equal to it. Parents' health status is also measured by the respondent's self-perception of her parents' health when she was aged 12 according to 5 categories (very good, good, fair, poor, very poor). The category 'very poor' also includes parents who were deceased when the respondent was aged 12. Finally, the module of questions enables us to identify whether the father and the mother were smoking or/and had drinking problems when the respondent was 12.

This module permits linking both the descendant's self-assessed health and lifestyles with her social background, her parents' health status and their risky behaviours for a sample of 6,074 main respondents having completed the 'Descendants' module, and the self-administered questionnaire, in particular, self-assessed health, smoking behaviour at the time of the survey, height, weight and daily vegetables uptake. In all the different analyses a 'non response' category was systematically added for all the variables describing social background and living conditions during childhood so that the partial non response as well as the absence of one of the parents in the household were taken into account (respondents having two unknown parents were excluded from the analysis).

ing and almost one third that their father had a drinking problem. Risky behaviours were, on the contrary, marginal for the mothers (9% were smokers and 2% reported to have a drinking problem). At the time of the survey, 65% of respondents' mothers are still alive but only 45% of fathers.

A more deteriorated health status among individuals born in deprived environments…

In our sample, 27% of respondents self-report poor health and results from the first model indicate that this poor health status is strongly correlated to childhood living conditions (Table 1, column 2).

The probability of being in poor health is higher among individuals from the most deprived social environments. Thus, respondents having declared that their parents had suffered serious financial difficulties most often self-report a poor health status. Having experienced adverse life experience during childhood increases the probability of having a poor self-perceived health status by 10 percentage points. Among the most traditional socio-economic indicators, health status is in the first place marked by mothers' education level; having a mother with a high education level reduces the probability of being in poor health as an adult by 12 percentage points. On the contrary, fathers' education level as well as parents' professional activity appears to have a more limited impact.

The results confirm that health status is correlated between generations. Thus, the probability of reporting a poor health status is higher by 12 percentage points among individuals declaring that when they were 12 their mother had a poor health status rather than a very good health status and lower by about 5 points among individuals whose mother and father are still alive at the time of the survey. Finally, individuals declaring that their father had a drinking problem, and to a lesser extent that he was smoking, more frequently self-report a poor health status.

These results thus confirm the importance of inequalities in health opportunities in France to the extent that any systematic

T1 — Determinants of the probability of having a poor perceived health status, a low education level, smoking, having an unbalanced diet or being obese

Marginal effects (ME) of variables. Significance level: * 10%, ** 5%, *** 1%.

Explanatory variables	Proportion in the sample studied	Poor health Model 1 (ME, Sig.)	Poor health Model 2 (ME, Sig.)	Low education (ME, Sig.)	Smoker (ME, Sig.)	Unbalanced diet (ME, Sig.)	Obese (ME, Sig.)
Father's perceived health status							
Very good	40.67	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Good	38.38	-0.003	-0.003	-0.003	0.008	0.001	-0.020 *
Fair	9.89	0.062 ***	0.065 ***	0.004	-0.005	-0.023	-0.014
Poor, very poor, father deceased	6.39	0.006	0.015	-0.040	-0.009	-0.040	-0.031 *
Non response	4.68	-0.023	-0.013	-0.088	0.015	-0.074	-0.026
Mother's perceived health status							
Very good	37.42	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Good	44.42	0.035 **	0.032 **	0.050 ***	-0.033 **	0.010	0.022 **
Fair	12.12	0.106 ***	0.101 ***	0.027	-0.025	0.032 *	0.030 **
Poor/very poor, mother deceased	5.17	0.116 ***	0.113 ***	0.041	-0.014	0.062 **	0.013
Non response	0.87	0.127	0.138 *	-0.186 *	-0.028	0.057	0.054
Father's relative longevity							
Alive	44.86	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Prematurely deceased	22.36	0.051 ***	0.035 *	0.068 ***	0.047 ***	0.044 ***	0.027 **
Deceased relatively old	26.44	0.042 **	0.039 **	0.034	0.022	-0.013	0.008
Non response	6.34	0.127 ***	0.096 **	0.123 **	0.089 *	0.100 **	0.044
Mother's relative longevity							
Alive	63.4	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Prematurely deceased	17.19	0.044 **	0.032 *	0.059 **	0.011	0.045 **	0.023 *
Deceased relatively old	16.66	0.063 ***	0.059 ***	0.031	-0.010	0.015	0.000
Non response	2.75	0.036	0.026	0.221 ***	-0.004	-0.058	-0.033
Father's professional activity							
Unskilled worker	42.69	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Agricultural worker	12.53	-0.01	-0.005	-0.050 *	-0.047 *	-0.028	0.006
Craftsmen	8.10	0.014	0.03	-0.140 ***	0.009	-0.006	0.003
Manager	10.16	-0.007	0.030	-0.301 ***	-0.019	-0.021	-0.013
Associate professional	11.82	-0.018	0.010	-0.207 ***	-0.035 *	-0.016	-0.020
Office worker	9.45	-0.004	0.010	-0.149 ***	-0.007	-0.024	0.021
Non response	5.25	-0.029	-0.016	-0.093	-0.014	0.057	-0.027
Mother's professional activity							
Unskilled worker	15.74	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Agricultural worker	9.07	-0.047 *	-0.052 **	0.058	-0.065 **	-0.030	-0.009
Craftswomen	5.93	0.007	0.022	-0.093 ***	-0.025	-0.067 **	-0.020
Manager	2.07	-0.075	-0.072	-0.235 ***	0.080 *	-0.048	0.003
Associate professional	7.24	-0.028	-0.019	-0.157 ***	0.019	-0.035	-0.025
Office worker	31.51	-0.029	-0.021	-0.091 ***	0.020	-0.022	-0.005
Non response	2.96	-0.068 *	-0.071 **	0.039	0.006	-0.010	-0.019
Homemaker	25.47	-0.015	-0.009	-0.057 **	-0.003	-0.046 ***	-0.032 ***
Father's education level							
No schooling	5.53	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Nursery, primary	46.46	-0.047	-0.048	-0.033	0.025	-0.029	0.023
Elementary secondary	17.06	-0.037	-0.031	-0.109 **	0.057	-0.011	0.029
Secondary	6.11	-0.086 **	-0.069 *	-0.208 ***	0.084 *	-0.033	0.006
Higher education	9.38	-0.050	-0.035	-0.277 ***	0.069	-0.029	0.022
Other, non response	15.46	-0.014	-0.028	0.088 *	0.067 *	-0.002	0.034
Mother's education level							
No schooling	7.3	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Nursery, primary	52.32	-0.118 ***	-0.096 ***	-0.103 ***	-0.001	-0.023	-0.052 ***
Elementary secondary	16.13	-0.133 ***	-0.106 ***	-0.18 ***	0.009	-0.052 *	-0.047 **
Secondary	7.94	-0.136 ***	-0.105 ***	-0.317 ***	0.011	-0.041	-0.047 **
Higher education	6.26	-0.138 ***	-0.11 ***	-0.301 ***	0.060	-0.034	-0.057 **
Other, non response	9.98	-0.081 ***	-0.071 **	-0.039	0.022	-0.005	-0.040 **
Adverse life experience							
None	88.26	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Adverse life experience during childhood	5.78	0.093 ***	0.083 ***	0.056 *	0.059 **	-0.006	0.006
Non response	5.96	0.000	-0.015	0.084 ***	0.026	-0.011	-0.002
Parents' financial situation at 12 years old							
Very difficult	8.35	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Somewhat difficult	37.03	-0.050 **	-0.040 *	-0.100 ***	-0.023	0.013	-0.003
Somewhat comfortable	48.22	-0.059 ***	-0.054 **	-0.096 ***	-0.008	0.026	0.006
Very comfortable	4.84	-0.042	-0.042	-0.019	0.010	0.007	0.022
Non response	1.56	-0.074 *	-0.067	-0.073	-0.068	-0.028	-0.002
Parents' smoking habits							
Father smoking	63.14	0.024 *	0.015	0.051 ***	0.080 ***	0.029 **	0.004
Moher smoking	8.61	-0.001	-0.010	0.072 ***	0.057 ***	-0.007	0.016
Parents' alcohol consumption							
Father with a drinking problem	31.71	0.039 ***	0.032 **	0.031 *	0.034 **	-0.001	0.004
Mother with a drinking problem	1.60	-0.016	-0.043	0.186 ***	0.036	0.086 *	0.039
Respondent's education level							
Primary	19.39		Ref.		Ref.	Ref.	Ref.
Elementary secondary	33.42		-0.067 ***		0.039 *	-0.011	-0.019
Secondary	16.63		-0.100 ***		-0.007	-0.043 **	-0.052 ***
Higher education	30.56		-0.136 ***		-0.114 ***	-0.055 ***	-0.068 ***
Lifestyles							
Smoker	26.84		0.061 ***				
Unbalanced diet	22.77		0.050 ***				
Obese	12.66		0.124 ***				
Model characteristics							
N		6,074	6,074	6,074	6,074	6,074	6,074
Average individual's probability		0.266	0.266	0.528	0.268	0.228	0.127
Average individual's predicted probability		0.233	0.229	0.521	0.234	0.213	0.111
Pseudo R^2		0.1575	0.1785	0.2467	0.1218	0.0582	0.0631

[a] All the analyses are adjusted by age, as measure by 10 years age classes, and gender. The results are presented as marginal effects indicating in percentage points the effects of belonging to each tested category in comparison with the reference category on the probability of having a poor perceived health status or adopting unhealthy lifestyles.

[b] Significance level: * 10%, ** 5%, *** 1%.

Reading guide: 10% of the respondents consider that their father had a fair health status when they were aged 12. Their probability to self-report a fair, poor or very poor health status is 6 percentage points higher than the probability associated to those who reported that their father was in very good health when they were 12 years old.

Data: IRDES, Health, health care and insurance survey, 2006. **Investigation:** IRDES.

*M*ETHOD

In order to study the existence of an effect of living conditions during childhood on adult health, we conducted the analysis in three phases. The first dichotomous Probit model analyses the correlation between living conditions during childhood and the probability of self-reporting poor health in adulthood (health status perceived as 'fair', 'poor' or 'very poor' versus 'good' or 'very good') controlling the respondent's age and gender only. This first model reveals the existence of inequalities in opportunities in health inasmuch as all differences in health status correlated to social background were recognised as being inequalities of opportunity in health.

The second phase analyses the effects of childhood living conditions on the probability of having a low education level, i.e. lower or equal to an elementary diploma level (e.g. BEPC, CAP…) on the one hand, and on the probability of adopting deleterious lifestyles (e.g. smoking, being obese, not eating vegeta-

bles daily) on the other. This second series of dichotomous Probit models allow us to study the mechanisms by which inequalities of opportunity in health are transmitted, and notably to study the hypothesis of transmission going through the education level achieved by the descendant as suggested by the pathway hypothesis and the transmission of health standards and lifestyles.

In the third phase, an analysis of the influence of childhood living conditions on the probability of self-reporting poor health in adulthood after controlling age, gender, education level and lifestyles allows us to test the latency hypothesis according to which childhood living conditions have a direct influence on adult health.

The results are presented as marginal effects indicating in percentage points the effects of belonging to each tested category in comparison with the reference category.

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difference in health status correlated to childhood environment is recognised as an inequality of opportunity in health [Trannoy *et al.*, 2009].

The analysis then focuses on the mechanisms by which these inequalities are formed. It reveals that living conditions during childhood have a significant influence on respondents' academic success and lifestyles that are in turn determinants of long-term health status (Table 1, columns 4, 5, 6, 7).

Massive inequalities of opportunity in terms of academic success

Firstly, the results confirm the importance of social reproduction in France since respondents' academic success is largely determined by both parents' level of education and professional activity [Goux and Maurin, 1995]. For example, for children with fathers in executive jobs, the probability that their academic achievement will be below or equal to secondary level is 30 percentage points lower than for children with working class fathers. Academic success is more frequent among children whose mothers were either executives or associate professionals than among those whose mothers are homemakers or working in elementary or unskilled occupations. Finally, having a mother or a father with an education level equal to or above A-levels ("baccalauréat") reduces the risk of having a low education level by about 30 percentage points.

Respondents' academic success appears to be impacted by life events. Thus a prematurely deceased father or mother increases the probability of having a low education level by 6 percentage points. The risk is increased in the same proportion by having experienced adverse life events or a difficult financial situation during childhood.

The results then confirm significant inequalities in the risk of smoking, obesity and having a balanced diet according to respondents' education level [Peretti-Watel *et al.*, 2009; Saint Pol (de), 2010], but they especially reveal highly differentiated lifestyles according to the characteristics of respondents' parents.

Children of smokers are more frequently smokers themselves

Firstly, there is a higher risk of being a smoker if one of the parents was a smoker when the respondent was 12 years old. Thus, the probability of being a smoker at the time of the survey is increased by 8 and 6 percentage points respectively if a respondent declared that her father or mother was smoking during her childhood.

Individuals declaring that their father had a drinking problem or prematurely died have a higher risk of being smokers. All these results suggest the existence of an intergenerational transmission of risky behaviours.

On the contrary, the probability of being a smoker is rarely associated with par-

ents' professional activity in childhood. The only notable exceptions are for children of skilled agricultural workers who appear relatively protected from the risk of becoming smokers whereas the probability of being a smoker is increased by the fact of having experienced adverse life events. However, these results are obtained after being adjusted according to education level and thus only take into account the direct effect of childhood social environment on smoking. The indirect influence is observed by determining the descendant's education level which is strongly correlated to the risk of being a smoker at the time of the survey.

A reduced risk of obesity for individuals whose mother was a homemaker

Eating habits and the risk of obesity are related to the mother's social status. The risk of obesity is thus reduced by 5 percentage points if the mother was educated. The absence of obesity and the daily uptake of vegetables is higher among individuals whose mothers were homemakers. Among individuals born to an active mother, descendants of craftswomen are more likely to have a balanced diet.

The risk of obesity is high among individuals whose parents prematurely died as well as individuals reporting that their parents were in poor health when they were 12 years old. Finally, the risk of having an unbalanced diet is correlated with the fact that the father was smoking and the mother had a drinking problem, which suggests an intergenerational transmission of global health standards.

Furthermore, these results show that the risk of having an unbalanced diet and being obese reduces with the respondent's education level that, as shown above, is also related to an individual's social background.

Social background also has a long-term impact on health status

The second health model confirms that part of the correlation between health status and social background is explained by the consequences of the latter on the respondent's education level and lifestyles as shown by the pathway hypothesis (Table 1, column 3). In effect, introducing education level and lifestyles in the health equation reduces the value of the marginal effects associated with most of the variables related to childhood living conditions.

However, the results of the second health model also confirm the existence of a direct effect of social background on long-term health status, independently from social reproduction effects and the transmission of global health standards. As described in the latency model, health status is directly impacted by the mother's education level, having lived in a household having financial difficulties and having experienced adverse life events during childhood.

Moreover, the analysis confirms the existence of a health gradient strongly correlated to education level: individuals with a higher education level have a probability of reporting a poor health status which is almost 14 percentage points lower than individuals with an elementary level of education. Finally, obesity is the most important determinant of poor health reports among the three lifestyles considered: its contribution is twice higher than the contribution of being a smoker or not eating vegetables daily.

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These results thus confirm the importance of inequalities of opportunity in health in

France: being born in a deprived social environment, having experienced periods of precariousness, having parents with a low education level, having parents in poor health or adopting risky behaviours are all factors that explain health inequalities in adulthood.

The analysis reveals numerous mechanisms that can create inequalities. It confirms the importance of inequalities of opportunities for academic success, as already shown by the pathway hypothesis, and the long-term effects of childhood living conditions on health, as described in the latency hypothesis. Furthermore, it assesses that part of the inequalities in health opportunities are explained by the influence of social background on the adoption of deleterious lifestyles (smoking, poor diet, obesity). These results focusing on general population used a very precise description of social background and childhood conditions. They thus complete previous studies that demonstrated the effect of social background on smoking [Etilé, 2007] and the risk of obesity [Khlat *et al.*, 2009]. They thus support the intergenerational transmission of health-related behaviours hypothesis. Finally, this analysis underlines the importance of the mother's characteristics in the intergenerational transmission of health inequalities regardless of the transmission mechanism taken into account.

Beyond government interventions aimed at improving the equality of opportunities in education, or more globally, living conditions, specific prevention and health promotion policies targeting underprivileged populations are potential avenues to reduce inequalities of opportunity in health. ◆

GLOSSARY

- **Adverse life experience:** épisode de précarité
- **Equality of opportunities:** égalité des chances
- **Health inequalities:** inégalités de santé
- **Inequalities of opportunity:** inégalités des chances
- **Self-perceived status:** état de santé perçu

FURTHER INFORMATION

- Ahlburg D. (1998). « Intergenerational Transmission of Health ». *American Economic Review*, vol. 88, no. 2, pp. 265-270.
- Barker D.J.P. (1996). "Fetal Origins of Coronary Heart Disease". *Britain Medicine Journal*, 311 : 171-74.
- Cambois E., Jusot F. (2010). "Monitoring Health Inequalities in France : A Short Tool for Routine Health Survey to Account for Lifelong Adverse Experiences". IRDES working paper, DT n°30.
- Case A., Fertig A., Paxson C. (2005). "The Lasting Impact of Childhood Health and Circumstances". *Journal of Health Economics*, 24 : 365-89.
- Dias P. R, Jones A. (2007). "Giving Equality of Opportunity a Fair Innings". *Health Economics* ; 16; 109-112.
- Etilé F. (2007). « Modes de vie et santé des jeunes ». In Cohen D. (Eds.) *Une jeunesse difficile. Portrait économique et social de la jeunesse française*. Paris, Editions Rue d'Ulm/Presses de l'Ecole normale supérieure.
- Goux D., Maurin E. (1995). « Origine sociale et destinée scolaire ». *Revue Française de Sociologie*, XXXVI-1, 81-123.
- Khlat M., Jusot F., Ville I. (2009). « Social Origins, Early Hardship and Obesity : A Strong Association in Women, but not in Men?». *Social Science and Medicine*, 68, 9 : 1692–1699.
- Marmot M., Friel S., Bell R., Houweling T.A., Taylor S. (2008). Commission on Social Determinants of Health, "Closing the Gap in a Generation : Health Equity through Action on the Social Determinants of Health". *The Lancet*, 372, 9650: 1661-9.
- Melchior M., L. F. Berkman, I. Kawachi, N. Krieger, M. Zins, et S. Bonenfant, (2006). "Lifelong Socioeconomic Trajectory and Premature Mortality (35-65 years) in France : Findings from the GAZEL Cohort Study". *Journal of Epidemiology and Community Health*, 60 : 937-944.
- Peretti-Watel P., Constance J., Seror V., Beck F. (2009). "Cigarettes and Social Differentiation in France : Is Tobacco Use Increasingly Concentrated among the Poor?". *Addiction*, 104, 10 : 1718-1728.
- Power C., Matthews S., et Manor O. (1998). "Inequalities in Self-Rated Health : Explanations from Different Stages of Life". *The Lancet*, 351 : 1009-1014.
- Power C. et Hertzman C. (1997). "Social and Biological Pathway Linking Early Life and Adult Disease". *British Medical Bulletin*, 53 : 210-221.
- Roemer J. (1998). *Equality of Opportunity*. Harvard University Press ; Cambridge.
- Saint Pol (de) T. (2010). *Le corps désirable. Hommes et femmes face à leur poids*, Paris, Presses universitaires de France.
- Trannoy A., Tubeuf S., Jusot F., Devaux M. (2010). "Inequality in Opportunities in Health in France : A First Pass". *Health Economics*, Volume 19 (8): 921-938. DOI. 10.1002/hec.1528.
- Wadsworth, M. E. J. (1999). "Early Life Hypothesis". in *Social Determinants of Health*, M. Marmot & R. Wilkinson, eds., Oxford University Press, Oxford.