Smoking cessation and transition into retirement: analyses from the English Longitudinal Study of Ageing

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Abstract

Background transitions such as retirement may represent points at which changes in health behaviour occur.
Objective to assess whether transition into retirement is associated with increased rates of smoking cessation.
Setting and Participants one thousand seven hundred and twelve smokers aged 50 years and over, followed up for 5 to 6 years.
Measurements work status (working/retired) and smoking status (non-smoker/smoker) at baseline and follow-up.
Results at baseline, 381 (22.2%) of our respondents had retired, 444 (25.9%) were working and remained in work at follow-up, and 167 (9.8%) transitioned from work to retirement. Seven hundred and twenty (42.1%) had some other status (e.g. unpaid work/unemployment). A total of 42.5% (95% CI 34.9–50.1) of those who retired quit smoking; for those remaining in employment this figure was 29.3% (95% CI 25.0–33.6), and for those already retired it was 30.2% (95% CI 25.5–34.9). In adjusted regression analyses, those aged 55–70 who retired were more than twice as likely (fully adjusted odds ratio 2.50 (95% CI 1.35–4.62)) to quit smoking as those who continued to work. Results were robust when those who retired for reasons of ill-health were excluded.
Conclusions our results suggest individuals who undergo the transition into retirement are more likely to quit smoking than those who do not. Interventions should be developed to specifically target those who are retiring, or soon to retire, and those who are due to retire should be helped to incorporate smoking cessation into their retirement planning.

Keywords: retirement, smoking, smoking cessation, health behaviour, elderly

Introduction

The promotion of positive changes in behaviour is central to improving the health of individuals and communities. Evidence indicates timing is important in intervening effectively to bring about such changes, i.e. that interventions must be appropriate to an individual’s stage of thinking about...
Smoking cessation and retirement

Methods

The English Longitudinal Study of Ageing (ELSA) sample was drawn from households that responded to the Health Survey for England (HSE) in years 1998, 1999 and 2001, and our baseline data come from these interviews. Households were included in ELSA if one or more individuals living there was going to be 50 or over in 2002. There were 19,924 eligible individuals in households that responded to HSE, though not all these individuals participated in HSE. Two thousand five hundred and ninety six of these older individuals died either at baseline or follow-up; 444 (25.93%) remained in employment; and 381 (22.25%) were already retired at baseline. The other 720 baseline smokers were in other employment activity groups.

Measures of smoking and smoking cessation

We were interested in those who were either in work, and therefore, potentially going to make the transition from working to retirement (along with those people who were already retired for comparison), our analysis excluded those who said that they were permanently sick or disabled, or who stated their occupation at baseline as looking after the home or family.

Of the 1,712 baseline smokers, 167 (9.75%) were employed at baseline and made the transition into retirement by follow-up; 444 (25.93%) remained in employment; and 381 (22.25%) were already retired at baseline. The other 720 baseline smokers were in other employment activity groups, some of whom 19.38% (2,171) were smokers. Of these baseline smokers, 459 (21.14%) were lost to follow-up or provided incomplete data at follow-up and were omitted from our analysis. This left 1,712 individuals who were smokers at baseline, 1,148 of whom were still smokers at follow-up and 564 (32.94%) of whom reported that they no longer smoked. We used baseline cotinine measures to assess accuracy of self-reported smoking status. Mean cotinine levels amongst those who reported that they had never smoked was 4.6 ng/ml (95% CI 2.8–6.4 ng/ml), and among smokers was 308.6 ng/ml (95% CI 296.0–321.3 ng/ml).

Measures of work/retirement status and of reasons for retiring

We were interested in whether the transition from being in employment at baseline to being retired at follow-up had an effect on whether an individual quit smoking. Respondents selected their employment status from a card with various options (including being in paid employment and having retired). At baseline, respondents were asked, ‘Which one of these best describes your current situation?’ Respondents were assigned to one of four retirement-transition categories:

- Employed at baseline, retired at follow-up
- Employed at baseline, employed at follow-up
- Retired at baseline, retired at follow-up
- Other (e.g. long-term sick; full-time caregiver).

Because we were interested in those who were either in work, and therefore, potentially going to make the transition from working to retirement (along with those people who were already retired for comparison), our analysis excluded those who said that they were permanently sick or disabled, or who stated their occupation at baseline as looking after the home or family.

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retirement age; own ill health; ill health of a relative/friend; made redundant/dismissed/had no choice; could not find another job; to spend more time with partner/family; to enjoy life while still young and fit enough; fed up with job and wanted a change; to retire at the same time as husband/wife/partner; to retire at a different time to husband/wife/partner; to give the young generation a chance; other. Of the smokers who entered retirement in the course of our study, 11 (6.6%) reported ‘own ill health’ as their main reason for retirement and we excluded them from the second part of our analyses.

Statistical analysis

We used adjusted logistic regression to estimate the effects on smoking cessation behaviour of being in different retirement-transition categories. Analyses were conducted using STATA SE Version 9.2 and were weighted for non-response.

We controlled for the following factors known to influence smoking behaviour [15]: age; gender; education level, categorised by highest educational qualification attained (degree/higher; intermediate; no qualifications); total household wealth (including financial, physical, and housing wealth, but not pension wealth); body mass index (BMI), measured by a nurse who took height and weight measurements, (categorised as low or normal (BMI <25), overweight (BMI 25 to <30) and obese (BMI ≥30)); mean level of alcohol consumption (non-drinkers, <1 drink (14 g of alcohol)/day, ≥1 and <2 drinks/day, and ≥2 drinks/day); presence of a longstanding limiting illness at baseline. We present results separately for those of all ages and for those in the peri-retirement period i.e. aged 55–70.

Results

Table 1 shows the baseline characteristics of smokers in relation to their work and retirement status over the follow-up period. Significant differences between the socio-demographic and health characteristics of those with differing work-retirement patterns over the period are indicated.

Figure 1 shows rates of smoking cessation between baseline and follow-up by work status and retirement status over this period, with 42.5% (95% confidence interval 34.9–50.1%) of respondents who transitioned from employment to retirement quit smoking, compared with 29.3% (95% CI 25.0–33.6%) of those who remained in work and 30.2% (95% CI 25.5–34.9%) of those already retired at baseline.

Table 2 shows the outcomes of logistic regressions of work and retirement status on smoking cessation, adjusted for the confounders listed above. The OR of quitting smoking among retirers compared to those remaining in work is 2.67 (95% CI 1.48–4.84), adjusting for all confounders except age; adjusting for all confounders including age, the OR is 2.50 (95% CI 1.35–4.62). With those who retired because of ill-health excluded, the corresponding ORs are 2.47 (95% CI 1.34–4.60), adjusting for all confounders except age, and 2.33 (95% CI 1.24–4.38), adjusting for all confounders including age.

Compared to those who remain in work, there is a significantly higher likelihood of quitting among those in other employment groups, and a higher likelihood of quitting among those already retired (not significant). When age is controlled for, effect sizes are reduced but show the same overall pattern.

As a sensitivity analysis we repeated our models controlling for partner’s smoking status (where the respondent had a partner who lived with them). The
Table 1. Baseline characteristics of study subjects who were baseline smokers and respondents at follow-up, by work status change over time

<table>
<thead>
<tr>
<th>ELSA baseline smokers (n = 1,712)</th>
<th>Work status at baseline and follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed– employed</td>
<td>Employed– retired</td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>221 (49.8)</td>
</tr>
<tr>
<td>Age (mean at baseline)</td>
<td>52.4</td>
</tr>
<tr>
<td>Respondents with limiting longstanding illness (%)</td>
<td>67 (15.1)</td>
</tr>
<tr>
<td>BMI category</td>
<td></td>
</tr>
<tr>
<td>BMI =&lt; 18.5</td>
<td>4 (0.9%)</td>
</tr>
<tr>
<td>18.5 &lt; BMI &lt;= 25</td>
<td>162 (36.5)</td>
</tr>
<tr>
<td>25 &lt; BMI &lt;= 30</td>
<td>174 (39.2)</td>
</tr>
<tr>
<td>BMI &gt; 30</td>
<td>79 (17.8)</td>
</tr>
<tr>
<td>Missing</td>
<td>25 (5.6)</td>
</tr>
<tr>
<td>Household wealth quintiles</td>
<td></td>
</tr>
<tr>
<td>Poorest</td>
<td>74 (16.7%)</td>
</tr>
<tr>
<td>2nd quintile</td>
<td>124 (27.9)</td>
</tr>
<tr>
<td>Middle</td>
<td>97 (21.9)</td>
</tr>
<tr>
<td>4th quintile</td>
<td>65 (14.6)</td>
</tr>
<tr>
<td>Richest</td>
<td>76 (17.1)</td>
</tr>
<tr>
<td>Missing</td>
<td>8 (1.8)</td>
</tr>
<tr>
<td>Alcohol consumption (mean drink s/day)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>20 (4.5%)</td>
</tr>
<tr>
<td>0–1 drinks</td>
<td>226 (50.9)</td>
</tr>
<tr>
<td>1–2 drinks</td>
<td>81 (18.2)</td>
</tr>
<tr>
<td>2 or more drinks</td>
<td>104 (23.4)</td>
</tr>
<tr>
<td>Missing</td>
<td>13 (2.9)</td>
</tr>
<tr>
<td>Education (highest qualification attained)</td>
<td></td>
</tr>
<tr>
<td>Degree/higher (%)</td>
<td>143 (32.3)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>190 (42.79)</td>
</tr>
<tr>
<td>No qualification</td>
<td>111 (25)</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
</tr>
</tbody>
</table>

P, Probability of significant difference across categories.
Note: Percentages may not sum to 100 because of rounding.
Others = Those who were permanently sick or disabled or who stated their occupation at baseline as looking after the home or family.

Discussion

Our results show a statistically significant positive association between transition into retirement and smoking cessation. Over the follow-up period of our study, those who transitioned from work to retirement were significantly more likely to quit smoking than those who remained in work. These outcomes are robust to changes in the age range included and to the exclusion of respondents who retired because of their own ill-health. Our findings are in keeping with our hypothesis that quitting smoking is more likely among those who experience the transition from work to retirement than among those who do not.

A number of points should be kept in mind when considering our findings. First, our measures of work and retirement rely on respondents’ self-reports, and we recognise that transition into retirement may not be clear-cut or straightforward. For example, retirees may retire gradually, with a period of semi-retirement, rather than switching directly from economic activity to inactivity. Our measures are, however, suitable for establishing general patterns of change in status.

Second, a similar issue affects our assessment of smoking, which also relies on self-reported data. Our categorisation of behaviour into smokers and non-smokers is relatively crude and ignores the psychological complexities of giving up smoking. In fact, when assessed at baseline this categorisation was associated with significant differences in cotinine levels when smokers were compared with those who had never smoked or were former smokers. Evidence suggests incidence of quitting is sensitive to shifts in tobacco use in population subgroups and can be used for evaluation and monitoring [16]. Self-report might also fail to identify outcomes of this analysis were very similar to those reported. (Results available from authors on request.)
those who failed to report that poor health was their reason for retirement, but when we do exclude those who report they retired for health reasons the reduction in OR is very modest, so this is unlikely to have biased our results.

Third, because they rely on cross-sectional data these findings cannot be relied upon to establish causality. It would be difficult, however, to carry out a trial on this topic, and clearly problematic to allocate participants randomly to continue working or to retire. We recognise individuals have a range of attitudes towards retirement and that these attitudes play an important part in shaping their post-retirement behaviours [17, 18]. Recent findings suggest identifying appropriate interventions is key to promoting smoking cessation in older adults [19–21], and our findings about the significance of retirement in relation to quitting highlight a potential opportunity to improve quit rates among peri-retirement adults.

Our study is based on population-representative data from a prospective cohort designed to assess economic and health behaviours in later life. Nonetheless, generalising these findings to other countries should be approached with caution because differences in retirement policy and provision are likely to alter individuals’ thinking about retirement. In England there is currently a statutory retirement age, and in countries where this is not the case there may be differences in individual expectations and behaviour around retirement and retirement decisions. The only other longitudinal study that looked at smoking cessation in the retirement transition was based in the United States and found no difference according to whether individuals retired or stayed in work [22]. Why our results differ from these US findings is unclear, but we speculate that the difference may relate to the absence of a statutory retirement age in the United States. It is conceivable that reaching retirement age may, in England, have a heightened significance as a point of transition that brings with it the motivation to make other lifestyle changes, including those relating to health behaviours.

Only a relatively small number of those who were smokers retired during the follow-up period of our study. Further research is needed to assess whether the findings we report here are observed in studies with longer periods of follow-up, and whether they hold in societies where the legal and social status of retirement differs.

**Conclusion**

Individuals participating in a cohort study in England who transitioned into retirement were more likely to quit smoking than those who remained in work or were already retired. Further research is necessary to establish whether similar dynamics influence other health-behaviour changes, and to assess whether the same applies to those who transition from work to retirement in other countries. Given the increased incidence of smoking cessation around retirement that we have identified, consideration should be given to targeting interventions to those planning their retirement and to ensuring that pre-retirement planning incorporates advice about positive health-behaviour change.
Key points
• Major life-course transitions such as retirement may be points at which people make other changes in their lives, including changes in health-related behaviours, but there has been little empirical assessment of this.
• We assessed smoking cessation in a group of peri-retirement-age smokers and compared quit rates over a 5–6-year period among those who retire, those who stay in work, and those who are already retired.
• Adults who transitioned into retirement were approximately two-and-a-half times as likely to give up smoking as those who remained in work.
• Our results suggest the peri-retirement period represents a key point at which smoking cessation interventions should be targeted.

Conflicts of interest
None declared.

References