To what extent the genders gap in health a social issue? 
An exploratory analysis of the contribution of family and work situations to sex differences in health

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A recent study indicated an expansion of disability in France in the 50-65 age group, which went along with an increase in the sex differentials. Above differences in diseases, gender studies suggest a possible detrimental effect of situations related to gender social roles. Specific combinations of work and family loads might impact health and functioning. This paper describes gender-specific family/work situations and their impact on health using the French Gender and Generation Survey. The analyses are based on two health dimensions (mental wellbeing, activity limitations) and various social and family situations.

In the 2005 survey, 20% of men and 19% of women aged 35 to 79 years older report activity limitations and 12% and 26% report poor well-being. Women face more combinations of work and family loads which are expected to be associated with poor health. Generally these situations affect health in both sexes. Accounting for the gender-specific distribution of these situations tends to lower the OR of female over male health risks, but changes are not significant. This exploratory study shows situations of vulnerability with a combination of isolation and family/work burden associated with poor health. Meanwhile, more research is needed to better define these situations and measure their link with current and also future health status.
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CONTEXT

A recent study indicated an expansion of disability within life expectancy in the 50-65 age group, in France (Cambois, Blachier and Robine 2012). Generally and in most countries, women report more disability and poor health than men whatever the age range and the period. Sex differences in predisposition to a number of disabling conditions partly explain female larger prevalence of poor functional health and disability (Crimmins, Kim and Sole-Auro 2011; Oksuzyan et al. 2010; Oksuzyan et al. 2008). But gender studies also draws attention on a possible detrimental effect of various situations related to gender social roles which could contribute to these differences (Annandale and Hunt 1990; Doyal 1995; Hunt and Annandale 1993). Specific combinations of work and family loads might be source of exhaustion and possibly generate functional limitations and deteriorated health (Backes, Lash and Reimann 2006; Doyal 1995; Khlat, Sermet and Le Pape 2000; Lahelma et al. 2002; Melchior et al. 2007); mental health such as anxiety, stress and depression can be affected by family-work situations.

This paper presents preliminary results of a study on gender-specific family/work situations and their impact on functioning and mental health for men and women. The paper describes the construction of family and work situations and how they correlate with poor health. The findings and possible improvements are discussed.

DATA AND INDICATORS

The Gender and Generation Survey is a survey initiated in 2005 devoted to family and work situations and family organization (N=7,394 men and women aged 35-79 years old) (Vikat et al. 2007).

Health: The analyses for this study are based on two health indicators. A measure of poor well-being is used to account for the alteration of the mental health, being recognized as having a large impact on the risk of disability and detrimental for the quality of life. Because mental disorders are hard to measures, several measurement instruments have been proposed to assess symptoms of psychological distress and sadness. In this survey, questions inspired by the 7 depressed affect items of the depression scale CES-D have been included (Fokkema T and Dykstra P.A 2002): in this study poor wellbeing is assessed by a positive response to having often experienced one of the following feeling (crying spells, feeling sad, fearful, blue, downhearted, failure in own life). We kept the loneliness indicators apart, used to construct and indicator of isolation (see below). Health is also assessed by a measure of functioning through the disability indicator "global activity limitation indicator" (GALI) part of a small module of three health questions used in various survey in Europe (Cox et al. 2009; Jagger et al. 2010): "have you been limited in at least 6 mouth in activities people usually do because of health problems?". This indicator is linked to functional limitations that have consequences on activities (Cambois, Robine and Mormiche 2007); in France, it is particularly related to occupational inactivity in active ages male population (Tubeuf et al. 2008).

Family and work situations: We considered various social and family situations as potentially determinant for health. Indeed, different dimensions of the situations and roles should be considered, as illustrated in a study which underlined the importance of combining information on
the type of work, family structure and the level of conciliation between family and work lives (Sekine et al. 2010). Three loads are considered:

- **Living arrangements**: In our study, the living arrangement variable describes whether the men and women live single, in couple, single with children, in couple with children or other. We further account for the marital history in order to account for the health risk associated to divorce and separations (Fokkema T and Dykstra P.A 2002; Hughes and Waite 2009; Zhang and Hayward 2006). Marital history variable describes whether the men and women have never lived in a union, have experienced one or more separations; have ever been widowed or have both been widowed and separated and finally those who are in couple never separated. Finally, we measure whether or not the person feels isolated from others using positive answers to at least one of the following questions: ever feeling excluded from others, feeling alone, not feeling close to others.

- **The work situations**: They are described by three variables: the activity status (being currently employed, unemployed, in sick leave/work disability, retired, other inactive). Unemployment and inactivity are associated with poor health and can affect both sexes differently (Jusot et al. 2008; Khlat, Sermet and Le Pape 2004; Sermet and Khlat 2004). We also assess the working time (full time, chosen part time, imposed part time, not concerned) as playing a potential role on health and well-being, in a different way according to the sex and the generation. Differences in the work association with health in men and women are expected. Indeed, the work situation and careers are driven by different factors. For women, they are more influenced by the family situations than for men (Pailhé and Solaz 2008, 2009). Even if the measurement of the effect of caring while working are difficult to measure, there are evidences of an impact of caring on health (Bihan-Youinou and Martin 2006), therefore we accounted for the fact of both working and caring (Neither work nor care, work only, care only, both); caring is measured by the question on whether the person provides assistance to a relative.

- **Family and/or work loads**: Cumulating chore, parental and professional activities can alter health (Backes et al. 2006; Doyal 1995; Khlat et al. 2000; Lahelma et al. 2002; Melchior et al. 2007). To address this question, and how far it plays differently for men and for women, we use different indicators. The family load is first measured by a variable of chore activity share (do less than the spouse, do equal, do more, not in couple). Doing more can be chosen and can even target selected population healthy enough to perform multiple activities (Khlat et al. 2000). We also account for more subjective appraisal of the work/family loads, as it has proven to be a way of distinguishing what could be identified as a burden (Coursolle et al. 2010; Vaananen et al. 2004). We use the survey question on the satisfaction with the chore activity share among spouses (satisfied, not satisfied, not in couple); the overspilling of family issues on work activities (you feel to tired at work due to what you have to do at home and/or can not concentrate at work because of family responsibilities). Finally an indicator of multiple roles is used to describe a possible burden by combination of chore, care and work. We construct a score summing up working (+1) / caring for a relative (+1) / equal share of chore activities (+1) or do more than the spouse (+2). Scoring 3 or 4 is considered as multiple roles.

**ANALYSIS**

We first describe the male and female distributions of the family and work situations in three age groups (35-49, 50-64, 65-79), except for the analysis of the impact of work situation which was not conducted in the older age group. Social roles and their impact in terms of multiple activities and potential factor of health deterioration might have changed over time and across generation, justifying the comparison of the effect in the three age ranges (Arber and Khat 2002; Hunt 2002). Multivariate models measure the effect of work/family situations on health for women and men in the three age groups, controlling for age and diploma. The contribution of these situations on the sex
differences in health is measured by multivariate logistic model including separately the work and family situations.

RESULTS

In the 2005 survey, 20% of men and 19% of women aged 35 to 79 years older report activity limitations and 12% and 26% respectively report poor well-being. Regarding activity limitations, the prevalence increases with age (Figure 1); men are more likely to report activity limitations in mid-adulthood but less likely in older age groups. Regarding poor wellbeing, the prevalence increases only slightly with age and women are about two fold more likely to report it than men.

Women face more frequently than men combinations of work and family loads which are expected to be associated with poor health (see figures in annex): 43% vs 36% have undergone one or more union dissolutions; 29% vs 18 % live single, with and without children; 20% vs 13% feel isolated. Women work less often than men (47% vs 56%) and more often in involuntary part time among workers (14% vs 5%), but also more often in chosen part time (1% vs 18%). Women are more often caregivers (8% vs 4%) even among the workers. They report more that their family loads overspill on work (10% vs 7% among those who work) and to be unsatisfied with the share of chore activities between the spouses (34% vs 15% of those in couples). These figures changes with age groups due to changing roles and family composition across ages and generations.

Figure 1. Male and female prevalence of activity limitation and altered well-being in three age group, France men and women, 2005

Some types of living arrangements matter for health and functioning (Figure 2). Compared to leaving with a spouse, living single is associated with poor wellbeing for men and women after age 50. Living single with children is associated with poor wellbeing for women before aged 65. Women aged 50-65 living single without children are more incline to report activity limitations. In the youngest age group, living with children is associated with a lower risk of activity limitation in men compared to living in couple and without children (not statistically significant in women). The marital history also matters for both sexes where separation and widowing are associated with higher risks of poor wellbeing; never married is only associated with poor wellbeing in the 65-79 age group. Never married or being widowed go along with activity limitation for the youngest men, as do union dissolutions or being widowed for younger women. In all age groups and for both sexes, isolation is strongly associated with poor wellbeing and functioning.
Some work situations are linked to altered health for both sexes in the two age groups 35-49 and 50-64 (Figure 3). Being unemployed, inactive and in disability/sickness leave are associated with both poor well-being and functioning. Compared to working full time, being in imposed part-time is associated with activity limitation for both sexes, but not with poor well-being. Chosen part-time is associated with a lower risk of altered well-being in the female 50-64 age group. Finally, caring and working is not associated with a poorer health than only working, but caring without working is associated with altered well-being in the youngest women.

While doing more or doing less than the spouse is generally not health related (it is associated with lower activity limitation in the older age group for women), being not satisfied with this share is associated with altered wellbeing for both sexes and all age groups (except older women); unsatisfied younger men are more incline to report activity limitations.

The overspill of family issues on work is linked to poor wellbeing in both sexes, but not with activity limitation. Cumulating chore, care and work is associated with same or better health than those who only work, except for older men and women who are more incline to report poor wellbeing.
Finally, we assessed the contribution of the sex-specific distributions of family and work loads to the sex difference in health (Figure 5). In the different models, the changes in the OR of women over male risks of poor wellbeing and functioning are not significant, due to large confidence intervals. We can still identify a repeated pattern across age groups and health indicators. The introduction of work and family situations tends to lower the OR of women over male risks in some cases. Regarding altered well being, work status and family/work loads at all ages and living arrangement in the older age group; it reduces a little the female excess risk, meaning that female family and work situations contribute to their over-risk.

Regarding activity limitations, the gender gap is inexistent or in favour of women in the younger age groups: the introduction of social situation tends to reinforce the male disadvantage in the 35-49 age group, meaning that men would report even more activity limitations if they had the same situations than women. In the two other age groups, the work/family loads play in the opposite sense; it would make women reporting more activity limitations if they would be in similar situations then men.
Figure 4. OR of altered well-being and activity limitations adjusted for age and diploma according to various work/family situations in men and women aged 35-49, 50-64 and 65-79. (* 95% statistically significant OR)

Figure 5. OR of the female over male risk of altered wellbeing and activity limitations controlling for age and diploma and for the work/family situations. (with 95% confidence intervals)
DISCUSSION

In our study, women report largely more altered wellbeing than men, but men tend to report more activity limitations than women. The indicators used, the GALI, might explain this latter finding, while women are usually more prone to report almost all the conditions and functional problems. In France, a study shows that GALI indicator is correlated to work inactivity (Tubeuf et al. 2008). This might induce that men report more their functioning problem via this indicator than via other types of indicators used in other surveys. Whatever the medical cause of the work inability, the situation of not working makes obvious an "activity limitation" in a context where working is the rule, especially for men. At older ages, the activity limitations are generally more reported by women: this is not significant in this study, but accounting for all ages above 65 and with a larger sample size, the difference turn to male advantage.

Regarding the contribution of the family and work situations, men and women generally experience poorer health in similar family and work situations such as living single, especially with children, being unemployed, being not satisfied with the chore activity share or feeling family issue spilling over work. These associations are due to causal relationship in both senses: poor health increases the risk of being unemployed, in imposed part-time or single and poor health could lead to be unsatisfied in their level of contribution to chore activities. In the other way round, being single, out of job or only part-time worker, experiencing overspill can increase anxiety and stress and can generate functional difficulties and activity limitations. This study cannot assess to what extent the two causality senses explain this association, but it confirms that specific situations, unequally distributed in male and female populations, are associated with poor health. The use of the second and third waves of the survey could help exploring how far the situation can induce the onset of poor health.

In this study, we found no significant association between caring and health, expect for the younger age group for women who report caring but not working, which is associated with altered wellbeing. In the same line, we did not find association of multiple roles and poor health, except for the older age group; in the youngest age group, women with multiple role report less a poor wellbeing. Whether this finding means that these activities are not detrimental to health or whether a selection effect on who can performs such activities is hard to disentangle. There are evidences on both sides in the literature.

Looking at how the sex specific distribution of the work and family roles contribute to sex differences in health does not bring significant results, partly due to large confidence intervals. We still identify a systematic pattern in which the OR of female over male risks of altered wellbeing tends to decrease when introducing the family/work situations. This would attest for the contribution of detrimental situations more frequent in women to their health disadvantage. Regarding activity limitation, the results generally go also in the sense of more frequent detrimental situations in the female population that they would have been even more "protected" than men as it appears in the survey if the men and women situations were alike. In the older age group, the result is inverted when considering the family/work loads ages at which multiple roles is associated with activity limitation while it is not at younger ages.
Due to embedded family and work histories and selections effects, it is difficult to measure the contribution of each situation to poor health and to sex differences in poor health (Khlat et al. 2000; McDonough and Walters 2001; Walters, McDonough and Strohschein 2002). In our results the size of the sample might hide a part of the associations. But the indicators constructed might also limit the scope of our results. Better identification of detrimental situations to avoid selection effect could be tested. Furthermore, indicators of job insecurity could be added and work/family loads better measured.

Despite the limits at this stage, this exploratory study based on detailed family and work characteristics still show situations of vulnerability with a combination of isolation and family/work burden associated with poor health. Meanwhile, more research will be conducted to better define these situations and measure their link with current and also future health status.
ANNEX

MALE AND FEMALE DISTRIBUTIONS OF LIVING ARRANGEMENT IN 2005 IN THE 35-79 FRANCH POPULATION

MALE AND FEMALE DISTRIBUTIONS OF WORK SITUATIONS IN 2005 IN THE 35-79 FRANCH POPULATION

Work in progress
MALE AND FEMALE DISTRIBUTIONS OF FAMILY/WORK SITUATIONS IN 2005 IN THE 35-79 FRANCH POPULATION

Work in progress
REFERENCES


