Non-standard work and mortality. A census-based investigation in Belgium

Long abstract

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Background. Few studies to date have analysed whether being in any kind of job is sufficient to avoid the excess mortality associated with unemployment (1–6), and assessed the relationship between flexible forms of employment and risk of death. Such studies (7–9) found that temporary employment is often associated with increased mortality compared to permanent employment. Apart from mortality outcomes, there is evidence for non-standard/precarious employment being linked to adverse general and mental health outcomes both in the Belgian (10) and the broader context (11–16). We believed it was high time to assess whether these health inequalities are also reflected in mortality inequalities in Belgium.

Objective. This paper aimed to investigate whether being in non-standard employment is associated with elevated all-cause and cause-specific mortality over the subsequent years in Belgium.

Methods. We drew on the 2001 Belgian census and a linked 15 year-long mortality follow-up. Deriving the data from the census creates the unique opportunity of eliminating an often-limiting factor, namely a small sample size and few events of interest occurring. The census was carried out among all individuals registered in Belgium at the time. Over 1,4 million healthy and disability-free men and women, aged 30 to 59, who were wage-employed in 2001 were included in the analysis.

We fitted Cox proportional hazards models to calculate hazard ratios and confidence intervals to assess whether those in non-standard forms of employment (temporary agency, fixed-term, seasonal, and causal work, and work program) in 2001 had excess all-cause and cause-

specific mortality compared to their permanently employed counterparts between 2001 and 2016. The analysis was conducted separately by gender. The proportional hazards assumption was evaluated. Age was used as the underlying timescale, additionally accounting for baseline age in 5-year categories (17). A set of socio-demographic (migration background, partner, living location, educational attainment and housing tenure) and work-related characteristics (sector, weekly working hours, work schedule and whether the person held multiple jobs) was controlled for.

All-cause mortality and mortality from the following causes were looked at: diseases of the circulatory system, cancer, mortality due to all external causes, as well as due to external sub-causes: transport accidents, suicide, and fall.

Results. Among men, temporary agency, seasonal and fixed-term workers and those enrolled in a work program exhibited elevated all-cause mortality after full adjustment compared to permanent employees. The highest adjusted hazard ratio for all-cause mortality computed was for temporary agency workers (hazard ratio: 1.54, 95% confidence interval: 1.39-1.70). External causes (2.06, 1.66-2.56), including suicide (2.17, 1.61-2.91) and fall(s) (2.34, 1.03 - 5.29) were important specific causes among this group, and we also observed significantly raised mortality due to cancer and circulatory diseases (although to a lesser extent). Importantly, we also found raised mortality in seasonal workers due to cancers (1.67, 1.03-2.69) and transport accidents (5.05, 2.07-12.31). Male fixed-term employees had slightly excess mortality due to all causes as well as cancers compared to permanent workers. Those enrolled in a work program in 2001 demonstrated increased risk of death from all causes (1.32, 1.19 - 1.45) and circulatory diseases (1.29, 1.01 - 1.64) between 2001 and 2016 when compared with those in a permanent contract.

Female non-standard workers' mortality patterns were less pronounced, although temporary agency (1.32, 1.14 - 1.51) and fixed-term workers (1.10, 1.02-1.19) had slightly elevated all-cause mortality relative to permanent workers. Female temporary agency workers exhibited increased mortality due to all external causes (1.92, 1.30 - 2.82) as well as due to transport accidents (2.51, 1.22 - 5.16).

Limitations. Information on the type of employment was recorded at one point in time. The length of time spent in that respective form, any other form of employment, and the shifts from one to another form could not be accounted for. Similarly, we did not have information on whether individuals had experienced unemployment during follow-up, and, if so, for how long. It must also be stressed that no information on individuals' health behaviour was available, nor did we have data on self-rated health status prior to 2001 which could have influenced both health selection into types of non-standard employment and premature mortality.

Conclusion. This study provides an additional piece of evidence that non-standard employment should be paid more attention to as a potential public health risk. Temporary agency workers seemed to be particularly at risk among both genders, although male seasonal workers should also be paid increased attention to. In general, gender differences in the findings were considerable. The results also highlight that different forms of non-standard employment are associated with different mortality risks and patterns. Consequently, non-standard workers cannot be viewed as one single group when it comes to health consequences, confirming earlier findings (9).

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