**Adaptation to functional limitation and chronic conditions**

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*Background and objective*

Chronic diseases and functional limitations may have serious and persistent consequences for one’s quality of life (QOL). Over time, however, the negative impact of chronic conditions and functional limitations on QOL may diminish, a process we’ll generally describe as ‘adaptation’. A cause of adaptation, resulting in ‘higher than expected’ self-reported QOL values may be an individuals’ changing internal standards, values, or conceptualization of QOL, a process referred to as response shift (Schwartz & Sprangers, 1999). Evidence for differences in perceived health can be found in studies where patients report their own health and inin valuation studies, where general public values for hypothetical health states are generally, but not always, lower than patients’ valuations of those states of health. While response shift and adaptation are well documented, effects are generally small and study designs that provide evidence for its existence weak (Schwartz et al, 2006). A complicating factor in longitudinal research into adaptation is the persistent nature of chronic health problems which may, over time, affect one’s human capital and social and economic status and thus also have an indirect negative effect on QOL in future periods, a process we’ll refer to here as ‘chronic decline’. Disentangling these two processes – adaptation and chronic decline– is a prerequisite for a better understanding of the separate issues. In the context of health economics, a better understanding of adaptation is meaningful because each self-reported QOL measure, such as EQ-5D, may be sensitive to adaptation and is used to quantify the effectiveness of interventions in economic evaluations of health.

There are two research streams regarding adaptation that are of direct interest to the EuroQoL group: the first studies valuation by individuals with and without experience with disease. The second, which is the topic of this proposal, pertains to the influence adaptation has on self-reported health. Since there is very limited longitudinal data available that has information on both disease and income, we suggest this first study as a proof of concept study to identify and disentangle the adaptation and chronic decline processes, which can guide further research.

In short: the aim of this project is to investigate the magnitude of the adaptation effect and the speed at which adaptation occurs after a deterioration in health. Increasing the knowledge within the EuroQoL group will aid prioritization in the research agenda into adaptation in the coming years.

*Data*

We use the Survey of Health, Ageing and Retirement in Europe (SHARE)[[1]](#footnote-1). SHARE is a panel data survey administered in the general population. It currently consists of five waves of data, containing 293,000 observations of 123,000 individuals aged 50 and over from 20 European countries for the period 2004-2013.

SHARE contains two well-being measures: self-rated health (5-point scale) and life satisfaction (10-point scale), the second arguably being a measure of well-being rather than a measure of QOL. The combination of these two variables allow us to infer adaptation effects over time on self-perceived health and self-perceived well-being. Moreover, it contains information on functional limitations[[2]](#footnote-2), health status[[3]](#footnote-3) and background characteristics[[4]](#footnote-4). All information is self-reported, except for some biomarkers which are available for specific subsamples only.

*Methods*

We mimic the study of Clark et al. (2016), who study adaptation to poverty using similar survey data. That is, to study the association between functional limitations and well-being, we regress the well-being measure and the self-perceived health measure on the measure of functional limitations[[5]](#footnote-5), a set of time-variant covariates and fixed effects that pick up variation in time-invariant unobserved characteristics and differences between individuals:

where W is a measure for self-perceived well-being, F is a n\*m matrix representing functional limitations, X is an n\*m matrix representing time variant covariates such as age and income, η is the individual fixed effect and ε is the error term.

To study adaptation, we select only respondents who did not have functional limitations when they first entered the study. We then add to the regression a set of indicator variables indicating the duration of the spell of (e.g. 2 years, 4 years, 6 years): adaptation means that the longer the spell, the smaller the coefficient; full adaptation would yield coefficients that are close to zero and not significant.

*Related literature*

~~Clark A, D’Ambrosio C, Ghislandi S. 2016. Adaptation to poverty in long-run panel data. Review of Economics and Statistics 98: 591-600~~

Lucas R. 1997. Long-term disability is associated with lasting changes in subjective well-being: Evidence from two nationally representative longitudinal studies. Journal of Personality and Social Psychology 92: 717-730.

Oswald A, Powdthavee N. 2008. Does happiness adapt? A longitudinal study of disability with implications for economists and judges. Journal of Public Economics 92: 1061-1077

Schwartz, C.E., Sprangers, M.A.G., 1999. Methodological approaches for assessing response shift in longitudinal quality of life research. Social Science & Medicine 48, 1531–1548.

Schwartz, Carolyn E., et al. "The clinical significance of adaptation to changing health: a meta-analysis of response shift." Quality of life research15.9 (2006): 1533-1550.

1. See [www.share-project.org](http://www.share-project.org) for more information. [↑](#footnote-ref-1)
2. Activities of daily living, instrumental activities of daily living, mobility and the Global Activity Limitation Index. [↑](#footnote-ref-2)
3. Chronic conditions, hospital (inpatient and outpatient) and doctor visits, prescription drug use, long-term care use. [↑](#footnote-ref-3)
4. Among other things: age, gender, family and household composition, income, wealth, employment status, living activities. Moreover, wave 3 contains information on the life history of the respondents. [↑](#footnote-ref-4)
5. To reflect that the functional limitations may worsen over time, we may consider adding two measures: an indicator of occurrence and a measure of the intensity. [↑](#footnote-ref-5)