Exploring smoking, mental health and smoking-related disease in a nationally representative sample of older adults in Ireland – A retrospective secondary analysis

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ABSTRACT

Objective: Smoking is the leading preventable cause of death among individuals with mental health difficulties (MHD). The aim of the current study was to determine the impact of smoking on the physical health of older adults with MHD in Ireland and to explore the extent to which smoking mediated or moderated associations between MHD and smoking-related diseases.

Methods: Cross-sectional analysis of a nationally representative sample of 8175 community-dwelling adults aged 50 and over from The Irish Longitudinal Study on Ageing (TILDA) was undertaken. Multivariate adjusted logistic regression models were used to assess the association between MHD, smoking (current/past/never) and smoking-related diseases (respiratory disease, cardiovascular disease, smoking-related cancers). A number of variables were employed to identify individuals with MHD, including prescribed medication, self-reported diagnoses and self-report scales.

Results: MHD was associated with current (RRRs ranging from 1.84 [1.50 to 2.26] to 4.31 [2.47 to 7.53]) and former (RRRs ranging from 1.26 [1.05 to 1.52] to 1.99 [1.19 to 3.33]) smoking and also associated with the presence of smoking-related disease (ORs ranging from 1.24 [1.01 to 1.51] to 1.62 [1.00 to 2.62]). Smoking did not mediate and rarely moderated associations between MHD and smoking-related disease.

Conclusions: Older adults in Ireland with MHD are more likely to smoke than those without such difficulties. They also experience higher rates of smoking-related disease, although smoking had no mediating and no consistent moderating role in these analyses. Findings underscore the need for attention to the physical health of those with MHD including support in smoking cessation.

1. Introduction

1.1. Background

General population smoking prevalence has reached an all-time low of 19% in the UK and 19.5% in Ireland [1,2]. Mental health difficulties (MHD) as identified via various indicators including diagnostic or clinical interview, medical records, current psychiatric treatment, reported doctor diagnosed conditions or medication use, are consistently associated with higher smoking prevalences with rates cited ranging from 25.5 to 59% [3–9]. These increased smoking rates are most pronounced in those with substance use disorders and more severe mental illness (SMI) diagnoses such as bipolar disorder, schizophrenia or psychosis [6,7,10–13]. In general, those with MHD tend to smoke

more heavily than other smokers [7] and also appear to be less likely to quit smoking [7]. While those with schizophrenia appear to be less likely to quit smoking [14], common mental illnesses such as anxiety or depression also seem to affect quitting behaviour [15]. For instance, meta-analyses have shown that in patients with chronic respiratory conditions or coronary heart disease patients with depressive symptoms are less likely to quit smoking than those without such depressive symptoms [16,17].

This higher prevalence of smoking has been associated with significant health consequences in those with MHD. People with mental health conditions die on average 10 to 20 years younger than the general population [18–22] and smoking has been reported as the largest contributor to this premature mortality [23,24]. In the US, Callaghan et al. found significantly heightened patterns of tobacco-

related mortality in terms of respiratory disease, smoking-related cancers and cardiovascular disease in patients with schizophrenia (standardised mortality ratio [SMR] 2.45 95% CI 2.41–2.48), bipolar disorder (SMR 1.57 95% CI 1.53–1.62) and depression (SMR 1.95 95% CI 1.93–1.98) [25]. Earlier studies have also shown increased risk of death from cardiovascular disease [4,22,26,27] and cancer [22,26]. Morbidity studies have also shown those with SMI have a significantly higher prevalence of pulmonary illness [3,28–33], cancer [28] and cardiovascular diseases (including stroke, congestive heart failure, angina and myocardial infarction) [28–30] compared to matched samples or general population counterparts [28–32]. While smoking is thought to account for the majority of morbidity and mortality in these populations, studies have also found associations between mental illness and respiratory disease, cardiovascular disease and risk of death from cardiovascular disease which seems to persist after adjustment for smoking [4,28,34]. However, the literature is limited by the range of conditions investigated, and the samples used are not always generalisable. For example, many of these studies focus on schizophrenia-related disorders and psychosis, though some have also included affective disorder diagnoses [28,32]. Partti et al.'s study of respiratory disease was population-based but only explored psychosis [3], while other studies were based on clinical populations with some reliant on small samples ranging from 80 to 100 [28,30,32]. The last study to address the impact of smoking on the physical health of those with MHD in Ireland is now over 30 years old, was specific to schizophrenia and was not population-based [35]. More generally, morbidity and mortality studies have tended to rely upon one or two indicators, such as structured clinical interviews, medical records, medical service claims or scale scores, but never more than two indicators when identifying those with MHD [3,4,25,27,29,34]. The use of a number of different methods is preferable to enhance the reliability of the findings.

In addition, chronic diseases such as cardiovascular disease and cancers usually occur later in life. Most cancer diagnoses occur in individuals older than 65 years [36] and CHD risk increases in both men and women after age 55 [37]. In spite of this, some studies of smoking prevalence in those with MHD have been limited to younger samples with age ceilings of 54 and 64 [7,10] and there are almost no studies of smoking or smoking-related morbidity or mortality specific to older populations. To our knowledge only one study exploring excess mortality in those with MHD concerns those aged 65 and older [27]. The impact of smoking on the physical health of older adults with MHD therefore remains unclear.

In summary, few population studies have explored smoking-related morbidity in older individuals with MHD and there are no recent studies addressing the health impacts of smoking in those with MHD in Ireland. This study had two aims. Firstly, to determine whether there is a higher prevalence of smoking and of smoking-related disease in older adults with mental health problems. Secondly, to assess whether smoking mediates or moderates the relationship between mental health difficulties and smoking-related disease at a population level. Given the absence of diagnostic interviews, several indicators were used both individually and in combination to reliably identify those with MHD. We hypothesized that persons with MHD would be more likely to have higher levels of smoking-related diseases, which would be explained by a higher rate of smoking.

2. Methods

2.1. The Irish Longitudinal Study on Ageing (TILDA)

TILDA provides a stratified clustered nationally representative sample of community dwelling adults aged 50 and over living in Ireland [38]. Private residential dwellings were assigned to clusters stratified by geography and socioeconomic group to produce a population representative sample. Across households where it was possible to

make contact to confirm eligibility a response rate of 62% was achieved [39]. Population weighting was employed to counteract bias introduced by differential nonresponse [39]. The main sample was compared to Quarterly National Household Survey respondents on age, sex and educational attainment and consequent weights assigned [38]. A more detailed description of the study sample and response rates has been described elsewhere [40]. The current analysis involves the first wave which was collected between 2009 and 2011. Data collection involved an extensive face-to- face computer assisted home interview, a self-completion questionnaire for data deemed more sensitive and a health assessment. Health assessments were conducted at TILDA Assessment Centres in Dublin and Cork, or for those not willing to travel to TILDA Assessment Centres a shorter assessment carried out in their home by a qualified, trained nurse was offered. At wave one 5894 (72.1%) of the 8175 participants aged 50 and over completed a health assessment. All variables included in the current analysis were collected at both health centre and home assessments.

2.2. Outcomes

2.2.1. Smoking status

Self-reported current smoking status.

Those who reported ever smoking 'cigarettes, cigars, cigarillos or a pipe daily for a period of at least one year' and answered 'Yes' when asked if they smoked at the present time (including if smoked in past 3 months) were categorised as current smokers. In the initial part of this paper lifetime smoking prevalence (current/former/never) is the outcome, later it was explored as a potential mediator/effect modifier (to achieve the second aim). Smoking status data was available for 8174 respondents due to the refusal of one participant to answer this question.

2.2.2. Smoking-related disease

The presence of any one or more self-reported doctor diagnosed smoking-related diseases i.e. respiratory disease, cardiovascular disease or smoking-related cancers.

For the purposes of this analysis smoking-related cancer was defined as answering 'Yes' when asked if they were ever told by a doctor that they had cancer in any of the following sites: lung; colon or rectum; stomach; oesophagus; bladder; liver; cervix; kidney; pancreas; oral cavity; larynx; other pharynx (including nasopharynx, oropharynx, laryngopharynx or hypopharynx). These sites were identified based on the 2014 Surgeon General's report [41]. Cancer of the lip, the renal pelvis and acute myeloid leukaemia were not included as these were not specified in the TILDA study.

Respiratory disease was defined as answering 'Yes' when asked if they were ever told by a doctor that they had 'chronic lung disease such as chronic bronchitis or emphysema'.

Cardiovascular disease was defined as answering 'Yes' when asked if they were ever told by a doctor that they had 'angina', 'a heart attack (including myocardial infarction or coronary thrombosis)', 'congestive heart failure', 'high cholesterol', 'a stroke (cerebral vascular disease)' or 'Ministroke or TIA'.

Due to low numbers in two categories (respiratory disease (n = 330); smoking-related cancers (n = 135)) all three disease groups were combined to indicate having a chronic smoking-related disease (score = 1) or not (score = 0) for the purposes of this analysis.

2.3. Exposure variables

MHD: A number of variables were taken as indicators of evidence of MHD and used individually and in combination to model the association between MHD and smoking and between MHD and smoking-related disease.

An emotional, nervous or psychiatric problem was defined as answering 'Yes' when asked if they were ever told by a doctor that