

# Smoking reduction in COPD patients in the Medical Spectrum Twente hospital

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A review of the REDUQ study

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## **Abstract – English version**

*Objective:* This study examines to what extent smoking reduction in COPD patients is achieved through the REDUQ program and how smoking reduction can be explained.

*Design:* Randomized, controlled multicenter trial.

*Subjects:* For the REDUQ study participated 110 COPD patients of Medical Spectrum Twente hospital [MST] and the University Medical Centre Groningen [UMCG]. Of those 110 86 were from the MST and 24 patients from the UMCG.

*Method:* Validity of self-reported measures was analyzed. An Intention-to-treat analysis compared the reduction of  $\geq 50\%$  between the intensive intervention and the placebo self help intervention after 6 and 12 months. A univariate Analysis of Variance is conducted to determine the effect of successful smoking reduction on stage of change regarding smoking cessation. A hierarchical logistic regression is conducted to determine possible predictive determinants of smoking reduction.

*Results:* The self-reported measures were found to be incongruent. The intention-to-treat analysis showed statistically significant effects for 6 months, but no statistical significance for 12 months. The effect of successful smoking reduction on stage of change regarding smoking cessation was statistically not significant. Determination of possible predictive determinants show that self-efficacy after 6 months increases the chance of smoking reduction. Craving and anxiety regarding to withdrawal after 12 months decreases the chance of smoking reduction after 12 months.

*Conclusion:* Objective measures remain the golden standard. A smoking reduction can be achieved through the REDUQ program after 6 months. Successful smoking reduction does not lead to a progression of stage of change and a prospective determinant for smoking reduction after 6 month is self-efficacy and for smoking reduction after 12 months are craving and anxiety regarding to withdrawal.

## **Het abstract – Nederlandse versie**

*Doel:* Deze studie onderzoekt in hoeverre het minderen van roken bij COPD patiënten door het REDUQ programma kan worden verklaard.

*Design:* Gerandomiseerde, gecontroleerde multicenter trial.

*Proefpersonen:* In de REDUQ studie zijn van een totaal aantal van 110 COPD patiënten, 86 uit het Medische Spectrum Twente ziekenhuis (MST) en 24 uit het Universitair Medisch Centrum Groningen (UMCG).

*Methode:* De validiteit van de zelfgerapporteerde metingen wordt geanalyseerd. Een *Intention-to-treat* analyse liet een significant effect zien na 6 maanden, maar geen significant effect na 12 maanden. Een univariat analyse is uitgevoerd om de effecten van een succesvolle rook reductie op de stage of verandering met betrekking tot stoppen met roken te bepalen. Een hiërarchische logistische regressie is uitgevoerd om mogelijke predicatieve determinanten van rook reductie te bepalen.

*Resultaten:* De zelf- gerapporteerde metingen zijn incongruent. De *intention-to-treat* analyse laat alleen statistisch significante effecten zien voor de 6 maanden metingen en niet voor de 12 maanden metingen zien. De effect van succesvol rook reductie op de fases op verandering met betrekking tot stoppen met roken was statistisch niet significant. Het vaststellen van mogelijke predicatieve determinanten laat zien, dat self-efficacy de kans om successvol te reduceren verhoogd. Verlangen en angst verlagen de kans op succesvolle minderen naar 12 maanden.

*Conclusie:* Objectieve metingen representeren nog steeds de ‘gouden standaard’. Het reduceren van roken kan na 6 maanden door het REDUQ programma worden bereikt. Succesvolle rook reductie leidt niet tot een vooruitgang op de fases van stoppen met roken. Prospectieve determinanten naar 6 maanden zijn vooral self-efficacy en naar 12 maanden verlangen en angst met betrekking tot ontwenning.

## **Contents**

1.	Introduction .....	4
1.1	Chronic obstructive pulmonary disease .....	4
1.2	COPD, smoking cessation and smoking reduction .....	4
1.3	REDUQ .....	6
1.4	Transtheoretical model of behaviour.....	6
1.5	The ASE model .....	7
1.6	Predictive determinants for smoking cessation.....	7
1.7	Aims of this paper .....	8
1.8	Research questions and hypotheses.....	8
2.	Method .....	10
2.1	Participants .....	10
2.2	Procedures .....	12
2.3	Instruments .....	13
2.4	Data Analysis .....	15
3.	Results .....	20
	Main Analyses.....	20
4.	Discussion .....	26
	General Limitations .....	30
5.	References .....	31

## **1. Introduction**

This study examines to what extent smoking reduction in COPD patients is achieved through the REDUQ program and how smoking reduction can be explained. To tackle this task an intensive intervention was compared to a placebo self help intervention with COPD patients of the Medical Spectrum Twente hospital [MST] and the University Medical Centre Groningen [UMCG].

### **1.1 Chronic obstructive pulmonary disease**

Chronic obstructive pulmonary disease [COPD] represents a combination of two lung diseases: emphysema and chronic bronchitis (Fletcher & Peto, 1977). COPD is not reversible and can lead to a high degree of disability (Vanfleteren, Franssen, Wesseling & Wouters, 2011). COPD progresses with the inhalation of tobacco-containing products such as smoking. The respiratory system is destroyed by tar as it obstructs the lungs (Decramer, Janssens & Miravittles, 2012).

According to Vanfleteren et al. (2011) COPD is a global health problem. It is predicted that this illness is going to be a future challenge for the health care systems (Decramer et al., 2012). Because COPD has doubled over the period 1970-2002 it is assumed that it will have risen by 2030 to the third leading cause of death. The mortality of COPD has increased by 50% in the USA from 1970 to 2002 (Decramer et al., 2012). A study to investigate the prevalence of chronic obstructive pulmonary disease indicates that one quarter of the population over 40 years in Maastricht has COPD. It seems safe to assume COPD is a threat on public health (Vanfleteren et al., 2011).

### **1.2 COPD, smoking cessation and smoking reduction**

Smoking cigarettes is one of the major causes of the development and progression of COPD. Smoking cessation is the best way to manage COPD at all stages (Fletcher & Peto, 1977). Even though smoking cessation has direct benefits, it is also harder to achieve than smoking reduction. Many COPD patients have failed multiple attempts to quit smoking. It is difficult to motivate those patients who became recidivist to try again to stop (Christenhuz, Pieterse, Seydel & van der Palen, 2006). Less than 2% of all smokers are able to stop smoking permanently every year despite existing cessation interventions (Giovino, 2002).

Since smoking cessation is evidently difficult for a lot of COPD patients, smoking reduction programmes pose a reasonable alternative. Research demonstrates that smoking reduction is achievable by certain interventions (Fagerström, 2005).

It seems that COPD patients feel that to abruptly stop smoking is an impossible task to accomplish (Fagerström, 2005).

Within a placebo smoking reduction intervention, smokers uninterested in smoking cessation followed an intervention with pharmacological and behavioural support. Even this control group showed afterwards an increased motivation towards smoking cessation and several of them stopped smoking completely (Fagerström, 2005).

The use of Nicotine Replacement Therapy [NRT] during an intervention supports these reduction treatment programmes leading to even more smoking reduction (Carpenter, Hughes, Solomon, & Callas, 2004). According to Carpenter et al. (2004) NRT combined with a minimal behavioural intervention leads to reduction for the following 24 weeks and thus gives the impression to be a predictor for total abstinence. It is noteworthy that the reduction found by Carpenter et al. (2004) can be numerated to five times as much reduction.

Several studies showed that smoking reduction in COPD patients leads to two important benefits. First it results in higher motivation regarding smoking cessation (Tverdal & Bjartveit, 2006). In addition, a study by Stivoro, which is a national organization for information on smoking and its risks, showed that smoking reduction can be a promising smoking cessation strategy (Willemse & Emst, 2008). Thus, the patients get more motivation and self-confidence. Second, smoking reduction is preferred over continuous smoking. Successful reduction of 50% or more leads to less inflammation and a reduced decline in lung function can be achieved (Pisinger & Godtfredsen, 2007).

However, smoking cessation is the main goal of COPD patients. One of the reasons is that there exist primarily controversial health effects regarding smoking reduction. Following Tverdal and Bjartveit (2006), long-term follow-ups did not show health improvements by smoking reduction of 50%. However, this study referred only to general smokers and not to COPD patients. Regarding a study of COPD patients, health improvements by smoking reduction of 50% are possible. These health improvements are previously demonstrated to take form in a lower respiratory tract inflammation and neutrophil elastase (Rennard et al., 1990).

Christenhusz et al. (2012) deduces that reduced smoking can be an alternative for patients with COPD. Even if an alteration of the smoking behaviour fails, smoking reduction attempts

persist for a longer time period than smoking cessation attempts. Many patients are willing to reduce their smoking behaviour but not to stop smoking altogether because of a lot of failed attempts. Thus, smoking reduction is also an interesting alternative for patients who do not want to stop smoking completely (Christenhusz et al., 2012).

Smoking reduction can be the first and necessary step towards smoking cessation for COPD patients. Since COPD patients seem to be especially de-motivated by failed smoking cessation attempts taking a small step towards this goal by reducing smoking may increase motivation and self-confidence for future cessation attempts (Christenhusz et al., 2012).

### **1.3 REDUQ**

Reduction to quit [REDUQ] is a program designed for COPD patients to help to quit smoking by first reducing smoking. Smoking reduction is seen as more or equal to 50% reduction of the amount of smoked cigarettes, cigarillos or other inhalable tobacco products per day. The successful smoking reduction is thought to increase motivation for another quit attempt (Christenhusz, 2012). In other words, the goal of total abstinence of smoking is taken step-wise over a successful smoking reduction.

Through this strategy the patients are motivated to quit smoking if they reach a level of successful reduction the patients are able to regain their level of self-control and improve cognitions such as attitudes and self-efficacy toward smoking cessation (Christenhusz, 2012). The primary objective of this study is to evaluate the effectiveness of an intensive smoking reduction programme including behavioural counselling combined with NRT, by comparing it to a placebo self help intervention including a single information meeting on smoking reduction and a self-help manual. Further, the intensive intervention includes different behavioural change techniques such as the motivational interviewing (Miller & Rollnick, 2002) and the scheduled reduced smoking (Cinciripini et al., 1997).

### **1.4 Transtheoretical model of behaviour**

The possible behavioural change of the patients' behaviour because of the REDUQ program can be explained and predicted through different models. One of them is the *transtheoretical model of behaviour* (TTM), which has been developed by Prochaska and DiClemente (1998) and represents the behavioural change as a flowing process. The model consists of six stages: Precontemplation, contemplation, preparation, action, maintenance and concluding termination. These stages can be described for smoking reduction as follows: The stage of

precontemplation means in this context not to have an intention to reduce smoking within the next six months. The stage of contemplation means in this context the intention to reduce smoking during the next 6 months. Intending to reduce smoking within 6 months and having some behavioural steps in this direction represents the stage of preparation. The stage of action predicts reducing the smoking behaviour for less than six months. After that the fifth stage, the maintenance, means being continuously reducing smoking for more than six months. Finally, the last and sixth stage describes the stage of termination and means to have no temptation to smoke more than before the reduction. In this stage self-efficacy will be experienced. Within the study, the patients could migrate through the different stages.

This model is not only applicable to smoking reduction, but also to smoking cessation. The differences here are as follows: During the stage of precontemplation there exist no intention to quit smoking within the next six months. Intending to quit smoking within 6 months and having some behavioural steps in this direction represents the stage of preparation. The stage of action predicts smoking cessation behaviour for less than six months. After that the fifth stage, the stage of maintenance, means being continuously abstinent from smoking for more than six months. Finally, the last and sixth stage describes the stage of termination and means to have no temptation to smoke anymore and self-efficacy is experienced. As mentioned in the reduction model above the patients could migrate through the different stages.

## **1.5 The ASE model**

Based on different models, behaviour of the patients can be explained and predicted. The ASE model which is based on Fishbein and Ajzen's theory of planned behaviour (1975) and Bandura's Social Cognitive Theory tries to give an explanation for individual motivational factors which play a role in specific behaviour e.g. smoking reduction or cessation. Intention is determined by three cognitive factors: attitude, subjective norm and perceived behavioural control. To find out if these determinants does play a role they were incorporated into the study and will be measured at three moments during the study: At the beginning, after six and after twelve months.

## **1.6 Predictive determinants for smoking cessation**

In the study of Christenhusz et al. (2007) a placebo self help intervention (LMIS) was compared to an intensive intervention (SST). Regarding this study, baseline predictors for continuous smoking cessation in the LMIS after 12 months could be found. Regarding the

SST there could no baseline characteristics be found. The study showed that for the LMIS the level of cotinine and attitude were strong positive predictors in continuous smoking cessation.

### **1.7 Aims of this paper**

This study investigates whether the intensive intervention of the REDUQ program reduces smoking behaviour more than the placebo self help intervention. To answer this question it is important to determine which measures are necessary to represent smoking reduction adequately. The study at hand handles subjective as well as objective measurements to determine the level of smoking reduction. An aim of the study at hand is to find out whether the self-reported subjective smoking reduction is an adequate measure for objective smoking reduction. In other words, the comparison of the subjective and objective smoking reduction measure will answer the question what a correct measurement of self-reported smoking reduction is.

Another aim is to determine if the intensive intervention has more effect in comparison to the placebo self help intervention on smoking reduction. The REDUQ intensive intervention entails more guidance and different behavioural change techniques such as the motivational interviewing (Miller & Rollnick, 2002) and the scheduled reduced smoking (Cinciripini et al., 1997) and might thus be better suited to reduce smoking than the placebo self help intervention.

An underlying thought of the REDUQ program is that reaching the intermediate goal of successful smoking reduction leads to a higher self-efficacy and motivation for smoking cessation. The study at hand aims at finding out whether a successful smoking reduction actually progresses the stages of change of smoking cessation.

A further aim is to determine what role the predictive determinants play regarding smoking reduction after 6 and 12 months. Knowledge about eventual predictive determinants enables effective development of future smoking interventions. In my following analyses of the REDUQ, however, smoking reduction and not smoking cessation is one of the main objectives. The last aim in this paper is to determine what role the predictive determinants play regarding smoking reduction after 6 and 12 months. Due to the lack of research it is to find out which processes are relevant for successful reduction.

### **1.8 Research questions and hypotheses**

The main research question this study tries to answer is: Does the REDUQ-program reduce smoking behaviour and which factors play a role in its effectiveness? Previous studies

provided clues of what to expect from this study and led to the formulation of following hypothesis. Hypothesis 1: The intensive intervention of the smoking reduction therapy combined with the Nicotine Replacement Therapy [NRT] leads to an increased likelihood of achieving an equal to or higher than 50% reduction in number of cigarettes smoked per day at 6 and 12 months, compared to the placebo self help intervention; this hypothesis will be tackled in research question 2.

The main research question is split into these sub-questions:

- To what extend are the patients' self-evaluation as valid as the objective measurements of smoking reduction after 6 and 12 months?
- Is there a difference between the intensive intervention group and the placebo self help intervention group regarding reduction in smoking behaviour (after 6 and 12 months)?
- Does successful reduction of 50% in number of cigarettes smoked per day at 6 and 12 months lead to increased motivation of smoking cessation?
- Which determinants are predictive for smoking reduction after 6 and after 12 months?

## **2. Method**

The dataset that is used for the REDUQ stems from two different hospitals in the Netherlands. From the Medical Spectrum Twente hospital [MST] and the University Medical Centre Groningen [UMCG]. The study includes baseline measurements and follow-ups after 6, 12 and 18 months. The paper at hand uses the data from the baseline up to the 12 month measurement since the data of the 18-month measurement was not completed yet.

### *Inclusion and exclusion criteria*

In order to participate in the REDUQ study, there are certain inclusion criteria which have to be fulfilled. The patients have to be between 40 and 80 years and diagnosed with COPD. Also to participate in the study they have to smoke at least 10 cigarettes each day and have to be motivated to reduce smoking. Also they have to have two failed lifetime quit attempts. When the patients are ready to quit, they will be referred to an intensive smoking cessation programme. In addition, the participants have to be in one of the GOLD stages I-IV to may participate in this study.

With regard to the exclusion criteria patients who smoke less than 10 cigarettes per day and patients who were motivated to quit smoking within one month were excluded. The reason is that they are motivated to quit instead of reduce their smoking, so they were referred to a cessation programme. Patients who were undecided whether to reduce smoking were excluded. Patients were also excluded if they were not able to understand the Dutch language in oral and verbal form.

### **2.1 Participants**

For the REDUQ study a total number of 110 participated in this study. Of those 110 patients 86 were from the MST and 24 patients from the UMCG.

### *REDUQ intensive intervention group*

The *intensive intervention group* of the reduction to quit programme (RQP) receive behavioural counselling and NRT. The use of nicotine replacement medication (e.g. nicotine patches) is free for the first three months. After these three months patients have to pay for them if they want to continue its use. During the intervention there are eight small group sessions and four telephone contacts between the meetings. This represents the psychosocial

element of the study. Strategies are learned and the patients are stimulated to perform them in everyday life.

Further, the intensive intervention includes different behavioural change techniques such as the motivational interviewing (Miller & Rollnick, 2002) and the scheduled reduced smoking (Cinciripini et al., 1997).

Motivational interviewing is a psychotherapeutic approach, which is developed for people to manage their addiction related behavior. The counseling approach is client centered and directive. The aim of the motivational interviewing is to build an intrinsic motivation to change the patients' behavior. In other words, it is tried to support the patients' perception of freedom of choice. Individuals are more inclined to change their behavior if they see it as their own free choice (Miller & Rollnick, 2002).

Scheduled reduced smoking (SRS) is a graduated reduction approach by which the patients set themselves subgoals regarding smoking reduction. The SRS tries to gradually enhance the intercigarette interval (ICI) which is based on the minutes per day a patient is awake and the average number of smoked cigarettes. The patients' reduction goals are based on self-efficacy and on reached subgoals. Based on Pisinger and Godtfredsen (2007) a reduction of 50% is aimed at. This value is considered to be clinically significant in relation to smoking reduction. While using strategies within the interventions the patients self-efficacy regarding the reduced smoking levels are preserved. By achieving the subgoal of 50% or more reduction, the patients are motivated to quit smoking completely and are referred to a smoke stop therapy. The other patients are motivated to retain this level of smoking reduction and are told that they can change their opinion at any time.

#### *REDUQ placebo self help intervention group*

The second group in the study at hand is the *placebo self help intervention group*. The *placebo self help intervention group* without an intensive reduction program is used as the control group. The patients in the placebo self help intervention group have only a single information meeting of one hour. During this time they receive a self-help manual on smoking reduction and information about the NRT. Further themes such as self-monitoring, harm reduction and ways to reduce the number of cigarettes are mentioned but not discussed in detail.

The placebo self help intervention group does not represent a true placebo because it has potentially effective elements instead of none effective elements. However, smoking cessation

research pointed out that such an intervention will likely have minimal effect (Ranney, Melvin, Lux, McClain, & Lohr, 2006).

## **2.2 Procedures**

### *The sampling method*

COPD patients of the two hospitals who were identified as current smokers were contacted by telephone. They were informed about all the important aspects of the study. They also were informed about the inclusion criteria. The patients who pass the telephone screen and who are prepared to participate in the trial were sent a letter from the Department of Pulmonary Medicine of the local hospital. Both, the phone-calls and the letter, included an invitation to an informational session. Further the letter includes patient information and an informed consent. At the session, the patients received additional information about the study such as expected duration of the study, potential risks and benefits. Meanwhile, all questions the patients had were answered by the principal investigator.

After all the information was handed out and all questions were answered, the patients were asked to read and sign the informed consent. When patients were unsure the informed consent could be signed later the following week.

After the informed consent was signed the participants underwent further screenings during an intake session. The relevant medical histories of the participants were collected and the baseline measurements were taken. These tests included a carbon monoxide breath test, a long function measurement and a salivary cotinine test. Further they completed and handed in their demographic information, their smoking history and tobacco dependence questionnaires. Patients were then randomly assigned to one of the two intervention groups. When smokers decided to quit smoking altogether they were automatically referred to a cessation program. See figure 1 for the whole recruitment process.

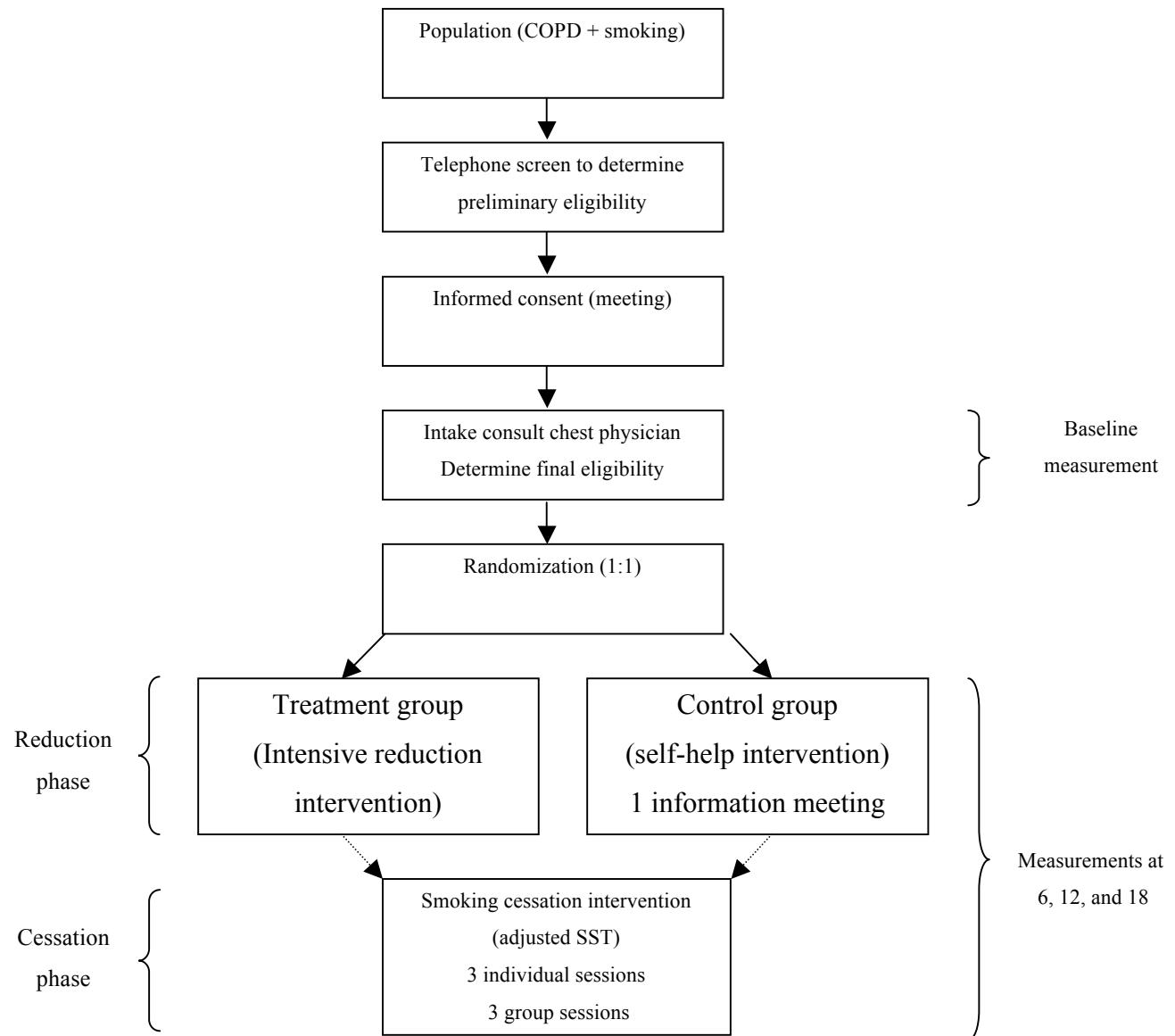


Figure 1. Recruitment process of the study.

### **2.3 Instruments**

The following questionnaires are part of the REDUQ Baseline measurement and can be found in the Appendix.

### *Demographic variables*

The first questionnaire is based on Mudde et al. (2006) and collects information about demographic and possible confounding variables. These variables include age, gender and family status.

### *Self-report of smoking*

The self-report measure of smoking is based on Heatherton et al. (1991) and asks the patient how many cigarettes were smoked during the week and during the weekend previous to the measurement. A week is divided into two parts because of potential differences between cigarette consumption on weekdays and at weekends. The number of cigarettes smoked per week are calculated based on weighted average by the following formula:

x1: smoked cigarettes per week

x2: smoked cigarettes per weekend

Formula:  $[(5 * x1 + 2 * x2)] / 7$

### *Clinical COPD Questionnaire (CCQ)*

The CCQ is developed by Van der Molen (2003) of the University Medical Center in Groningen. It is a questionnaire with ten items, which measures the health status of the patients and is categorized in three domains: symptoms, functional state, and mental state. The CCQ gives clues about the experiences of the patients during the week previous to the measurement. The answers are composed of a 7 point scale. 0 indicates “no limitations” or “asymptomatic limitations” and 6 indicates an “extremely symptomatic” or “totally limitation”.

### *Wisconsin Smoking Withdrawal Scale (WSWS)*

The WSWS of Welsch et al. (1999) contains 7 subscales; anxiety, anger, sadness, concentration, hunger, sleep and craving. Each scale consists of 3 to 5 items which added result in a 28-point-scale. The subscales correspond to the DSM IV symptoms and deduce the major symptom elements of nicotine withdrawal. Further it is predictive of smoking cessation and relapse during treatment.

### *EuroQol-5D (EQ-5D)*

The EQ-5D questionnaire developed by Rabin and Charro (2001) is a standardized instrument to characterize generic Health-Related Quality of Life. It contains 5 dimensions (mobility, self care, usual activities, pain or discomfort and anxiety or depression) at three levels (no problem, some problems and extreme problems). With the aid of a visual analogue scale (VAS) in the questionnaire, the patients are able to estimate their current health state on a scale of 0 to 100. Thereby a 0 is the worst imaginable health status and a 100 the best imaginable health status.

### *Mindful Attention Awareness Scale (MAAS)*

The MAAS measures a single factor, the tendency to be mindful of day to day experience. The MAAS is a 15-item instrument and focuses on the presence or absence of attention. The scale has been validated in college, working adult, and cancer patient populations (Bohlmeier et al., 2010).

### *Hospital Anxiety and Depression Scale (HADS)*

The HADS is a 14-item instrument and is divided into two parts. 7 questions measure the level of anxiety and the other half the level of depression. Each item consists of a four-point scale. The HADS contains positively as well as negatively coded items to countermeasure undesirable answer patterns. The items do not refer to symptoms of physical causes such as insomnia and differences in weight (Zigmond et al., 1983; Snaith et al., 1987; Spinhoven et al., 1997).

## **2.4 Data Analysis**

All analyses were done with the software Statistical Package for the Social Sciences [SPSS] version 21. The significance level was set at 0.05 and the variables are tested two-sided for all analyses.

### *Preliminary analyses*

Preliminary to the main analyses, factor analyses were used to examine the constructs of the existing questionnaires. At a low Cronbach's Alpha, single variables were taken out of the constructs to get a higher construct validity.

The Chi<sup>2</sup>-Test and the independent sample T-Test were used to analyse if there exist possible significant differences in the baseline between the intensive intervention group and the placebo self help intervention group regarding to gender, age, marital status and level of education.

In table 1 the distribution of Baseline characteristics over groups of the demographics is presented. According to the Chi<sup>2</sup>-Tests and Independent Sample T-Test, no statistically different distribution over the groups, according to the Levene's Test equal variance can be assumed.

Table 1. Distribution of Baseline characteristics over groups, presented as means (SD) or numbers (%)

	Intensive intervention (n=54)	Placebo self help intervention (n=56)
Gender, male/ female	31 (57,4%)/ 23 (42,6%)	23 (41,1%) / 33 (58,9%)
Hospital, MST/UMCG	41 (75,9%)/ 13 (24,1%)	44 (78,6%)/12 (21,4%)
Age, mean	60,1 (8,48)	62,3 (8,18)
Marital status, range 1-4	1,76 (1,08)	1,76 (1,06)
Education of primary earner, range 1-7	3,02 (1,54)	3,39 (1,71)
Occupation of primary earner, range 1-11	7.63 (2,45)	7.13 (2,76)

#### *2.4.1 Descriptive Statistics and Correlations*

To answer the question to what extend the patients' self-reported objective measure is as valid as the self-reported subjective measure of smoking reduction after 6 and 12 months, two analyses were assessed.

First of all, both relevant questionnaires with the subjective self-reported measure and the objective self-reported measure over smoking reduction were divided into the following five categories.

- 1.) < 25%
- 2.) ≥ 25% < 50%
- 3.) ≥ 50% < 75%

4.)  $\geq 75\% < 100\%$

5.) 100%.

Based on this classification it is possible to compare the subjective self-reported measure and the objective self-reported measure to each other to identify if these measures are congruent. Further this analysis indicates if the subjective evaluation is congruent enough to represent a valid correct measurement of self-reported smoking reduction.

#### *2.4.2 Intensive intervention compared to placebo self help intervention*

To determine a possible reduction in smoking behaviour between the intensive intervention group and the placebo self help intervention group two analyses were conducted. First a respondent only analysis was conducted

The results of the *respondents only analysis* in figure 2 show no statistically significant difference regarding smoking reduction between the intervention group and the control group after 6 months ( $F= 1,43$ ;  $p=0,238$ ) and after 12 months ( $F=3,007$ ;  $p=0,91$ ). Of the patients in the intensive intervention group 36.8 % reached the goal of 50% reduction. Of the patients of the placebo self help intervention group reached 19.3% the goal of reduction

Regarding to the measurements after 12 months 33.3% of the intensive intervention group achieved the goal of equal to or more than 50% reduction. Of the patients of the placebo self help intervention group reached 33,3% the goal of reduction. This shows that for the measurements after 12 months also no significance difference could be detected.

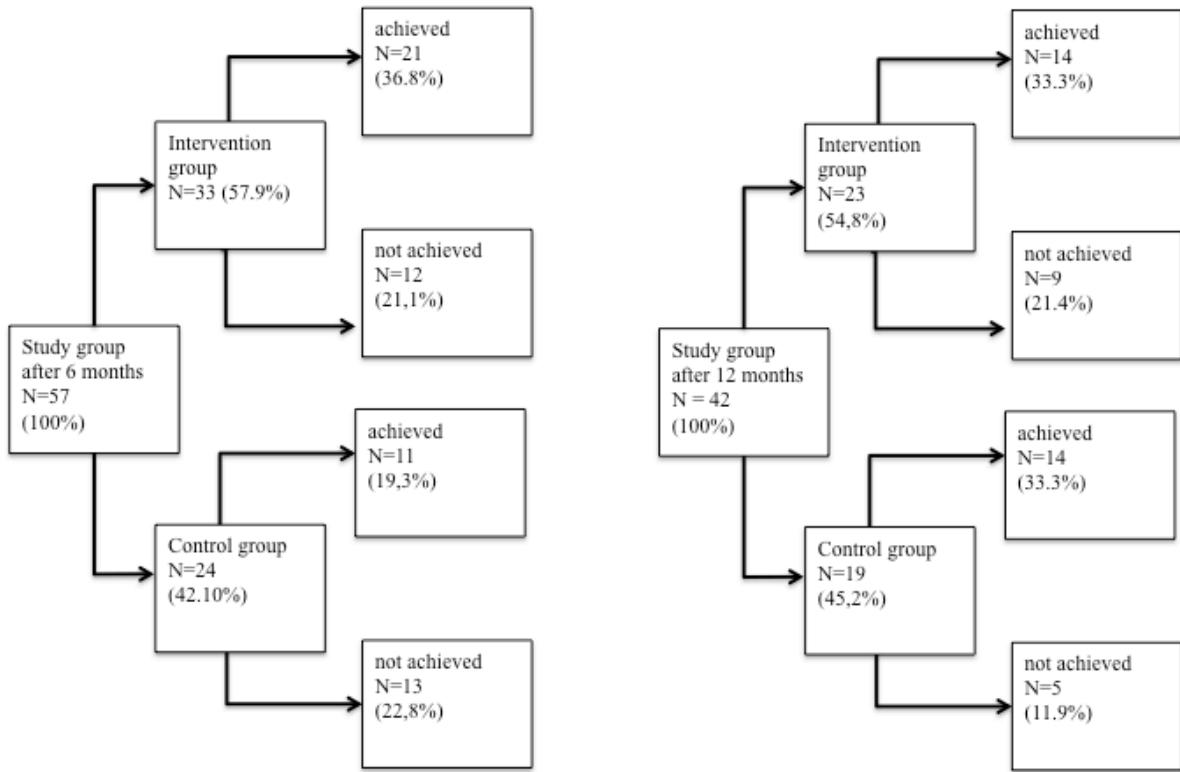


Figure 2. The achievement of 50% reduction compared to the control group and the intervention group after 6 and 12 months.

Regarding these results an *intention to treat analysis* is performed by which all missing values were excluded. We assume that all missing values of smokers who stopped reducing smoking can be seen as continued-smokers.

#### *Effect of successful smoking reduction on stage of change regarding smoking cessation*

To determine if successful reduction of equal or to more than 50% in at 12 months leads to increased motivation of smoking cessation, a univariate analysis of variance is conducted.

Regarding the mentioned model of TTM (Prochaska & DiClemente, 1998) of smoking reduction it is assumed that the patient is situated in the stage of action. Accordingly, smoking reduction takes place after 6 months. The univariate analysis of variance compares the stages of change regarding smoking cessation and identifies the score of difference regarding the stage of change of smoking cessation after 12 months. Further the univariate analysis of variance shows if there exists a significant difference between the two intervention groups regarding the stage of change of smoking cessation.

### *Determination of predictive determinants for smoking reduction*

To answer the last research question a logistic regression analysis was used to determine the attributes predicting a point prevalence smoking reduction of equal to or more than 50% after 6 and 12 months after the start of the intervention. First, all the possible predictive determinants were bivariate assessed on their relationship with point prevalence reduction after 6 and 12 months. Variables, which are not any independent predictors of point prevalence reduction, were removed and only variables with a bivariate correlation ( $p<0.20$ ) were included in a hierarchical logistic regression model.

All mentioned possible predictive determinants as described in the instruments were used in the analysis.

### 3. Results

#### Main Analyses

##### *Congruency rate of subjective and objective measures of reduction*

The congruency in level of classification of the self-reported, subjective reduction and self-reported, objective reduction was 55.4% (measure after 6 months) and 32.5% (measure after 12 months). The reduction after 6 months contained congruency of all 5 levels. Notably, the reduction after 12 months only contained congruency in level 1 and 5. See table 2 for the results.

Table 2. Congruency of the subjective and objective reduction values after 6 and 12 months.

	Congruency rate in %	N_valid	N_missing
Reduction after 6 months (subjective and objective assessment)	55.4	56	54
Reduction after 12 months (subjective and objective assessment)	32.5	40	70

Regarding the second measurement, the correlation between the self-reported subjective and self-reported objective reduction after 6 months is statistically significant (Spearman's rho = 0.59; p < 0.05). As shown in table 3, the correlation between the same variables after 12 months is not statistically significant (Spearman's rho = 0.19; p = 0.26).

Table 3 Correlation of the self-reported subjective and self-reported objective reduction after 6 and 12 months.

	Spearman's rho	p-value	N
Reduction after 6 months	0.59	0.00	56
Reduction after 12 months	0.19	0.26	40

A Wilcoxon Rank Sum test showed a statistically significant difference between the self-reported, subjective reduction and self-reported, objective reduction after 6 months ( $z = -3.2$ ,  $p < 0,01$ ). The self-reported, subjective reduction after 6 months was higher (2.8) compared to the self-reported, objective reduction (2.2). Another Wilcoxon Rank Sum test also showed statistically significant difference between the self-reported, subjective reduction and self-reported, objective reduction after 12 months ( $z = -1.7$ ,  $p < 0,1$ ). The self-reported, subjective reduction after 12 months was higher (3.7) compared to the self-reported, objective reduction (2.7). This is evidence for an overestimation of smoking reduction. These results are evidence for an overestimation of smoking reduction.

The paired sample T-Test (see table 4) shows a statistically significant objective reduction for 6 and 12 months ( $t_{(79)} = 6.95$ ,  $p < 0,01$ ;  $t_{(66)} = 8.22$ ,  $p < 0,01$ ). The mean reduction of the total weighted number of cigarettes after 6 months is 7.45, after 12 months it is 10.02. These results support that during the period of 6 and 12 months within the REDUQ program smoking reduction has occurred. Notably, this does not yet support that REDUQ is the reason for this reduction.

Table 4. The reduction of the number of cigarettes in comparison to the baseline measurement (n=106).

	Mean	N	Standard Deviation	p-value	t	df	95% Confidence	
							Lower	Upper
Reduction after 6 months	7.45	80	9.58	0.00	6.95	79	5.32	9.58
Reduction after 12 months	10.02	67	9.98	0.00	8.22	66	7.59	12.45

*Intention-to-treat analysis to achieve the reduction of  $\geq 50\%$  between the intensive intervention and the placebo self help intervention after 6 and 12 months*

Regarding the *intention-to-treat analysis* a significant reduction of  $\geq 50\%$  was found at the measurements after 6 months (Pearson  $\chi^2_{(1)} = 4,936$ ;  $p < 0,05$ ). Of the 110 patients, there were 49.1% in the intervention group and 50.9% were in the control group. Of the patients in the intervention group reached 19.1% the goal of  $\geq 50\%$  reduction. Compared to the control group reached only 10.0% the goal of reduction.

Regarding the measurements after 12 months there is no significant difference shown ( $\chi^2_{(1)} = 0,109$ ;  $p = 0,741$ ). 12.7% of the intervention group achieved the goal of 50% reduction. Of the patients of the control group reached 11.8% the goal of reduction.

### *Effect of reduction on quitting motivation*

The univariate analysis of variance shows no statistically significant difference between achieved reduction of  $\geq 50\%$  and quitting motivation compared to the groups ( $F_{(1,40)} = 0,964$ ;  $p = 0,332$ ). If reduction after 6 months is achieved the stage of change toward smoking cessation after 12 months improved in from 0,4 to 1,5 stages. In contrast, if the reduction after 6 months is not achieved the stage of change toward smoking cessation after 12 months improved from close to 0,0 to 1,2 stages. This may be a slight indication – even if not statistically significant – that a successful smoking reduction leads to a progression in stages of change.

### *Determination of possible predictive determinants*

To determine which determinants are associated with reduction and can be used for the hierarchical logistic regression analysis first a bivariate logistic regression was conducted. Table 5 only presents the determinants that are statistically significant ( $\alpha = 0,2$ ).

Table 5. Bivariate logistic regression analysis of possibly predictive determinants for the smoking reduction after 6 and 12 months.

Possible predictive variables for reduction	Reduction after 6 months			Reduction after 12 months		
	Omnibus $\chi^2$	df	Sig	Omnibus $\chi^2$	df	Sig
Marital status	2.9	1	.087	°WSWS Anxiety	2.6	1 .105
Self efficacy toward smoking reduction	9,8	1	.002	°WSWS Craving	2.0	1 .153
Attitude toward smoking reduction	4.5	1	.035	°WSWS Sadness	3.0	1 .085
°WSWS Hunger	2.1	1	.144	°°WSWS Anxiety	5.0	1 .024
°WSWS Anger	2.4	1	.121	°°WSWS Craving	5.5	1 .019
				°°WSWS Sleep	7.4	1 .115
				°°Attitude toward smoking cessation	3.1	1 .076
				°EQ5D	6.0	1 .014
				MAAS	5.6	1 .017

° measurement after 6 months; °° measurement after 12 months

$p < 0,2$ ; \*\*  $p < 0,1$ ; \*\*\*  $p < 0,05$

Table 6 presents some interesting determinants regarding the ASE model which are not statistically significant ( $\alpha > 0,2$ ).

Table 6. Bivariate logistic regression analysis of possibly predictive determinants for the smoking reduction after 6 and 12 months

Possible predictive variables for reduction	Reduction after 6 months			Reduction after 12 months			
	Omnibus $\chi^2$	df	Sig	Omnibus $\chi^2$	df	Sig	
ASE toward smoking reduction	1.0	1	0.311	ASE toward smoking reduction	0.1	1	0.778
<sup>°</sup> ASE toward smoking reduction	1.6	1	0.202	<sup>°</sup> ASE toward smoking reduction	0.6	1	0.436
Social influence toward smoking reduction	0.3	1	0.608	Social influence toward smoking reduction	0.0	1	0.967
<sup>°</sup> Social influence toward smoking reduction	0.4	1	0.517	<sup>°</sup> Social influence toward smoking reduction	0.02	1	0.888

<sup>°</sup> measurement after 6 months; <sup>°°</sup> measurement after 12 months

\* p < 0,2; \*\* p < 0,1; \*\*\* p < 0,05

Table 7 represents the content of the Hierarchical logistic regression analysis for variables which predict reduction after 6 months. Model 1 describes the dependent variable statistically significant (Nagelkerke  $R^2 = 0.254$ , Omnibus  $\chi^2 = 12.004$ , df = 2, p < 0,05). *Self efficacy toward smoking reduction* is statistically significant within the model (Odds-ratio=1.370, p < 0,05). *Self efficacy toward smoking reduction* increases the chances of successful smoking reduction. *Attitude toward smoking reduction* is statistically not significant which indicates that the direction these variables change the odds is uncertain.

Model 2 describes the dependent variable as statistically not significant (Nagelkerke  $R^2 = .297$ , Omnibus  $\chi^2 = 2.301$ , df = 2, p >0.05). *Self efficacy toward smoking reduction* is statistically significant within the model (Odds-ratio= 1.379 p < 0,05). *Self efficacy toward smoking reduction* increases chances of successful smoking reduction. The other variables *Marital status* and *Attitude toward smoking reduction* are statistically not significant which indicates that the direction these variables change the odds is uncertain.

Model 3 describes the dependent variable statistically significant (Nagelkerke  $R^2 = 0.448$ , Omnibus  $\chi^2 = 8.914$ , df = 2, p < 0,05). Variable *Self efficacy toward smoking reduction* at Baseline and *WSWS Anger* after 6 months are statistically significant within the model (Odds-ratio=3.122, p < 0,05; Odds-ratio= 0.345, p < 0,05). *Self efficacy toward smoking reduction* increases chances of successful smoking reduction and *WSWS Anger* after 6 months decreases the chance of reduction. The other variable are statistically not significant which indicates that

the direction these variables change the odds is uncertain. Model 3 explains reduction sufficient.

Tabel 7. Hierarchical logistic regression analysis for variables which predict reduction after 6 months.

Reduction after 6 months		Nagelkerke R <sup>2</sup>	$\chi^2$	Df	P-value	Odds-ratio	95% CI	
Variables							lower	upper
Model 1		.254***	12.004	2				
	<i>Self efficacy toward smoking reduction</i>				0.012	1.37	1.073	1.776
	<i>Attitude toward smoking reduction</i>				0.147	3.06	0.674	13.873
Model 2		.297	2.301	1				
	<i>Self efficacy toward smoking reduction</i>				0.012	1.380	1.072	1.774
	<i>Attitude toward smoking reduction</i>				0.195	2.81	0.590	13.380
	<i>Marital status</i>				0.156	1.70	0.818	3.500
Model 3		.448***	8.914	2				
	<i>Self efficacy toward smoking reduction</i>				0.008	1.54	1.118	2.127
	<i>Attitude toward smoking reduction</i>				0.182	3.12	0.588	16.589
	<i>Marital status</i>				0.408	1.35	0.664	2.741
	<sup>°</sup> WSWS Anger				0.019	0.35	0.142	0.838
	<sup>°</sup> WSWS Hunger				0.059	2.50	1.964	6.502

<sup>°</sup> measurement after 6 months; <sup>°°</sup> measurement after 12 months

\*p < 0,2; \*\*p < 0,1; \*\*\*p < 0,05

In table 8 the hierarchical logistic regression analysis is shown. Model 1 describes the smoking reduction after 12 months statistically significant (Nagelkerke R<sup>2</sup> = 0.059, Omnibus  $\chi^2$  = 1.664, df = 1, p < 0,2). *Attitude toward smoking cessation* after 12 months is statistically not significant within the model.

Model 2 describes the dependent variable statistically significant (Nagelkerke R<sup>2</sup> = 0.318, Omnibus  $\chi^2$  = 8.297, df = 3, p < 0,05). WSWS craving regarding 12 months and WSWS anxiety are statistically significant within the model (Odds-ratio= 0.385, p < 0,1; Odds-ratio=0,174, p< 0,1). These variables decreases chances of smoking reduction.

Model 3 describes the dependent variable not statistically significant (Nagelkerke R<sup>2</sup> = 0.432, Omnibus  $\chi^2$  = 4.313, df = 5, p > 0,05). WSWS craving after 12 months is statistically significant within the model (Odds-ratio= 0.043, p< 0.05). WSWS decreases the chances of successful smoking reduction. The other variables are statistically not significant which indicates that the direction these variables change the odds is uncertain.

Model 4 describes the dependent variable not statistically significant (Nagelkerke R<sup>2</sup> = 0.465, Omnibus  $\chi^2$  = 1.326 df = 2, p > 0,05). WSWS craving after 12 months is statistically significant within the model (Odds-ratio=0.295 p-value < 0.1). WSWS craving after 12 months decreases chances of successful smoking reduction. The other variables are

statistically not significant which indicates that the direction these variables change the odds is uncertain.

Tabel 8. Hierarchical logistic regression analysis for variables which predict reduction after 12 months.

Variables	Reduction after 12 months	Nagelkerke R <sup>2</sup>	95% CI					
			χ <sup>2</sup>	Df	P-value	Odds-ratio	lower	upper
Model 1	°°Attitude toward smoking cessation	.059*	1.7	1	0.214	2.33	0.614	8.850
Model 2	°°Attitude toward smoking cessation °°WSWS Craving °°WSWS Anxiety °°WSWS Sleep	.318***	8.3	3	0.696 0.084 0.081 0.981	1.35 0.39 0.17 0.98	0.299 0.130 0.024 0.205	6.108 1.137 1.244 4.693
Model 3	°°Attitude toward smoking cessation °°WSWS Craving °°WSWS Anxiety °°WSWS Sleep °WSWS Sadness °WSWS Anxiety °WSWS Craving	.432	4.3	3	0.972 0.043 0.285 0.518 0.198 0.778 0.328	1.03 0.29 0.27 0.58 0.18 0.73 0.52	0.164 0.084 0.025 0.110 0.114 0.079 0.142	6.536 0.962 2.951 3.044 2.441 6.662 1.920
Model 4	°°Attitude toward smoking cessation °°WSWS Craving °°WSWS Anxiety °°WSWS Sleep °WSWS Sadness °WSWS Anxiety °WSWS Craving °EQ5D MAAS	0.465	1.3	2	0.939 0.055 0.668 0.333 0.282 0.534 0.478 0.952 0.298	0.92 0.30 0.56 0.41 0.22 0.47 0.60 1.09 2.14	0.120 0.085 0.041 0.065 0.015 0.045 0.148 0.062 0.510	7.074 1.026 7.776 2.521 3.428 4.965 2.445 19.17 8.95

° measurement after 6 months; °° measurement after 12 months

\*p < 0,2; \*\*p < 0,1; \*\*\*p < 0,05

#### **4. Discussion**

The main aim of this study was to investigate the effects of the intensive intervention of the REDUQ. The intensive intervention of the smoking reduction therapy combined with the *Nicotine Replacement Therapy (NRT)* is compared with the placebo self-help reduction intervention. In the following paragraphs the answers of the research questions and the hypothesis will be discussed:

Research question 1: To what extend are the patients' self-evaluation as valid as the objective measurements of smoking reduction after 6 and 12 months?

The results show that the level of congruency of the subjective and objective reduction is not perfect. The congruency after 6 months was 55.4% and the congruency rate after 12 months was 32.5%. Further analyses showed that the difference in reduction appraisal is statistically significant, which further supports that the COPD patients overestimated their level of smoking reduction.

The first measurement of smoking reduction the congruency rate after 6 months is distributed over all 5 categories. The self-reported, objective smoking reduction and the self-reported, subjective smoking reduction after 12 months is only congruent for category 1 (<25% reduction) and category 5 (100% reduction). This could be an indication that after 6 months the COPD patients in this study can still remember the exact reduction, and accordingly evaluate these more correctly than after 12 months. The reduction appraisal after 12 months may be compromised by the time span. Memory is imprecise and only the patients who reduced 100% or more and those who reduced 25% or less can correctly appraise their smoking reduction.

Another possible reason for the not-perfect congruence of the objective and subjective measures may be that self-assessment is no exact measurement, but probably displaced positively. Possible reasons for the not-perfect congruence rate can be a bias of Social-Desirability-Response [SDR]. SDR is a cognitive bias, which affects the results of self-reported measures in statistical surveys (Johnson & Fendrich, 2005). The aim of the COPD patients is to reduce and to quit smoking. The COPD patients may have given more positive subjective appraisals of their smoking reduction which would likely lead to more approval by the researchers than the correct appraisal. During the REDUQ social desirability can take place, because it is expected of the COPD patients that they first reduce their smoking

behaviour by 50% and then try to quit completely. This increases the pressure on the COPD patients which may lead to a higher occurrence of SDR bias (Johnson & Fendrich, 2005).

A third possible explanation for the overestimation of smoking reduction is the Cognitive Dissonance Theory [CDT] (Festinger, 1962). Cognitive dissonance describes a state of discomfort, created by incompatible cognitions. Cognitions here may be understood as perceptions, thoughts, opinions, attitudes or desires. The possible cognitive dissonance of the COPD patients may have occurred when the patients already have undertaken great efforts to reduce smoking, but realize they did not succeed. In other words, the COPD patients realize that they have actually achieved less than they had set themselves to. The cognitive dissonance may be resolved by the falsification of entries in the questionnaires.

On a methodological side-note, the results also suggest that self-reported subjective measure – even though easier to obtain – are less valid than objective measures. If the self-reported subjective measures are valid then only up to 6 months. Objective measurements still remain the golden standard.

Research question 2: Is there a difference between the intensive intervention group and the placebo self help intervention group regarding reduction in smoking behaviour (after 6 and 12 months)?

The results of the *intention to treat analysis* show a statistically significant reduction of  $\geq 50\%$  after 6 months ( $t_{(1)} = 4,936$ ;  $p < 0,05$ ). This indicates that the patients in the intensive intervention group significantly increase more in achieving the goal of  $\geq 50\%$  than those in the self-help intervention group. Regarding the second measurement after 12 months no statistically significant difference and only a trend could be found. That the intention to treat analysis gets more weight compared to the respondent's only analysis surely needs an explanation. Since we assume that all missing values of smokers who stopped reducing smoking can be seen as continued-smokers, we assume the *intention to treat analyses* is more correctly than the only-respondents analysis which was shown in the methods.

The presented hypothesis regarding the measurements after 6 months can be confirmed. The intensive intervention leads to an increased likelihood of achieving a  $\geq 50\%$  reduction in number of cigarettes smoked per day at 6 months, compared to the placebo self help intervention.

The *intention to treat analyses* regarding the 12 month measurement showed no significant results. Nevertheless, this analysis shows a trend into the right direction. 12.7% of the

intensive intervention group reached the goal of 50% reduction and 11.8% of the patients of the placebo self help intervention reached the goal of reduction. One possible explanation for the only significant results after 6 months can be that the placebo self help intervention does not represent a real placebo intervention. So comparing a real placebo with the intention to treat analysis might have shown a significant effect.

Based on research about smoking cessation, it was assumed that a placebo self help intervention will likely have a minimal effect (Ranney, et al. 2006). However, the placebo self help intervention already shows a sufficient effect regarding smoking reduction. Since there is no literature concerning the achievement of smoking reduction comparing a real placebo intervention with a placebo self help intervention, this eventual effect may have skewed or minimized the results of this study. It was assumed that a placebo self help intervention for achieving  $\geq 50\%$  reduction might be enough (Christenhusz et al., 2007). Christenhusz (2007) further states that for those COPD patients with a positive smoking reduction attitude a placebo self help intervention might suffice. In the light of these arguments it could be that an intensive intervention for COPD patients is not strictly necessary and treatments have to be differentiated for patients with positive and negative attitudes regarding smoking reduction.

Research question 3: Does successful reduction of 50% in number of cigarettes smoked per day at 6 and 12 months lead to increased motivation of smoking cessation?

Regarding the results of the univariate analysis no statistically significant results could be found ( $F_{(1,40)} = 0,964$ ;  $p = 0.332$ ). However, it can be seen that successful reduction leads to an improvement of more stages (0.420 until 1.511) than no successful reduction (0.003 until 1.222 stages).

Regarding this research question there exist two specific limitations. That no statically significant results could be found, could be due to a too small power. Because of the small power the effect is not statistically significant. However a tendency can be detected. Nevertheless, the assumption that successful reduction leads to a higher stage of change can not be confirmed.

The second specific limitation regarding the third research question is that we know nothing about the last measurement at 18 months. Again, it would be interesting to see the last measurements to find out how the stages of change developed.

Research question 4: Which determinants are predictive for smoking reduction after 6 and after 12 months?

The results show that *Self-efficacy toward smoking reduction* at baseline and *Anger toward withdrawal (=WSWS Anger)* after 6 months are statistically significant within the model (Odds-ratio=3.122, p < 0,05; Odds-ratio= 0.345, p < 0,05) and plays an important role for smoking reduction. Model 3 describes the dependent variable statistically significant (Nagelkerke R<sup>2</sup>= 0.448, Omnibus  $\chi^2$ = 8.914, df = 2, p < 0,05). *Self-efficacy toward smoking reduction at baseline* increases chances of successful smoking reduction and *Anger toward withdrawal* after 6 months decreases the chance of reduction.

In accordance to the results of Christenhusz et al., (2007) attitude could be found as a smoking cessation predictor. This result indicates that attitude can not be seen as a common predictor for as well smoking reduction as smoking cessation.

Nevertheless, another component from the ASE model –self-efficacy- seems to be a predictive determinant regarding smoking reduction after 6 months. This result is comparable with the study of Prenger (2013). Prenger et al., (2013) made a comparison of time varying covariates in two smoking cessation interventions for cardiac patients after 12 months. Self-efficacy was found as a possible predictor. They have examined whether self-efficacy goes up or down. Comparing these results to the results of the study at hand, self-efficacy is found as a common predictor for as well smoking reduction after 6 months as for smoking cessation after 12 months.

Regarding the measurements after 12 months, the scores of the questionnaire craving toward withdrawal after 12 months (=WSWS craving) and anxiety toward withdrawal (=WSWS anxiety) after 12 months seems to be predictive determinants for not achieving smoking reduction after 12 months. Model 2 describes the dependent variable statistically significant (Nagelkerke R<sup>2</sup>= 0.318, Omnibus  $\chi^2$ = 8.297, df = 3, p < 0,05). Craving toward withdrawal regarding 12 months and anxiety toward withdrawal are statistically significant within the model and decreases chances of smoking reduction (Odds-ratio= 0.385, p < 0,1; Odds-ratio=0,174, p< 0,1). To the authors' best knowledge, there exist no research comparing smoking reduction after 12 months with the WSWS questionnaire.

One of the specific limitations for the study at hand is that there was made no differentiation between the intensive intervention and the placebo self help intervention. Therefore, it would be interesting to find out if self-efficacy and WSWS turned out to only be a predictive determinant for the placebo self help intervention or also for the intensive intervention.

Another specific limitation involves the adoption of an  $\alpha$ -value of 0.20. The question that arises here is why the study at hand adopted an  $\alpha$ -value less than the usual  $\alpha$ -value of 0.05. The study at hand is explorative in nature and therefore it is desirable that as much as possible findings are reported. We deliberately take the risk of a type II error.

A further predictive determinant of Christenhusz et al. (2007) was the level of cotinine. The level of cotinine represents a value of salvia. These values, however, were not yet available at the time the study at hand was written and thus could not be tested.

### **General Limitations**

Despite the fact that the effect of the treatments in the control group probably was small, the reason may be that the REDUQ deals with a very difficult target group. COPD patients had many prior quit attempts and are highly addicted to smoking (Christenhusz, 2012).

While transferring the data into SPSS, it was discovered that patients did not complete all questions. Patients that did not complete the questionnaires were contacted if time permitted this. However, not all questionnaires could be completed this way due to time constraints. Regarding these missing values the data can not adequately be reproduced. That this might have distorted the results is indicated by the *respondents-only analysis*. A significant result could not be found in the *respondent only analysis*, only after excluding these missing values (i.e. *intention to treat analysis*) a statistically significant difference could be found after 6 months.

Another limitation is that most literature deals with smoking cessation and not smoking reduction. This makes it difficult to compare the current results on smoking reduction to the literature mostly dealing with smoking cessation.

Self-reported measures that were used in the study at hand are evidently problematic. The self-reported subjective and objective measures displayed overestimation of successful reduction. In other words, the results may suffer from a lack of validation. Both measures used in the study at hand were self-reported measures and could have been cross-validated biochemically. But at cotinine we do not know what values are important for reduction, because there exists no validation studies regarding reduction only cessation. The self-reported objective measure was the most suitable we could run with regard to reduction. Some objectivity was supported by the comparison of the self-reported subjective and self-reported objective measures. The self-reported objective measure was used as it was assumable less sensitive to a bias. So was our self reported objective measure sufficiently valid.

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## **APPENDIX I Vragenlijsten Baseline MST**



## **VRAGENLIJSTEN BASELINE MST**

**1. Datum van vandaag**

...../...../..... (dd/mm/jjjj)

**2. Wat zijn de eerste drie letters van uw achternaam?**

..... Voorbeeld: Als u 'Jansen' heet vult u in: JAN  
Als u 'de Vries' heet vult u in: DEV

**3. Wat is uw geboortedatum?**

...../...../..... (dd/mm/jjjj)

**4. Wat is uw geslacht?**

- man
- vrouw

**5. Wat is uw burgerlijke staat?**

- Gehuwd of duurzaam samenwonend
- Gescheiden of in het verleden duurzaam samenwonend
- Weduwe of weduwnaar
- Alleenstaand (nooit gehuwd geweest of duurzaam samenwonend)

**6. Wat is de hoogst genoten, al dan niet voltooide opleiding van de hoofdkostwinner van het huishouden waar u deel van uitmaakt?**

- Lager onderwijs
- Lager beroepsonderwijs (bijv. LBO, LTS, Huishoudschool)
- Middelbaar algemeen voortgezet onderwijs (bijv. MAVO,(M)ULO, 3 jaar HBS/VWO/VHMO/Atheneum/Gymnasium)
- Middelbaar beroepsonderwijs (bijv. MBO, MTS, MEAO)
- Hoger algemeen en voorbereidend wetenschappelijk onderwijs (bijv. HAVO, HBS, Gymnasium, Atheneum)
- Hoger beroepsonderwijs en wetenschappelijk onderwijs - kandidaats/bacheloropleiding (HBO, HTS HEAO, 3 jaar universiteit/bachelor/pre-master)
- Wetenschappelijk onderwijs - doctoraal/masteropleiding

**7. Tot welke beroepsgroep behoort de hoofdkostwinner van het huishouden waar u deel van uitmaakt? (indien hoofdkostwinner niet meer werkzaam is: laatst uitgeoefende beroep invullen)**

- Bedrijfshoofd/directeur bij bedrijf met 10 of meer werknemers
- Bedrijfshoofd/directeur bij bedrijf met 9 of minder werknemers
- Zelfstandige beoefenaar hoger vrij beroep, zoals bijv. dokter, advocaat
- Zelfstandige boer of tuinder
- Hogere employee/ambtenaar
- Middelbare employee/ambtenaar
- Lagere employee/ambtenaar
- Geschoolde handarbeider
- Ongeschoolde handarbeider
- Student/huisvrouw/huisman
- Weet niet/wil niet zeggen

**8. Waarom neemt u deel aan de REDUQ-studie?**

- ik wil minderen met roken, maar niet volledig stoppen met roken
- ik wil eerst minderen met roken en daarna volledig stoppen met roken
- andere reden,  
namelijk.....

**9. Gebruikt u op dit moment, naast dat u deelneemt aan de REDUQ-studie, gebruik van hulpmiddelen om te minderen of te stoppen met roken?**

- |   |   |
|---|---|
| <input type="checkbox"/> nee, geen hulpmiddelen                           | <input type="checkbox"/> Met de huisarts gesproken over stoppen met roken |
| <input type="checkbox"/> niet-roken cursus of groepstherapie              | <input type="checkbox"/> Acupunctuur                                      |
| <input type="checkbox"/> nicotine kauwgom                                 | <input type="checkbox"/> Lasertherapie                                    |
| <input type="checkbox"/> nicotine pleisters                               | <input type="checkbox"/> Telefonische ondersteuning                       |
| <input type="checkbox"/> nicotine zuigtabletten                           | <input type="checkbox"/> Folder   |
| <input type="checkbox"/> nicotine microtabs (tabletje voor onder de tong) | <input type="checkbox"/> Boek (bijvoorbeeld Allen Carr)                   |
| <input type="checkbox"/> Zyban (bupropion)                                | <input type="checkbox"/> andere hulpmiddelen of methodes, namelijk:       |
| <input type="checkbox"/> Champix (varenicline)                            | .....   |

**10. Hoe laat staat u 's ochtends meestal op?**

Door de week/op werkdagen gemiddeld om ..... uur, in het weekend/op vrije dagen gemiddeld om ..... uur.

**11. Hoe laat gaat u 's avonds meestal naar bed?**

Door de week/op werkdagen gemiddeld om ..... uur, in het weekend/op vrije dagen gemiddeld om ..... uur.

---

**BASELINE - 2****DETERMINANTEN**

Nu volgt een aantal vragen over uw ideeën over stoppen en minderen met roken. In de vragen wordt gesproken over '50% minder roken' en 'blijvend niet roken'. Als u nu rookt, moet u zich voorstellen dat u de helft minder zou roken dan wat u nu rookt en dat u dit volhoudt. Stelt u zich vervolgens voor dat u zou stoppen met roken en het niet roken volhoudt. Als u een ex-roker bent, betekent dit dat u het niet roken volhoudt. Als u de helft minder rookt dan vroeger, betekent dit dat u dit volhoudt. **Vult u a.u.b. zowel de linker- als de rechterkolom in, ook als u gestopt bent met roken.**

	<b>Als ik 50% minder rook,</b>	<b>Als ik blijvend niet roo</b>
<b>1. verbetert mijn gezondheid</b>		
gezondheid verbetert veel	<input type="checkbox"/>	<input type="checkbox"/>
gezondheid verbetert	<input type="checkbox"/>	<input type="checkbox"/>
gezondheid verbetert een beetje	<input type="checkbox"/>	<input type="checkbox"/>
gezondheid verbetert niet	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>
<b>2. ga ik de gezelligheid van het roken missen</b>		
gezelligheid erg missen	<input type="checkbox"/>	<input type="checkbox"/>
gezelligheid missen	<input type="checkbox"/>	<input type="checkbox"/>
gezelligheid een beetje missen	<input type="checkbox"/>	<input type="checkbox"/>
gezelligheid niet missen	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>
<b>3. wordt mijn kans op longkanker kleiner</b>		
kans wordt veel kleiner	<input type="checkbox"/>	<input type="checkbox"/>
kans wordt kleiner	<input type="checkbox"/>	<input type="checkbox"/>
kans wordt een beetje kleiner	<input type="checkbox"/>	<input type="checkbox"/>
kans wordt niet kleiner	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>
<b>4. kan ik me minder goed ontspannen</b>		
veel minder ontspannen	<input type="checkbox"/>	<input type="checkbox"/>
minder ontspannen	<input type="checkbox"/>	<input type="checkbox"/>
een beetje minder ontspannen	<input type="checkbox"/>	<input type="checkbox"/>
niet minder ontspannen	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>
<b>5. ben ik tevreden over mezelf</b>		

Gebaseerd op Mudde et al., 2006

**Als ik 50% minder rook,**      **Als ik blijvend niet roo**

**5. ben ik tevreden over mezelf**

heel tevreden	<input type="checkbox"/>	<input type="checkbox"/>
tevreden	<input type="checkbox"/>	<input type="checkbox"/>
een beetje tevreden	<input type="checkbox"/>	<input type="checkbox"/>
niet tevreden	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>

**6. krijg ik last van ontwenningverschijnselen**

veel last van ontwenningverschijnselen	<input type="checkbox"/>	<input type="checkbox"/>
last van ontwenningverschijnselen	<input type="checkbox"/>	<input type="checkbox"/>
een beetje last van ontwenningverschijnselen	<input type="checkbox"/>	<input type="checkbox"/>
geen last van ontwenningverschijnselen	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>

**7. is dat beter voor de gezondheid van de mensen**

**om me heen**

veel beter	<input type="checkbox"/>	<input type="checkbox"/>
beter	<input type="checkbox"/>	<input type="checkbox"/>
een beetje beter	<input type="checkbox"/>	<input type="checkbox"/>
niet beter	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>

**8. verveel ik mij vaker**

verveel ik mij veel vaker	<input type="checkbox"/>	<input type="checkbox"/>
verveel ik mij vaker	<input type="checkbox"/>	<input type="checkbox"/>
verveel ik mij een beetje vaker	<input type="checkbox"/>	<input type="checkbox"/>
verveel ik mij niet vaker	<input type="checkbox"/>	<input type="checkbox"/>
weet niet	<input type="checkbox"/>	<input type="checkbox"/>

Gebaseerd op Mudde et al., 2006

De volgende vragen gaan over mensen in uw omgeving en hoe zij tegenover roken, minderen met roken en stoppen met roken staan.

**9. Stimuleren mensen in uw omgeving u om**

**a. blijvend niet te roken?**

- veel
- gemiddeld
- weinig
- nee
- niet van toepassing

**b. minder te roken?**

- veel
- gemiddeld
- weinig
- nee
- niet van toepassing

**10. Rookt uw partner?**

- ja
- nee
- niet van toepassing

**11. Hoeveel van de mensen in uw omgeving zijn rokers?**

- (bijna) allemaal rokers
- meer dan de helft rokers
- ongeveer evenveel rokers als niet-rokers
- minder dan de helft rokers
- (bijna) geen rokers

Er zijn situaties waarin het gemakkelijk is om niet te roken. In andere situaties kan het moeilijker zijn. Dit is niet alleen van toepassing als u volledig wilt stoppen/gestopt bent, maar ook als u mindert met roken volgens een reductieschema, zoals wordt geadviseerd binnen de REDUQ-studie. Immers, als u volgens een schema rookt, rookt u op vaste tijden en kunt u op sommige momenten en in sommige situaties niet roken.

Kunt u aangeven of u er vertrouwen in heeft dat het u in alle situaties (bijv. café, feestje, visite) of gemoedstoestanden (bijv. stress/spanning, somberheid, kwaadheid) zal lukken om niet te roken?

**12. Lukt het u om niet te roken in elke situatie die zich kan voordoen?**

- zeker wel
- waarschijnlijk wel
- neutraal/weet niet
- waarschijnlijk niet
- zeker niet

De volgende vragen gaan over wat u van plan bent in de toekomst te gaan doen.

**1. Bent u van plan om te stoppen met roken in de toekomst?**

- ik ben reeds gestopt met roken, stopdatum: ...../...../..... (dd/mm/jjjj) (ga door naar vraag 3)
- ja, binnen een maand (ga door naar vraag 3)
- ja, binnen 6 maanden, maar niet in de komende maand (ga door naar vraag 3)
- ja, binnen een jaar, maar niet in de komende 6 maanden (ga door naar vraag 3)
- ja, binnen 5 jaar (ga door naar vraag 3)
- ja, maar niet binnen 5 jaar (ga door naar vraag 3)
- nee, niet van plan om te stoppen

De volgende vraag alleen beantwoorden als u bij vraag 1 heeft aangegeven dat u niet van plan bent te stoppen met roken.

**2. Indien u niet van plan bent te stoppen met roken in de toekomst, bent u wel van plan te minderen met roken?**

- ja, ik wil minstens een kwart (25%) minder roken dan wat ik rookte voor de start van de REDUQ-studie
- ja, ik wil minstens de helft (50%) minder roken dan wat ik rookte voor de start van de REDUQ-studie
- nee, ik ben niet van plan te stoppen en niet van plan te minderen met roken

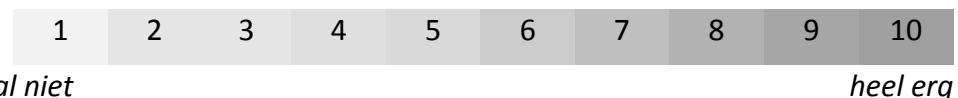
De volgende vragen gaan over uw motivatie en trek in roken. Beantwoord de vragen door rondje te zetten om het cijfer dat u het best vindt passen bij uw situatie (10 = heel veel trek/heel erg gemotiveerd/heel erg belangrijk/heel veel vertrouwen, 1 = helemaal geen trek/helemaal niet gemotiveerd/helemaal niet belangrijk/helemaal geen vertrouwen). **Kies steeds zowel een cijfer bij het onderdeel ‘volledig stoppen met roken’ als bij het onderdeel ‘50% minder roken’, ook als u gestopt bent met roken of 50% minder rookt dan voorheen.**

**3. Hoeveel trek in een sigaret heeft u de afgelopen week gehad?**

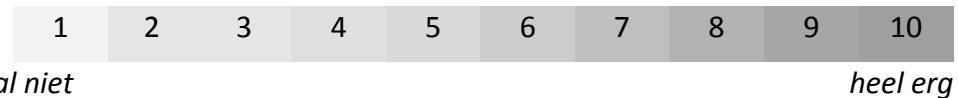


**4. Hoe gemotiveerd bent u om**

a. 50% minder te roken



b. volledig te stoppen met roken

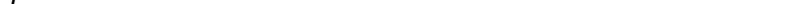


### **5. Hoe belangrijk is het voor u om**

- |                        |                      |   |   |   |   |                 |   |   |   |    |
|------------------------|----------------------|---|---|---|---|-----------------|---|---|---|----|
| a. 50% minder te roken | 1                    | 2 | 3 | 4 | 5 | 6               | 7 | 8 | 9 | 10 |
|                        | <i>helemaal niet</i> |   |   |   |   | <i>heel erg</i> |   |   |   |    |



#### **6. Hoeveel vertrouwen heeft u dat het u lukt om**

- a. 50% minder te roken 



Gebaseerd op trainingsboek Pakje Kans; Stivoro, 2004

De volgende vragen hebben betrekking op de mate van uw rookverslaving. Leest u de vragen a.u.b. zorgvuldig door voordat u ze beantwoordt. Per vraag is slechts één antwoord mogelijk.

**1. Hoe lang na het ontwaken steekt u uw eerste sigaret (of shagje, sigaar, cigarillo, pijp) op?**

- 5 minuten
- 6-30 minuten
- 31-60 minuten
- na 60 minuten

**2. Vindt u het moeilijk om niet te roken op plaatsen waar het verboden is?**

- ja
- nee

**3. Welke sigaret (of shagje, sigaar, cigarillo, pijp) zou u het moeilijkst kunnen opgeven?**

- De eerste in de ochtend
- Een andere

**4. Hoeveel rookt u gemiddeld per dag?**

(als u bepaalde rookwaar niet rookt, vult u dan '0' in op de stippellijn)

	op werkdagen/doordeweekse dagen gemiddeld per dag	in het weekend gemiddeld per dag
Sigaretten/shagjes	.....	.....
Cigarillo's	.....	.....
Sigaren	.....	.....
Pijp	.....	.....

**5. Rookt u in de eerste uren na het opstaan meer per uur, dan gedurende de rest van de dag?**

- ja
- nee

**6. Rookt u als u ziek bent en het grootste deel van de dag in bed ligt?**

- ja
- nee

Nu volgen een paar vragen over uw rookgewoonte.

**7. Hoe oud was u toen u voor het eerst een sigaret uitgeprobeerd heeft?**

- jonger dan 8 jaar
- 8 jaar
- 9 jaar
- 10 jaar
- 11 jaar
- 12 jaar
- 13 jaar
- 14 jaar
- 15 jaar of ouder

**8. Hoeveel heeft u gerookt?**

Periode (leeftijd)	Aantal jaren gerookt in deze periode	Gemiddeld aantal sigaretten per dag
10 – 20 jaar		
20 – 40 jaar		
40 – 60 jaar		
60 – 75 jaar		

Nu volgen er enkele vragen over het ondernemen van pogingen om te stoppen en te minderen met roken.

**1. Heeft u de afgelopen 24 uur één of meer sigaretten (shagjes, cigarillo's, sigaren, pijp) gerookt?**

- ja  
 nee

**2. Heeft u de afgelopen 7 dagen één of meer sigaretten (shagjes, cigarillo's, sigaren, pijp) gerookt?**

- ja  
 nee

**3. Onderneemt u nu een stoppoging?**

- ja  
 nee (ga naar vraag 5)

**4. In welke maand bent u gestopt?**

jan/feb/mrt/apr/mei/jun/jul/aug/sep/okt/nov/dec (doorhalen wat niet gewenst is), jaartal

.....

- ik ben niet gestopt

**5. Heeft u ooit wel eens geprobeerd om te stoppen met roken sinds u begon met regelmatig roken?**

- ja  
 nee (ga naar vraag 12)

**6. Heeft u het bij zo'n poging om te stoppen met roken wel eens 24 uur of langer volgehouden om niet te roken?**

- ja, ..... keer  
 nee (ga naar vraag 12)

**7. Hoeveel stoppogingen heeft u in de afgelopen 3 jaar ondernomen die u 24 uur of langer heeft volgehouden?**

..... stoppogingen

- weet ik niet

**8. Hoe lang heeft de langste periode geduurd waarin u gestopt was met roken (sinds u begon met regelmatig roken)?**

..... dagen/weken/maanden/jaren (doorhalen wat niet gewenst is)

- weet ik niet

**9. Hoe lang duurde uw laatste poging om te stoppen met roken?**

..... dagen/weken/maanden/jaren (doorhalen wat niet gewenst is)

- weet ik niet

**10. Hoe lang geleden was de laatste stoppeling die u 24 uur of langer heeft volgehouden?**

..... dagen/weken/maanden/jaren geleden (doorhalen wat niet gewenst is)

- weet ik niet

**11. Heeft u wel eens hulpmiddelen of methoden gebruikt bij het stoppen met roken?**

(meer antwoorden mogelijk)

- |   |   |
|---|---|
| <input type="checkbox"/> nee, geen hulpmiddelen gebruikt                  | <input type="checkbox"/> Met de huisarts gesproken over stoppen met roken |
| <input type="checkbox"/> niet-roken cursus of groepstherapie              | <input type="checkbox"/> Acupunctuur                                      |
| <input type="checkbox"/> nicotine kauwgom                                 | <input type="checkbox"/> Lasertherapie                                    |
| <input type="checkbox"/> nicotine pleisters                               | <input type="checkbox"/> Telefonische ondersteuning                       |
| <input type="checkbox"/> nicotine zuigtabletten                           | <input type="checkbox"/> Folder   |
| <input type="checkbox"/> nicotine microtabs (tabletje voor onder de tong) | <input type="checkbox"/> Boek (bijvoorbeeld Allen Carr)                   |
| <input type="checkbox"/> Zyban (bupropion)                                | <input type="checkbox"/> andere hulpmiddelen of methodes, namelijk .....  |
| <input type="checkbox"/> Champix (varenicline)                            |   |

**12. Heeft u ooit wel eens geprobeerd om te minderen met roken sinds u begon met regelmatig roken?**

- ja  
 nee (u kunt vragen 13 t/m 15 overslaan en doorgaan naar 'COPD Vragenlijst (CCQ)')

**13. Hoeveel bent u ooit maximaal gemindertijdens een poging om te minderen?**

Ik ben ooit gemindert van ..... sigaretten/shagjes/cigarillo's/sigaren/pijp per dag (doorhalen wat niet gewenst is) tot ..... per dag.

**14. Hoe lang duurde deze periode waarin u maximaal was gemindert?**

..... dagen/weken/maanden/jaren (doorhalen wat niet gewenst is)

- weet ik niet

**15. Heeft u wel eens hulpmiddelen of methoden gebruikt bij het minderen met roken?**

(meer antwoorden mogelijk)

- |   |   |
|---|---|
| <input type="checkbox"/> nee, geen hulpmiddelen gebruikt                  | <input type="checkbox"/> Met de huisarts gesproken over stoppen met roken |
| <input type="checkbox"/> niet-roken cursus of groepstherapie              | <input type="checkbox"/> Acupunctuur                                      |
| <input type="checkbox"/> nicotine kauwgom                                 | <input type="checkbox"/> Lasertherapie                                    |
| <input type="checkbox"/> nicotine pleisters                               | <input type="checkbox"/> Telefonische ondersteuning                       |
| <input type="checkbox"/> nicotine zuigtabletten                           | <input type="checkbox"/> Folder   |
| <input type="checkbox"/> nicotine microtabs (tabletje voor onder de tong) | <input type="checkbox"/> Boek (bijvoorbeeld Allen Carr)                   |
| <input type="checkbox"/> Zyban (bupropion)                                | <input type="checkbox"/> andere hulpmiddelen of methodes, namelijk .....  |
| <input type="checkbox"/> Champix (varenicline)                            |   |

## BASELINE - 6

## COPD VRAGENLIJST (CCQ)

Omcirkel het nummer dat het beste beschrijft hoe u zich de afgelopen week heeft gevoeld.

Hoe vaak voelde u zich in de <b>afgelopen week</b> .....	nooit	zelden	af en toe	regelmatig	heel vaak	meestal	alt
1. kortademig <b>in rust</b> ?	0	1	2	3	4	5	
2. kortademig <b>gedurende lichamelijke inspanning</b> ?	0	1	2	3	4	5	
3. <b>angstig/bezorgd</b> voor de volgende benauwdheidsaanval?	0	1	2	3	4	5	
4. <b>neerslachtig</b> vanwege uw ademhalingsproblemen?	0	1	2	3	4	5	
In de <b>afgelopen week</b> , hoe vaak heeft u .....							
5. <b>gehoest</b> ?	0	1	2	3	4	5	
6. <b>slijm</b> opgehoest?	0	1	2	3	4	5	
In welke mate voelde u zich in de <b>afgelopen week</b> beperkt door uw <b>ademhalingsproblemen</b> bij het uitvoeren van .....	helemaal niet beperkt	héél weinig beperkt	een beetje beperkt	tamelijk beperkt	erg beperkt	héél erg beperkt	voll bep /of mog
7. <b>zware lichamelijke activiteiten</b> (traplopen, haasten, sporten)?	0	1	2	3	4	5	
8. <b>matige lichamelijke activiteiten</b> (wandelen, huishoudelijk werk, boodschappen doen)?	0	1	2	3	4	5	
9. <b>dagelijkse activiteiten</b> (u zelf aankleden, wassen)?	0	1	2	3	4	5	
10. <b>sociale activiteiten</b> (praten, omgaan met kinderen, vrienden/familie bezoeken)?	0	1	2	3	4	5	
<b>BASELINE - 7</b>		<b>GEZONDHEID (EQ5D)</b>					

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De onderstaande vragen gaan over uw algemene gezondheidstoestand in de afgelopen week. Zet bij iedere groep in de lijst hieronder een kruisje in het hokje voor de zin die het best past bij uw eigen gezondheidstoestand in de afgelopen week.

**1. Mobiliteit**

- Ik heb geen problemen met lopen
- Ik heb enige problemen met lopen
- Ik ben bedlegerig

**2. Zelfzorg**

- Ik heb geen problemen om mijzelf te wassen of aan te kleden
- Ik heb enige problemen om mijzelf te wassen of aan te kleden
- Ik ben niet in staat mijzelf te wassen of aan te kleden

**3. Dagelijkse activiteiten (bijv. werk, studie, huishouden, gezins- en vrijetijdsactiviteiten)**

- Ik heb geen problemen met mijn dagelijkse activiteiten
- Ik heb enige problemen met mijn dagelijkse activiteiten
- Ik ben niet in staat mijn dagelijkse activiteiten uit te voeren

**4. Pijn/klachten**

- Ik heb geen pijn of andere klachten
- Ik heb matige pijn of andere klachten
- Ik heb zeer ernstige pijn of andere klachten

**5. Stemming**

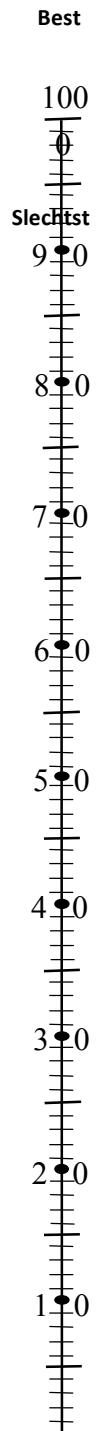
- Ik ben niet angstig of somber
- Ik ben matig angstig of somber
- Ik ben erg angstig of somber

## 6. Gezondheidstoestand

Om mensen te helpen bij het aangeven hoe goed of hoe slecht een gezondheidstoestand is, hebben we een meetschaal (te vergelijken met een thermometer) gemaakt. Op de meetschaal hiernaast betekent “100” de beste gezondheidstoestand die u zich kunt voorstellen, en “0” de slechtste gezondheidstoestand die u zich kunt voorstellen.

**WASELINE** u vragen op deze meetschaal aan **GEZONDHEIDSTOECOND** of hoe slecht volgens u uw eigen gezondheidstoestand in de afgelopen week was. Trek een lijn vanaf de ster hieronder naar het punt op de meetschaal dat volgens u aangeeft hoe goed of hoe slecht uw huidige gezondheidstoestand is.

Uw gezondheidstoestand in de afgelopen week	★
--	---



Deze vragenlijst dient als hulpmiddel om te weten te komen hoe u zich voelt. Lees iedere vraag en kruis het hokje aan voor het antwoord dat het beste weergeeft hoe u zich gedurende de afgelopen week gevoeld heeft. Denk niet te lang na over uw antwoord. Uw eerste reactie op elke vraag is waarschijnlijk betrouwbaarder dan een lang doordacht antwoord.

**1. Ik voel me gespannen:**

- Meestal
- Vaak
- Af en toe, soms
- Helemaal niet

**2. Ik geniet nog steeds van de dingen waar ik vroeger van genoot:**

- Zeker zo veel
- Niet zo veel als vroeger
- Weinig
- Haast helemaal niet

**3. Ik krijg een soort angstgevoel alsof er elk moment iets vreselijks zal gebeuren:**

- Heel zeker en vrij erg
- Ja, maar niet zo erg
- Een beetje, maar ik maak me er geen zorgen over
- Helemaal niet

**4. Ik kan lachen en de dingen van de vrolijke kant zien:**

- Net zoveel als vroeger
- Niet zo goed als vroeger
- Beslist niet zoveel als vroeger
- Helemaal niet

**5. Ik maak me vaak ongerust:**

- Heel erg vaak
- Vaak
- Af en toe maar niet vaak
- Alleen soms

**6. Ik voel me opgewekt:**

- Helemaal niet
- Niet vaak
- Soms
- Meestal

HADS; Spinhoven et al., 1997; Zigmond & Snaith, 1983

**7. Ik kan rustig zitten en me ontspannen:**

- Zeker
- Meestal
- Niet vaak
- Helemaal niet

**8. Ik voel me alsof alles moeizamer gaat:**

- Bijna altijd
- Heel vaak
- Soms
- Helemaal niet

**9. Ik krijg een soort benauwd, gespannen gevoel in mijn maag:**

- Helemaal niet
- Soms
- Vrij vaak
- Heel vaak

**10. Ik heb geen interesse meer in mijn uiterlijk**

- Zeker
- Niet meer zoveel als ik zou moeten
- Waarschijnlijk niet zo veel
- Evenveel interesse als vroeger

**11. Ik voel me rusteloos en voel dat ik iets te doen moet hebben:**

- Heel erg
- Tamelijk veel
- Niet erg veel
- Helemaal niet

**12. Ik verheug me van tevoren al op dingen:**

- Net zoveel als vroeger
- Een beetje minder dan vroeger
- Zeker minder dan vroeger
- Bijna nooit

*HADS; Spinhoven et al., 1997; Zigmond & Snaith, 1983*

**13. Ik krijg plotseling gevoelens van panische angst:**

- Zeer vaak
- Tamelijk vaak

- Niet erg vaak
- Helemaal niet

**14. Ik kan van een goed boek genieten, of van een radio- of televisieprogramma:**

- Vaak
- Soms
- Niet vaak
- Heel zelden

*HADS; Spinhoven et al., 1997; Zigmond & Snaith, 1983*

Hieronder staat een aantal uitspraken over alledaagse ervaringen. Plaats bij elke uitspraak een cirkeltje rond het cijfer dat het best aangeeft hoe vaak u de ervaring heeft. Geef aan wat echt uw ervaring weergeeft in plaats van hoe het wellicht zou moeten zijn volgens u.

1	2	3	4	5	6
bijna altijd	vaak	regelmatig	niet vaak	zelden	bijna nooit

1. **Ik kan een emotie ervaren en mij daar pas later bewust van zijn.** 1 2 3 4
2. **Ik breekt of mors dingen door onzorgvuldigheid, onoplettendheid of doordat ik er met mijn gedachten niet bij ben.** 1 2 3 4
3. **Ik vind het moeilijk om mijn aandacht te houden bij wat er op dat moment gaande is.** 1 2 3 4
4. **Ik heb de neiging snel naar mijn bestemming te lopen, zonder aandacht te schenken aan wat ik onderweg meemaak.** 1 2 3 4
5. **Ik merk lichamelijke spanning of ongemak pas op als deze echt mijn aandacht trekken.** 1 2 3 4
6. **Ik vergeet iemands naam bijna meteen als ik die voor de eerste keer hoor.** 1 2 3 4
7. **Het lijkt er op dat ik dingen automatisch doe zonder mij erg bewust te zijn van wat ik aan het doen ben.** 1 2 3 4
8. **Ik voer activiteiten haastig uit, zonder er echt aandacht aan te schenken.** 1 2 3 4
9. **Ik ben zo gericht op een doel, dat ik het zicht verlies op wat ik op dit moment aan het doen ben om dat te bereiken.** 1 2 3 4
10. **Ik doe klussen en taken automatisch, zonder mij bewust te zijn van wat ik aan het doen ben.** 1 2 3 4
11. **Ik merk dat ik met een half oor naar iemand luister en ondertussen met iets anders bezig ben.** 1 2 3 4
12. **Ik ga op ‘automatische piloot’ ergens heen en vraag mij dan af waarom ik daar ook alweer heen ging.** 1 2 3 4

1	2	3	4	5	6
bijna altijd	vaak	regelmatig	niet vaak	zelden	bijna nooit

**13. Ik merk dat ik erg bezig ben met de toekomst of het verleden.**

1 2 3 4

**14. Ik merk dat ik dingen doe, zonder er aandacht aan te besteden.**

1 2 3 4

**15. Ik eet haastig zonder er bewust van te zijn dat ik aan het eten ben.**

1 2 3 4

Nu volgen er enkele stellingen over uw doelen ten aanzien van minderen met roken.

**Ik ben van plan...****1. minstens een kwart (25%) minder te roken vergeleken met wat ik rookte voor de start van het REDUQ-programma.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet

**2. minstens de helft (50%) minder te roken vergeleken met wat ik rookte voor de start van het REDUQ-programma.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet

**3. mijn omgeving te vertellen dat ik ga minderen met roken.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet (ga naar vraag 5)

**4. mijn omgeving te vragen mij te ondersteunen bij het minderen met roken.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet

**5. een reductieplan te maken met daarin het aantal sigaretten dat ik minder wil roken en de datum waarop ik dit bereikt wil hebben.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet (ga naar vraag 7)

**6. me aan mijn persoonlijke reductieplan te houden.**

- ja, zeker wel
- ja, waarschijnlijk wel

- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet

**7. mezelf te belonen als ik een reductiedoel behaald heb.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet

**8. een noodplan te maken voor moeilijke/verleidelijke situaties.**

- ja, zeker wel
- ja, waarschijnlijk wel
- weet ik niet
- nee, waarschijnlijk niet
- nee, zeker niet

**1. Heeft u last, of in het verleden last gehad van:***(aankruisen wat van toepassing is, meerdere antwoorden mogelijk)*

- |  |  |
|--|--|
| <input type="checkbox"/> Toevallen (epilepsie)   | <input type="checkbox"/> Hartaanval                                    |
| <input type="checkbox"/> Hoofdletsel             | <input type="checkbox"/> Geelzucht                                     |
| <input type="checkbox"/> Psychische aandoening   | <input type="checkbox"/> Beroerte (herseninfarct, TIA, hersenbloeding) |
| <input type="checkbox"/> Diabetes (suikerziekte) | <input type="checkbox"/> Hersentumor                                   |
| <input type="checkbox"/> Hoge bloeddruk          | <input type="checkbox"/> Onstabiele angina pectoris                    |
| <input type="checkbox"/> Trombose                | <input type="checkbox"/> Harritmestoornissen                           |
| <input type="checkbox"/> Schildklier aandoening  | <input type="checkbox"/> Reumatische aandoening                        |
| <input type="checkbox"/> Nierstoornissen         | <input type="checkbox"/> N.V.T. (geen aandoening)                      |
| <input type="checkbox"/> Leverstoornissen        | <input type="checkbox"/> Andere aandoening(en), namelijk.....          |
| <input type="checkbox"/> Eetstoornissen          | .....  |

**2. Bent u ooit ernstig ziek geweest?**

- Ja  
 Nee (ga door naar vraag 4)

**3. Zo ja, welke ziekte(n):**

.....  
.....  
.....  
.....  
.....

**4. Bent u wel eens geopereerd?**

- Ja  
 Nee (ga door naar vraag 6)

**5. Zo ja, noem hieronder het soort operatie en de datum:**

.....  
.....  
.....  
.....

**6. Bent u onder controle van een specialist?**

- Ja  
 Nee (ga door naar vraag 8)

**7. Zo ja, welke specialist en waarvoor?**

.....  
.....  
.....  
.....

**8. Heeft u ooit een allergische reactie gehad, bijvoorbeeld galbulten, jeuk of een ernstige acute reactie op voedsel, cosmetische producten, insectenbeten, medicijnen of verdoving?**

- Ja
  - Nee (ga door naar vraag 10)

### **9. Zo ja, graag toelichten**

.....  
.....  
.....  
.....

#### **10. Gebruikt u medicijnen voor uw longen (COPD)?**

- Ja
  - Nee (ga door naar vraag 12)

#### **11. Welke medicatie gebruikt u voor uw longen(COPD)?**

Noteert u per medicijn:

- de naam
  - de sterkte (bijv. 40 mg)
  - de dosering (bijv. 3 x daags 1 tablet)

### *Voorbeeld:*

Naam: Salbutamol, Sterkte: 100 mg, Dosering: 2 x daags 1 pufje

**12. Gebruikt u verder nog medicijnen en/of homeopathische middelen voor iets anders dan uw longen?**

(gaan vinken wat van toepassing is)

- Ja
  - Nee (einde van de vragenlijst)

### **13. Welke andere medicijnen/homeopathische middelen gebruikt u?**

Noteert u per medicijn:

- de naam
  - de sterkte (bijv. 40 mg)
  - de dosering (bijv. 3 x daags 1 tablet)

### Voorbeeld:

*Naam: Metoprololsuccinaat retard, Sterkte: 50 mg, Dosering 1 x daags 1 tablet*

**Dit is het einde van de vragenlijst. Hartelijk dank voor het invullen.**

**Wilt u a.u.b. controleren of u alle vragen heeft beantwoord en de vragenlijst meenemen naar uw eerstvolgende afspraak of bijeenkomst van de REDUQ-studie?**