Evaluation of smoking cessation services in disadvantaged areas of the Netherlands
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Chapter 1

General Introduction
INEQUALITIES IN SMOKING AND QUITTING
The dangers of smoking are well documented: one in two smokers will die as a consequence of their tobacco use [1], smoking is the second largest modifiable risk factor for non-communicable disease burden worldwide [2], and smokers die considerably earlier than non-smokers [3]. However, smoking and its accompanying harms are not distributed equally throughout society. In European countries, there is a strong socioeconomic gradient in smoking, such that those of low income, educational level or those living in deprived areas smoke more than those who are classified as middle on these indicators, who, in turn, smoke more than those who have high incomes, are highly educated or are living in the most advantaged areas [4-7]. This is also cumulative, such that those who experience multiple forms of disadvantage in developed countries smoke the most [8]. This leads to a socioeconomic gradient in the harms caused by smoking [9], such as lung cancer and cardiovascular disease [10-12]. In women, cardiovascular disease accounted for 60% of the difference in total mortality between low and high socioeconomic status groups, and 39% in men. Indeed, in men, smoking is responsible for most of the inequalities in mortality [13].

Helping current smokers to quit is one major way to decrease the harms caused by smoking. However, there is also a strong socioeconomic gradient in quitting [8]. While the number of attempts made seem to be similar in high and low socioeconomic status (SES) groups [14,15], disadvantaged smokers (measured by income, education or area deprivation), make less successful quit attempts [14-18]. In high income countries inequalities in smoking prevalence and cessation appear to be increasing [16,19-21].

Success of measures to decrease inequalities in smoking prevalence and cessation
Interventions at an individual and population level have been undertaken in an attempt to decrease smoking in many countries [22-26]. While many of these measures are successful in increasing quit attempts in general, there is little available evidence that any of these measures decrease inequalities, with the exception of either increasing the price/tax of tobacco products, as has been done in several countries, or offering smoking cessation behavioural therapy (SCBT) with pharmacotherapy in smoking cessation clinics specifically located in disadvantaged areas, as has been done in England [27,28]. The latter of these is an intervention at an individual level implemented on a population level. SCBT increases the success of quit attempts, with or without use of smoking cessation pharmacotherapy [25,26,29,30]. While SCBT increases the success of quit attempts in those of low SES, the effect in those of high SES is greater [31], thus increasing the social gradient. However, due to the larger throughput of low SES individuals, inequalities have probably been lessened by this policy in England [32].

SMOKING CESSATION - THE ENGLISH EXAMPLE
In 1974, 45% of the British population smoked (Figure 1). The prevalence of current smoking in the United Kingdom (UK) has been decreasing for several decades, however, prevalence differs in different SES groups.
An example of this is the lower smoking prevalence in households where the reference person was in a managerial or professional occupation, compared with those households where the reference person was in a routine or manual job (Figure 2). Occupational level is one of the primary ways of assessing SES in the UK [35].

*Data is unweighted until 1998
**2014 data unavailable.
Source: Office for National Statistics (ONS) [33,34]
In 1998, in response to the toll on the UK population taken by smoking, the British Government published the white paper, ‘Smoking Kills’, which had three objectives: “to reduce smoking among children and young people; to help adults – especially the most disadvantaged – to give up smoking; to offer particular help to pregnant women who smoke” (point 2.1) [40]. This White Paper outlined evidence-based policy measures to meet these objectives [40]. These measures included increasing taxation on cigarettes. As this strategy specifically targeted those of low SES, this was to be balanced by offering all smokers wishing to stop, evidence-based assistance, but specifically targeting it those living in disadvantaged areas. The offering included SCBT, and a free prescription of smoking cessation pharmacotherapy for disadvantaged smokers if combined with the SCBT [40]. In England, this was to be done by setting up a national network of smoking cessation clinics in Health Action Zones (HAZs), which covered many of England’s most deprived areas [40]. Smoking was to be seen as a critical issue for every HAZ [40]. National smoking cessation service guidelines [41] were also developed to assist these clinics, which were provided with targets [42] and mandatory reporting of results to the Health Department [43]. In 2011, a Tobacco Control Plan for England was published, outlining that the commitment to a national joined-up strategy was to continue in the coming years [44]. The overall impact of the stop smoking services was probably to decrease inequalities [32]. Over the first 10 years of operation, predominantly disadvantaged groups were reached (54% of users received free prescriptions) [43].

THE DUTCH CONTEXT

Smoking prevalence in the Netherlands in 1970 was 59% (Figure 3). While this prevalence of current smokers, has been decreasing over the subsequent decades, as has been the case in the UK, smoking prevalence is higher in the Netherlands than in the UK and this difference appears to have increased in the 2000’s (Figure 3).

Figure 3: Smoking prevalence in the total populations of Great Britain and the Netherlands from 1970-2010.* **

*Data not available for all years
**GB data is unweighted until 1998
Source: UK [33] and Netherlands [45,46]
Inequalities are also clearly seen in smoking prevalence in the Netherlands on a variety of indicators, including educational level (Figure 4). Educational level is considered to be a good indicator of SES in the Netherlands [47].

**Figure 4: Smoking prevalence in the Netherlands per educational level**

![Graph showing smoking prevalence by educational level in the Netherlands](source)

Unlike in the UK, the Dutch government does not have a formal comprehensive tobacco control strategy. Instead tobacco control policies are part of general health policies in the Netherlands [49,50]. Dutch health promotion is decentralised. The central government sets the health priorities every four years and these priorities are implemented at the local district level [51]. Despite reduction in smoking having been mentioned as a priority of the central government since 2003 [49,51-53], measures are not often implemented on a local level, for a number of reasons, including that the districts feel that it is more a task for the central government [54].

The UK and the Netherlands are both signatories to the legally-binding Framework Convention on Tobacco Control [55], wherein article 14 states that there should be a national cessation strategy and national smoking cessation treatment guidelines. The Netherlands does not currently have the former [50,56], however, it does have the latter; there have been national smoking cessation guidelines since 2004 [57], which were updated in 2009 [58]. Smoking cessation infrastructure exists in several settings in the Netherlands, from hospitals (sometimes specialist clinics), primary care, community to the online settings. These are provided by trained counsellors [59], some of which are health professionals, such as General practitioners and practice nurses [60,61]. In the Netherlands, one course of SCBT is included in the basic health insurance policy, which is available to all citizens. Since 2006, the Netherlands has used a system of managed competition in the health care sector [62]. This means that individuals have compulsory private health insurance and thus a contract with an insurance company [62]. Providers of health care, including SCBT, compete with each other and negotiate individual contracts with insurance companies.
It is possible to receive treatment from a health care provider without a contract with one's insurance company, but this may only be partially reimbursed [62]. A quality register of evidence-based smoking cessation offerings has been available since 2011, with a map showing smokers where these are in relation to their homes [59]. However, this infrastructure is, in general, not specifically targeted at socioeconomically disadvantaged areas or smokers. Despite Dutch tobacco control policies, educational inequalities in smoking cessation remain significant in the Netherlands (high compared with low educational level from 2002-2012: Odds Ratio (OR(95%CI)):1.44[1.09-1.91]) [16].

Evidence-based SCBT has been reimbursed since 2010 [63]. However, financial barriers to evidence-based smoking cessation pharmacotherapy, the removal of which might make smoking cessation interventions more effective in low SES groups [8], have historically been in place in the Netherlands. The evidence-based combination of smoking cessation behavioural therapy with pharmacotherapy was only partly funded until 2011.

The rationale for our study was that with the introduction of reimbursed pharmacotherapy in 2011, it was possible to test whether a smoking cessation service could be effective in a disadvantaged multi-ethnic area of the Netherlands, if the financial barrier was removed [64], as was the case in England. The removal of the financial barrier, which was a necessary pre-condition of this research, was implemented first in 2011, but not in 2012, and then again in 2013 onwards. This intermittent offering was due to changes in the Dutch government, which is one of the few governments globally to weaken previously implemented tobacco control measures [56,65].

MACRO-LEVEL INFLUENCES ON SMOKING CESSATION

The role of the wider context in smoking cessation has long been acknowledged. Not only does the wider context help to determine how cigarettes are used [66] and how acceptable this use is considered by individuals and the communities in which they live [67, 68], but also, or perhaps consequently, how it is considered and approached by governments [69]. The wider context thus helps to determine the success of strategies used on both an individual and population level. The macro-level influences on smoking cessation differ per country (e.g. cigarette affordability [22]) and change over time (e.g. acceptability of smoking [70]). Better understanding the wider context might help us to understand why people in lower SES groups experience more difficulties in quitting smoking than their high SES peers. This might be a basis for further targeting of smoking cessation measures, and possibly thereby increasing their effectiveness. In this thesis we will examine two aspects of this wider context: prevailing economic conditions and social norms.

Dahlgren and Whitehead’s model of the main determinants of health (Figure 1) shows several levels at which influence on individual's health can take place. At the highest level, there are general socioeconomic conditions. Economic recessions, such as the Global Financial Crisis (GFC), affect disadvantaged groups more than advantaged groups [71]. These impacts can in turn have an impact on health behaviours such as smoking [72]. Different socioeconomic groups
react differently to economic downturns, with data from past economic downturns showing that often health behaviours such as exercise, weight loss and smoking cessation, increase [73]. This is not uniform for all SES groups [73]. Also, it is thought that these effects are buffered by social protection policies in individual countries [74]. Thus it is important to look at the effect of economic crises on people at all SES levels and to consider each country separately, as social protection policies and the level of impact of the crisis varied widely throughout Europe, and indeed, the world.

*Figure 5: The main determinants of health*

Also understood within the wider context, under cultural conditions in the Dahlgren and Whitehead model, are the social norms which prevail with regard to behaviour. The importance of social norms toward smoking was acknowledged at the World Conference on Tobacco or Health in 1979 [76], and has since been targeted by national tobacco control policies in several countries [77,78], starting with California in 1989, which instigated a campaign to change the prevailing social norm [77] and thus influence tobacco usage in the state. This campaign has been found to be successful [79]. Other countries followed suit; one of the cornerstones of the Australian National Tobacco Control strategy 2006-2009 was to “change social attitudes through regulation and hard-hitting campaigns to reduce tobacco use” (p. 18) [78] Indeed a study found that the savings accrued from the reduction in premature deaths over the preceding 30 years in Australia due to such policies were 50 x the cost of the implementation of such campaigns [80], thus real impacts on health can be realised by directly addressing social norms.
There are different types of social norms with regard to smoking and quitting. These can be descriptive (perception of what other people are doing), subjective (perception of what other people think a smoker should do), or injunctive (perception of acceptability of smoking in society in general) [81]. Of these, injunctive norm has been little studied. This is particularly of interest with regard to inequalities, where the different prevalence in different SES groups can lead to different injunctive norms which in turn can influence the prevalence, in a vicious circle. Thus it is important to consider how injunctive norm toward smoking is distributed in the population and whether there is a link between this and quitting behaviour in response to smoking cessation policies, in any particular SES groups.

AIM OF THIS THESIS
The general aim of this thesis was to pilot test whether the English system of placing smoking cessation clinics providing free treatment (SCBT and pharmacotherapy) in disadvantaged areas could be replicated to good effect in the Netherlands. This thesis evaluated four different types of SCBT interventions (individual face-to-face and telephone counselling, as well as, rolling and fixed group therapy), delivered in four different disadvantaged areas of the Netherlands. Two of these areas were amongst the 40 most disadvantaged areas in the Netherlands, as per a classification of the Dutch government [82], while the other two comprised areas which had catchments including disadvantaged areas, according to a ranking done by the Dutch government [83]. The specific aims of this thesis were to evaluate the effect, optimal method of recruitment, and reasons for attendance of smoking cessation interventions in a disadvantaged areas and, furthermore, to explore the influence of the prevailing economic conditions and social norms on inequalities in smoking cessation.

OUTLINE OF THIS THESIS
This thesis consists of two parts. Part 1, comprising chapters 2-4, focuses on research question 1: What is the effect, optimal method of recruitment and reasons for attendance of a smoking cessation intervention in disadvantaged neighbourhoods in the Netherlands? Chapter 2 examines the effectiveness of four different type of smoking cessation behavioural therapy, namely individual face-to-face and telephone counselling, and rolling and fixed group counselling, as indicated by 12 month self-reported and CO-validated abstinence rates. It then assesses the predictors of self-reported abstinence at 12 months. Chapter 3 addresses the reach of different strategies of recruitment. It examines how participants heard about and were recruited into the interventions, and analyses the associations between recruitment channel and socio-demographic or quit success influencing factors, and whether these channels can predict attendance. Chapter 4 uses a qualitative design to examine the reasons for differing attendance levels in smokers attending the services.

Part 2, comprising chapters 5 & 6, examines two aspects of the wider context which form a backdrop against which smokers make their quit attempts. It focuses on research question 2: What is the influence of the prevailing economic conditions and social norms on inequalities in
smoking cessation? Chapter 5 reports on the association between the GFC and current smoking and smoking cessation. In addition, differences in association by age, gender and three SES indicators (income, education and neighbourhood deprivation) are taken into consideration. Chapter 6 focuses on injunctive norms towards smoking as a factor that influences use of pharmacotherapy in quit attempts. It reports on the inequalities in uptake of smoking cessation pharmacotherapy in quit attempts before and after reimbursement of this pharmacotherapy was offered. It then looks at whether injunctive norm could explain the difference in this use.

DATA AND METHODS
Table 1 gives an overview of the studies, including the data sources, analysis methods and design used in each study. Three different sources of data were used. In the first section, data collected directly from research participants or from patient dossiers in smoking cessation programmes serving disadvantaged areas were used. In the second section, two databases were used. These were the national Health Survey from Statistics Netherlands and the Dutch Continuous Survey of Smoking Habits data from STIVORO.
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