

Quality of work and health status:  
A multidimensional analysis

Tindara Addabbo<sup>1</sup>, Marco Fuscaldo<sup>2</sup>, Anna Maccagnan<sup>3</sup>

<sup>1</sup> CAPP and CHILD, Faculty of Economics “Marco Biagi”,  
University of Modena and Reggio Emilia  
[tindara.addabbo@unimore.it](mailto:tindara.addabbo@unimore.it)

<sup>2</sup> PhD School of Economic Policy, Catholic University, Milan  
[marco.fuscaldo@unicatt.it](mailto:marco.fuscaldo@unicatt.it)

<sup>3</sup> Faculty of Economics “Marco Biagi”,  
University of Modena and Reggio Emilia  
[anna.maccagnan@unimore.it](mailto:anna.maccagnan@unimore.it)

Preliminary Version

August 3rd 2011

XXVI National Conference of Labour Economics  
Università Cattolica del Sacro Cuore, Milano 15-16 September 2011  
Session E.5 - Health at work 2

**Keywords:** Quality of work, health status, elderly.

**JEL-codes:** J14, I14, J28

## Abstract

Quality of work has been found to significantly affect health outcomes. In this paper we analyse the extent to which the quality of the work done in the past affects the health of the elderly in Italy. For this purpose, we use data drawn from the Italian sample of the Survey of Health, Ageing and Retirement in Europe (SHARE) and focus on individuals aged over 60.

Using different types of factor analysis, we identify three dimensions of quality of work and five factors of health status. In particular, as regards the former, we distinguish among the physical dimension, the control dimension and the socioeconomic dimension of work quality. As regards health, using a nested factor model we obtain a factor of global health problems and four residual factors of cognitive problems, mobility problems, affective problems and motivational problems. These factors are then analysed by gender using a multivariate analysis.

Our findings suggest that good quality of work in terms of the socioeconomic and control dimensions significantly decreases the probability of being globally unhealthy during the elder phase of one's life cycle as well as of displaying motivational problems, the effect being similar in both genders. We also find that a higher level of control in men's work increases their affective problems when they are older and have left the labour force, suggesting a loss in men's social sphere after retirement from a rewarding job and a likely underdevelopment of their relational dimension outside their work activity.

## 1. Introduction<sup>1</sup>

The paper sets out to analyse the link between different dimensions of the quality of work and health status in its multidimensionality in Italy. Amongst industrialised countries, Italy has been found to score relatively poorly in terms of workers' satisfaction with working conditions (Clark, 2005) and its Southern European welfare regime shows a lower contrast to the negative effect of poor working conditions on workers' health status (Dragano, Siegrist & Wahrendorf, 2010). Moreover, Italy presents one of the lowest fertility rates in the world and an increasing elderly population. It is therefore relevant to assess to what extent different dimensions of quality of work experienced in one's working life may affect health status and individual wellbeing later on in life, controlling for other social determinants of health as well as for gender differences.

The focus of the paper is therefore on the effect of working conditions on individuals' later health status. For this purpose, we use the Italian sample of the Survey of Health, Ageing and Retirement in Europe Retrospective Survey (SHARE-Life) merged with current SHARE information on the health status of those who are 60 or older.

The sample is made up of individuals who are currently not in the labour force but who had work experience for at least five years of their lives. Quality of work refers to the prevalent work experience in the individual's working life, and the dimensions analysed are the outcomes of factor analyses on the different dimensions of the quality of work that the SHARE retrospective survey allows us to recover. The three quality of work dimensions that have been obtained through factor analysis are:

- the physical dimension: whether the work was physically demanding, characterised by an uncomfortable work environment, or by a heavy time pressure;
- the control dimension: whether the worker had the opportunity to develop skills, and whether s/he had freedom to decide how to do his/her work;
- the socioeconomic dimension: whether the worker received the recognition reserved for his/her work; whether s/he was treated with fairness, whether there was a good atmosphere in the workplace amongst colleagues and whether the salary was considered adequate considering all efforts and achievements.

The different dimensions of quality of work are then considered as social determinants in the health status, which is measured using a nested factor model (Fuscaldo 2010). Such a latent structure is

---

<sup>1</sup> This research is part of the “Measuring the capability of living a healthy life and policy implications in a gender perspective” project. Funding from the Ministry of Health and the ISS (Istituto Superiore di Sanità) is gratefully acknowledged.

perfectly capable of capturing both the multidimensionality of a global factor and the particular information enclosed in the four residual dimensions of health: mobility, cognition, affection and motivation.

The paper starts with a survey of the literature on the interaction between quality of work and health status (Section 2), before the microdata and the sample used to assess the link between quality of work and later health status in Italy is described (Section 3). The Model used to identify quality of work dimensions and the relevant dimensions of health status is presented in Section 4. Section 5 presents some descriptive statistics on the sample selected for our analysis, whereas the results of the multivariate analyses on the determinants of health for individuals not in the labour force aged 60 or over in Italy are presented in Section 6.

## **2. Quality of Work and Health Status**

The interaction between quality of work and health status has been assessed more often with reference to the recurrence of specific diseases or to the effect of particular dimensions of the quality of work. In this regard, the length of the working day and the timing of shifts have been found to negatively affect health. According to Kleiner & Pavalko's analysis on the US National Longitudinal Survey of Youth (2010), a working week of between 40 and 59 hours is found to be related to worse physical and mental health.

Work-related stress has been found to be associated with coronary heart diseases and mental health problems, this interaction is linked to the recurrence of work stress and to the degree of control on one's work (Eurofound, 2010, 2011). According to Siegrist et al. (2004), effort-reward imbalance at work is associated with poor self-rated health outcomes in a cross-country analysis based on epidemiologic studies using a sample of workers in different sectors and countries.

The interaction between poor quality of work and health status has been found to be related to the type of welfare state, with the strongest links between poor quality of work and depressive symptoms in countries characterised by Liberal and Southern welfare regimes (Dragano, Siegrist & Wahrendorf, 2010).

A health-adverse psychosocial work environment has been found to be associated with early retirement, and such poor working conditions (in terms of high physical demands, high psychosocial demands, low control, low reward and low social support at work) are associated with poor health during retirement (Siegrist & Wahrendorf, 2009, 2011).

The quality of work itself may be analysed with regards to different dimensions (Gallino, 1993; Addabbo & Solinas, 2011): economic (regarding workers' perception of their income and employment protection); complexity (difficulty/variety of the job, repetitiveness of the tasks and skills and commitment

required); organisation and control (concerning the workers' potential for being informed of, affecting and interacting with the decision-making process of a given organisation); ergonomic (concerning the safety of the working environment both physically and psychologically); social (within the workplace with colleagues and employers, but also in terms of the social recognition of work and with reference to the interaction between work and social life), and that of the work-life balance.

### 3. Data description

The data for the analysis are drawn from the publicly-released version of the *Survey of Health, Ageing and Retirement in Europe* (SHARE – second and third wave). What makes SHARE special is that it is the first cross-national and longitudinal study to explore topics related to work, retirement, work quality, health, health care, psychological factors, aspects of daily life and socio-economic positions among people aged 50 or over. The dataset also contains precious information about family composition and other individual and household socio-demographic characteristics (Borsh-Supan et al. 2005, 2008). The survey was conducted in a large number of European countries (from Scandinavia to the Mediterranean including a couple of Eastern nations). Based on probability samples in each participant country, data were collected using computer-assisted personal interviews (CAPI) supplemented by two self-completion questionnaires (drop-off and vignettes).

### 4. Measuring health and quality of work

Our empirical analyses use the second and third wave of the Italian SHARE survey. The second wave, carried out in 2006/2007, contains information about health status and socio-demographic characteristics. In addition, we use the retrospective data from the third wave of SHARE (2008/2009) with information about the quality of work of the last main job of the working career (lasting longer than five years).

The wide range of questions of the second wave of SHARE allows for an analysis of a large number of health indicators, which are modelled using factor analyses. Each variable is a dichotomous item in which a value of one represents the deprived situation. The indicators (Appendix) are grouped into three main dimensions of health (Nagi 1976): physical, emotional and cognitive performance.

A sequence of confirmative factor analyses is used in order to reveal the best representation of the data. The preferred structure turns out to be a *nested model* (Gignac 2007; Hallerod 2009). It identifies five different dimensions of un-health: the global factor (*Glob*), which relates to all the indicators examined, and four residual factors that measure the specific experiences of physical limitations (*Phys*), cognitive problems (*Cogn*), affective suffering symptoms (*Affect*) and motivational

difficulties (*Motiv*). The rationale and psychometric properties of this model are fully explained elsewhere (Fuscaldò, 2010). The pattern of the different CFAs has demonstrated that the relationship between the various indicators of health is independent of gender and age (Fuscaldò 2011).

The interpretation of the nested model is straightforward. The degree to which people simultaneously suffer from all the health problems is measured by *Glob*. People who are exposed to physical limitations but not to cognitive, affective and motivational problems score on *R\_Phys*. *R\_Cogn* measures to what extent individuals who do not have any physical and psychological trouble have nevertheless some restrictions in cognitive functions. Emotional performance is comprised of two residual factors. People who have usual symptoms of affective suffering (*Sadness/Depression, Suicidal Tendency, Guilt, Trouble Sleeping, Irritability, Loss of Appetite, Fatigue and Tearfulness*), but otherwise do not report difficulties with mobility, cognitive function and motivation, score on *R\_Affect*. *R\_Motiv* measures to what degree individuals who do not have other health problems are only affected by motivational difficulties (*Pessimism, Lack of Enjoyment, Lack of Interest and Poor Concentration*).

The quality of work is measured using a set of indicators taken from the retrospective information on the working environment of the individual's last main job. The indicators refer to four main dimensions of work stress models (Addabbo & Solinas 2011, Siegrist et al. 2004): physical, organisational, recognition and social dimension. The indicators are four-point Likert scaled: the higher the value, the better the job quality.

**Table 1 – Indicators of work quality**

Dimension	Item
Physical dimension	My job was physically demanding
	My immediate work environment was uncomfortable
	I was under constant pressure due to heavy workload
Organizational dimension	I had very little freedom to decide how to do my work
	I had an opportunity to develop new skills
Recognition dimension	I received the recognition I deserved for my work Considering all my effort and achievements, my salary was adequate
Social dimension	I received adequate support in difficult situations
	There was a good atmosphere between me and my colleagues
	In general, employers were treated fair

The items are specified in Table 1 and modelled using factor analyses. The preferred structure of the data identifies three oblique factors. Table 2 shows that the items of a physically demanding job have strong loadings on the first factor. The indicators that reflect troubles with autonomy and control have heavy loadings on the second factor. The third factor is mainly related both to recognition and social environment indicators. Hence, the results seem to reject the presence of two separate factors for the recognition and the social dimension of work (Siegrist & Wahrendof 2011). The Italian sample indicates a strong relationship between the social and reward satisfactions of work.

**Table 2 - Quality of work factors**

	Factor I	Factor II	Factor III
	Physical dimension	Control dimension	Socioeconomic dimension
Physical demanding	0.71		
Uncomfortable	0.68		
Time pressure	0.67		
Little freedom		0.61	
New skills		0.69	
Recognition			0.59
Adequate salary			0.68
Support			0.81
Good atmosphere			0.62
Employees treated fairly			0.56

Note: the table had no zero. The factor loadings with value less than  $|0.35|$  have been not reported for ease of comparison.

Source: Factor analysis on SHARE-Life data.

## 5. Descriptive Statistics

In order to assess the long-term effect on health of the quality of work dimensions, our analysis is restricted to those individuals aged 60 or over, who have worked during their lives but who are currently retired. This allows us to work on a homogeneous sample and to analyse the effect of previous working conditions on the current level of health. Our sample is made up of 327 women and 596 men.

**Table 3 – Descriptive statistics, men and women aged over 60 who have past work experience but who are currently retired**

	Men		Women		Gender difference	
	Mean	S.D.	Mean	S.D.	W-M	t-test
Global health problems	0.26	0.20	0.36	0.21	0.10	6.31***
Mobility problems	0.44	0.17	0.48	0.17	0.04	4.18***
Cognitive problems	0.33	0.16	0.29	0.13	-0.03	-3.94***
Affective problems	0.35	0.19	0.42	0.21	0.07	5.78***
Motivational problems	0.18	0.08	0.17	0.08	-0.01	-2.62***
Physical dimension	0.41	0.21	0.46	0.20	0.05	3.49***
Socioeconomic dimension	0.56	0.18	0.53	0.19	-0.03	-1.57
Control dimension	0.45	0.17	0.42	0.16	-0.03	-2.16**
Age	70.56	7.00	71.04	7.52	0.48	3.07***
Elementary worker	0.30	0.46	0.41	0.49	0.11	2.66***
Clerical worker	0.22	0.41	0.19	0.39	-0.03	0.28
Skilled worker	0.26	0.44	0.22	0.41	-0.04	-2.04**
Farmer or skilled worker in agriculture	0.12	0.33	0.10	0.29	-0.03	-1.35
Professional worker	0.07	0.25	0.09	0.29	0.02	1.09
Involuntary part-time worker	0.02	0.14	0.05	0.22	0.03	3.49***
High education	0.07	0.26	0.04	0.19	-0.04	-1.20
Medium education	0.17	0.37	0.21	0.41	0.04	1.69*
South	0.20	0.40	0.14	0.34	-0.07	-2.16**
Rural	0.45	0.50	0.49	0.50	0.04	1.54
Log wealth	11.97	1.43	11.86	1.59	-0.11	-0.54
Severe chronic conditions	0.24	0.42	0.17	0.37	-0.07	-1.70*
Mild chronic conditions	0.55	0.50	0.70	0.46	0.16	4.16***
Obs.	596		327			

Source: our elaboration on SHARE data

The variables “global health problems”, “mobility problems”, “cognitive problems”, “affective problems” and “motivational problems” represent the dependent variables in our analysis.<sup>2</sup> Not

<sup>2</sup> In this table the factors related to level of health and to quality of work have been normalized using the following expression:  $\text{norm\_factor} = (\text{factor} - \min(\text{factor})) / (\max(\text{factor}) - \min(\text{factor}))$ . The normalized factors ranges between 0 and 1, facilitating making gender comparisons.



surprisingly, descriptive statistics (table 3) suggest that women are globally less healthy than men, and they also display significantly higher levels of the residuals factors on mobility and affective problems. Men, on the other hand, are more likely to have residual motivation and cognitive problems than women.

Among the socio-economic factors affecting health, we include variables on past working conditions, on the level of education, on net household wealth, and on the area where the individual lives. In line with Salomon et al. (2003) and Fuscaldo (2010), we also include the presence of at least one mild or severe chronic conditions as explanatory variables. In this regard, the aggregation is fully reported in the Appendix.

The factors describing the quality of previous work, presented in Section 4, show relevant gender differences. According to our statistics, women are better off than men in terms of physical job quality, while the opposite is true in terms of the control and socioeconomic dimensions, though the latter difference is not statistically significant. These descriptive statistics suggest that women are less likely to do physically demanding jobs, but also that they have lower levels of autonomy in their jobs and lower opportunities to develop new skills, as well as receiving less recognition and support for their work. The lower average score in the socioeconomic dimension experienced by women is consistent with the existence of a gender wage gap and vertical segregation to Italian women's disadvantage.<sup>3</sup>

Women in the sample are significantly older than men. Turning to the characteristics of main job in life, we defined five categories of job positions, using the International Standard Classification of Occupation (ISCO-88). In particular, we define as *elementary workers* those individuals belonging to the ISCO "Elementary occupations" major group; *office workers* are "Clerks" or "Technicians and associate professionals"; *skilled workers* are either "Service workers and shop and market sales workers", or "Craft and related trades workers" or "Plant and machine operators and assemblers"; *farmer or skilled agricultural workers* are occupied in "Skilled agricultural and fishery occupations"; *professionals* include the ISCO major groups "Legislators, senior officials and managers" and "Professionals".

As shown by the statistics, in line with the presence of vertical employment discrimination by gender in Italy, we find a higher presence of men in skilled work positions, with women more likely to be employed in elementary occupations. Involuntary part-time positions are more likely to be held by women (5% of the sample) than by men (2%) in our sample; this may be also connected to the higher level of part-time work in recent years and to the greater likelihood that part-time work was not available when people in the sample were of a working age. Women in our sample are less likely than men to have a high level of education, and more likely to have a medium level of education, but only the latter finding is significant, and only at a level of around 10%.

---

<sup>3</sup> Addabbo & Favaro (2011), Addabbo, Borghi, Favaro (2006), Simonazzi (2006).

It is interesting to note that only 14% of the women in the sample live in the South of Italy, against 20% of the male sample. As in this analysis we are only focusing on individuals having done paid work during their lives, this statistic is in line with the very heterogeneous level of female employment in Italy and the much lower employment rates in the South of Italy.

Finally, in line with the literature, we find that men suffer more than women from severe limitations in their everyday life activities, while women suffer more from mild limitations.

## **6. Quality of work and health. Results from multivariate analysis**

In Table 4 we present the results of the regression analysis on the five factors described in Section 4. Among the covariates that affect health, we include age, educational level, data on the area where the individual lives, the logarithm of wealth, the variables assessing the quality of prevalent employment activity and the presence of at least one mild or severe chronic condition. The models are estimated separately for men and women in order to detect gender differences in the definition of individuals' health.

As we are dealing with factors that result from a factor analysis, coefficients related to these variables are not easily interpretable. We have therefore decided to report the standardised solution of the regression models. In particular, we have standardised all the continuous variables, keeping dummy variables as such. Regression coefficients related to continuous variables represent the change in standard deviations in the dependent variable that follows a 1 standard deviation change in the independent variable. Coefficients related to dummy variables, on the other hand, must be read as the standard deviation change in the dependent variable, given the fact that dummy variable goes from 0 to 1.

### Global problems:

In keeping with the empirical evidence, the occurrence of multiple health problems increases with age, the tendency being more pronounced among women. The presence of severe or mild chronic medical conditions increases the probability of having multiple health problems, the effect being higher among men than women with reference to both types of diseases. Turning to past work experience, having been employed as an elementary worker increases the probability of having multiple health problems with respect to having been employed as a professional worker. The effects of this are observed only in men. Women who have worked as farmers or skilled workers in agriculture are the worst off compared to those employed as professional workers.

As far as the dimensions of quality of work are concerned – measured with the three factors included in the social determinants of health – good quality in terms of socioeconomic and control

factors significantly decrease the probability of being globally unhealthy, the effect being similar by gender. However the higher the physical factor value is, the lower the probability of being globally unhealthy for women, while this does not affect men's global health. Wealth does not significantly affect global health, unlike other evidence in the literature concerning the whole SHARE sample (Fuscaldo, 2010). This may be connected to the introduction in the model of the socioeconomic dimension of the main job in life, which in turn may explain the observed level of wealth reducing its importance in the analysis of the social determinants of health.

#### Mobility problems:

We may now turn to the models analysing the determinants of the factors describing residual mobility, cognitive, affective and motivational problems.

As expected, our results suggest a higher level of mobility problems with increasing age and with the presence of health problems leading to both severe and mild chronic conditions. This is true for both men and women. Men who have been employed as elementary workers have fewer residual mobility problems compared to professional workers. This may be connected to the higher likelihood that elementary workers suffer from multiple health problems. However, compared to professionals, also skilled workers (who are not characterised by worse global health conditions) are found to be less likely to have residual mobility problems.

The factors measuring the quality of past work have hardly any significant effect on the residual mobility problems of men and women. However, there is evidence that a better level of socioeconomic satisfaction reduces men's mobility problems.

Living in the South increases women's mobility problems, while living in rural areas negatively affects men's mobility.

#### Cognitive problems:

Residual cognitive problems are positively correlated with age, both for men and women. Having only cognitive problems is independent of past work experience for men. Among women, farmers or skilled agricultural workers are slightly worse off than to professional workers. Higher levels of education reduce the presence of cognitive issues just among men. That is, residual cognitive problems among women are independent of the level of education. Men who have at least one severe chronic condition present lower residual cognitive problems. This is not to say that men with severe chronic diseases are less exposed to cognitive problems compared to those without any illness, but that the ones with severe chronic conditions are less likely to lose their cognitive function without experiencing any other health limitations.

Work quality has no significant effect on women's residual cognitive problems. On the contrary, higher control and autonomy are negatively and significantly correlated with men's output. The effect of socioeconomic recognition is positive and significant among men. This is probably related to the fact that a lower socioeconomic work quality affects men's multiple health problems rather more.

#### Affective problems:

Younger women in the sample are more likely to have a higher level of residual affective problems. This is probably due to the fact that older women tend to have a higher level in the global problems factor, as well as mobility and cognitive problems (as stated above). Lower levels of affective problems are also to be found in rural areas among women. Men having been employed in elementary and office posts are worse off compared to those who have worked as professionals in terms of the likelihood of having residual affective problems. The same effect is observed among farmers and skilled agricultural workers. On the contrary, residual affective problems among women seem to be independent of their past work experience.

Higher work quality in terms of the physical dimension reduces women's affective problems, while it is interesting to note that a higher level of control in men's work increases their affective problems. This suggests a loss in men's social sphere after retirement from a rewarding job, but it may also be connected to a lower development of social interaction outside working activities. We also find that wealth reduces men's affective problems.

#### Motivational problems

Female agricultural workers show higher levels of motivational residual problems. Higher levels of work quality in terms of control and socio-economic recognition reduce women's motivation problems during old age, suggesting a long-term effect of positive work conditions. Women in the South also show lesser motivation problems.

**Table 4 – Results from multivariate regression analysis**

	Global problems		Mobility problems		Cognitive problems		Affective problems		Motivational problems	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Age	0.181 (4.37)***	0.357 (6.31)***	0.150 (3.31)***	0.160 (2.57)**	0.191 (3.64)***	0.172 (3.09)***	-0.075 (1.65)	-0.244 (3.66)***	-0.081 (1.73)*	-0.025 (0.41)
Elementary worker	0.320 (2.14)**	0.397 (1.56)	-0.359 (2.20)**	0.210 (0.75)	-0.172 (0.91)	-0.028 (0.11)	0.656 (4.02)***	0.077 (0.26)	-0.143 (0.85)	0.171 (0.62)
Clerical worker	0.198 (1.42)	0.189 (0.86)	-0.213 (1.39)	0.247 (1.02)	-0.042 (0.24)	-0.027 (0.12)	0.346 (2.28)**	0.038 (0.15)	0.251 (1.61)	0.152 (0.63)
Skilled worker	0.032 (0.22)	0.275 (1.07)	-0.361 (2.24)**	0.314 (1.11)	-0.093 (0.50)	0.088 (0.35)	0.259 (1.61)	-0.199 (0.65)	-0.190 (1.15)	0.339 (1.21)
Farmers and Skilled worker in agriculture	0.239 (1.43)	0.846 (2.83)***	-0.423 (2.31)**	-0.011 (0.03)	0.100 (0.47)	0.516 (1.75)*	0.355 (1.95)*	-0.138 (0.39)	0.257 (1.37)	0.808 (2.49)**
Involuntary part-time worker	-0.167 (0.66)	-0.039 (0.17)	-0.280 (1.01)	-0.083 (0.33)	-0.178 (0.56)	0.065 (0.29)	-0.301 (1.09)	0.163 (0.60)	0.493 (1.74)*	0.137 (0.54)
High education	-0.133 (0.80)	0.221 (0.68)	-0.128 (0.70)	0.295 (0.82)	-0.569 (2.68)***	-0.058 (0.18)	0.479 (2.62)***	-0.315 (0.82)	-0.099 (0.53)	0.282 (0.80)
Medium education	-0.089 (0.79)	0.112 (0.66)	-0.013 (0.10)	0.022 (0.12)	-0.369 (2.57)**	-0.060 (0.36)	0.259 (2.09)**	0.005 (0.02)	-0.209 (1.64)	0.094 (0.51)
South	-0.173 (1.94)*	-0.023 (0.15)	-0.029 (0.30)	0.271 (1.65)	-0.078 (0.69)	-0.158 (1.07)	0.087 (0.89)	0.351 (1.99)**	0.002 (0.02)	-0.609 (3.75)***
Rural	0.043 (0.59)	0.041 (0.40)	0.200 (2.52)**	0.123 (1.08)	-0.272 (2.97)***	0.072 (0.71)	-0.103 (1.30)	-0.218 (1.79)*	-0.062 (0.76)	-0.190 (1.70)*
Log wealth	-0.030 (0.80)	0.004 (0.08)	-0.057 (1.41)	-0.051 (0.98)	0.017 (0.36)	-0.052 (1.12)	-0.121 (2.97)***	0.037 (0.67)	-0.031 (0.75)	0.003 (0.05)
Severe chronic condition	1.013 (9.67)***	0.746 (4.05)***	0.916 (7.98)***	0.922 (4.55)***	-0.279 (2.10)**	-0.280 (1.54)	0.135 (1.18)	0.312 (1.43)	-0.150 (1.27)	-0.154 (0.77)
Mild chronic condition	0.391 (4.46)***	0.367 (2.35)**	0.469 (4.88)***	0.318 (1.85)*	-0.071 (0.64)	-0.052 (0.34)	0.012 (0.13)	0.243 (1.32)	-0.165 (1.68)*	-0.220 (1.30)
Socioeconomic dimension	-0.139 (3.72)***	-0.110 (2.15)**	-0.087 (2.12)**	0.043 (0.76)	0.087 (1.84)*	0.018 (0.36)	-0.034 (0.84)	-0.089 (1.47)	-0.000 (0.00)	-0.109 (1.96)*
Physical dimension	-0.019 (0.49)	-0.176 (3.18)***	-0.047 (1.14)	-0.076 (1.25)	0.053 (1.11)	0.008 (0.15)	-0.023 (0.56)	-0.132 (2.03)**	0.014 (0.34)	0.027 (0.44)
Control dimension	-0.069 (1.91)*	-0.100 (1.86)*	0.013 (0.32)	-0.079 (1.33)	-0.110 (2.40)**	0.019 (0.36)	0.121 (3.05)***	0.054 (0.85)	-0.063 (1.56)	-0.158 (2.71)***
Constant	-0.798 (5.03)***	-0.605 (2.27)**	-0.280 (1.61)	-0.515 (1.76)*	0.467 (2.32)**	-0.171 (0.65)	-0.647 (3.73)***	0.138 (0.44)	0.199 (1.12)	-0.069 (0.24)
Observations	596	327	596	327	596	327	596	327	596	327
R-squared	0.27	0.33	0.16	0.14	0.08	0.09	0.08	0.11	0.06	0.12

Absolute value of t statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: our elaboration on SHARE data

## Conclusions

In this paper, we analysed the effect of different dimensions of the quality of the main working activity during one's life on the current level of health of the elderly in Italy, also taking gender differences in the mechanism that determines the level of health into account.

To this end, we used data drawn from the Survey of Health, Ageing and Retirement in Europe, and in particular the second and third wave, which are full of information respectively on health and the individual's working history. In particular, we focused on a sample of individuals aged over 60 who are currently retired but that have worked in the past, for at least five years.

In order to fully exploit the potential of this data, we used factor analyses to identify dimensions of health and quality of work. Factor analyses allow us to consistently aggregate a high number of variables into a more limited number of dimensions, at the same time preserving the multidimensional concepts of health and quality of work. The health factors are then analysed in a multivariate setting, where they act as dependent variables, affected by a number of socio-demographic factors and by the characteristics of past work. Our results confirm the presence of a significant effect of quality of work on health, and they also suggest the existence of interesting gender differences.

Higher scores in terms of socioeconomic and control dimensions of the quality of work significantly decrease the probability of being globally unhealthy, the effect being similar by gender. However, we find that a high quality of physical work reduces the probability of being globally unhealthy for women, but not for men. This is probably due to the fact that women are more likely to feel the negative consequences of a physically demanding job that, for Italian women, is also more likely to be matched with a physically demanding unpaid care and domestic work due to the unequal allocation of unpaid work by gender in Italy (Addabbo, Caiumi & Maccagnan, 2010, Addabbo, 2003). Moreover, according to our results, a higher level of control in men's work increases their affective problems. This suggests a loss in men's social sphere after retirement from a rewarding job or the underdevelopment of caring and relational dimensions during their working life. We also find that a high educational level protects men – but not women – from residual problems in the cognitive health dimension.

## References

- Addabbo, T. (2003) "Unpaid work by gender in Italy" Ch.2 in A.Picchio (ed.) (2003) *Unpaid work and the economy*, London and New York: Routledge.
- Addabbo, T., Borghi, V. & Favaro, D. (2006) 'Differenze di genere nell'accesso a posizioni apicali', in Simonazzi, A. (ed.), *Questioni di genere, questioni di politica*, Rome, Carocci Editore, 155-179.
- Addabbo, T., Caiumi, A. & Maccagnan, A. (2010) "Unpaid Work, Well-Being and the Allocation of Time in Contemporary Italy", in *Gender Inequalities, Households and the Production of Well-Being in Modern Europe*, ed. by T. Addabbo, M.P. Arrizabalaga, C. Borderias and A. Owens Ashgate, Aldershot, UK and Burlington VT, USA: Ashgate.
- Addabbo, T. & Favaro, D. (2011) 'Gender wage differentials by education in Italy', *Applied Economics*, January 2011.
- Addabbo, T. & Solinas, G. (2011) 'Non-standard employment and quality of work: towards new measurements', Chapter 11 in *Non standard employment and quality of work. The case of Italy* (eds Tindara Addabbo & Giovanni Solinas) Heidelberg, Springer Verlag, forthcoming.
- Clark, A. E. (2005) Your money or your life: Changing job quality in OECD countries, *British Journal of Industrial Relations*, 43 (3): 377-400.
- Dragano, N., Siegrist, J., & Wahrendorf, M. (2010) 'Welfare regimes, labour policies and unhealthy psychosocial working conditions: a comparative study with 9917 older employees from 12 European countries', *Journal of Epidemiology and Community Health*, published on line 6-08-2010.
- European Foundation for the Improvement of Living and Working Conditions (2011) Health and work: a difficult relationship?, *Foundation Focus*, March 2011, <http://www.eurofound.europa.eu/publications/htmlfiles/ef1117.htm>
- European Foundation for the Improvement of Living and Working Conditions (2010) 'Work-related stress', Eurofound, November 2010, <http://www.eurofound.europa.eu/ewco/studies/tn1004059s/index.htm>
- Fuscaldo, M. (2010) "Physical limitations, depressive symptoms and cognitive problems: exploring the complex structure of un-health among older people in Italy, mimeo
- Fuscaldo, M. (2011) "A capability perspective on impairment and disability: an application among elderly people in Italy, mimeo
- Gallino, L. (1993) *Dizionario di Sociologia del Lavoro*. Torino: Utet (I ed. 1978).
- Gignac, G. E. (2007) 'Multi-factor modeling in individual differences research: some recommendations and suggestions.', *Personality and Individual Differences*, 42: 37–48.
- Hallerod, B. (2009) Ill, worried or worried sick? Inter-relationships among indicators of wellbeing among old people in Sweden. *Ageing and Society*, 29: 563 – 584.
- Kleiner, S., Pavalko, E.K. (2010) 'Clocking in: the organization of work time and health in the United States', *Social Forces* 88 (3): 1463-1486.

Nagi, S. (1976) An epidemiology of disability among adults in the United States. *The Milbank Memorial Fund Quarterly. Health and Society*, 54: 439 – 467.

Salomon J. A., Mathers C.D., Chatterji S., Sadana R., Ustun T.B. & Murray C.J.L. (2003) 'Quantifying individual levels of health: definitions, concepts and measurement issues'. In: Murray C.J.L., Evans D., (editors). *Health systems performance assessment: debate, methods and empiricism*. Geneva: World Health Organisation.

Siegrist, J. & Wahrendorf, M. (2011) 'Quality of work, health and early retirement: European comparisons', Ch.15 in Borsch-Supan, A., Brandt, M., Hank, K. and Schroeder, M. (eds) *The individual and the welfare state: life histories in Europe*, Heidelberg, Springer.

Siegrist, J. & Wahrendorf, M. (2009) 'Quality of work, health, and retirement', *The Lancet*, 374, 1872-73.

Siegrist, J., Starke, D., Chandola, T. Godin, I., Marmot, M., Niedhammer, I. & Peter, R. (2004) 'The measurement of effort–reward imbalance at work: European comparisons', *Social Science & Medicine* (58):1483–1499

Simonazzi, A. (ed.), (2006) *Questioni di genere, questioni di politica*, Rome: Carocci.



## Appendix

### *Indicators of health*

#### *Physical Performance*

Walking 100

Sitting for about 2 h

Getting up from a chair after sitting for long periods

Climbing several flights of stairs without resting

Climbing one flight of stairs without resting

Stooping, kneeling, or crouching

Reaching or extending your arms above shoulder level (either arm)

Pulling or pushing large objects like a living room chair

Lifting or carrying weights over 5 kilos, like a heavy bag of groceries

Picking up a small coin from a table

#### *Emotional Performance*

Sadness—Depression

Suicidal tendency

Guilt

Trouble sleeping

Irritability

Loss of appetite

Fatigue

Tearfulness

Lack of Interest

Pessimism

Lack of enjoyment

Poor concentration

#### *Cognitive Performance*

Memory

Recall

Verbal fluency

Orientation

Numeracy

## **Mild and Severe chronic conditions**

### **Mild chronic conditions**

High blood pressure or hypertension

High blood cholesterol

Diabetes or high blood sugar

Chronic lung disease such as chronic bronchitis or emphysema

Asthma

Arthritis, including osteoarthritis, or rheumatism

Osteoporosis

Stomach or duodenal ulcer, peptic ulcer

Cataracts

Hip fracture or femoral fracture

Other fractures

### **Severe chronic conditions**

A heart attack including myocardial infarction or coronary thrombosis or any other heart problem including congestive heart failure

A stroke or cerebral vascular disease

Parkinson disease

Cancer or malignant tumor, including leukemia or lymphoma, but excluding minor skin cancers

Alzheimer's disease, dementia, organic brain syndrome, senility or any other serious memory impairment

Benign tumor (fibroma, polypus, angioma)