COVER PAGE

A Randomized Open-label Parallel-group Trial to Analyze the Efficacy and the Efficiency of the Social-Local-Mobile (So-Lo-Mo) Intervention Applied to the Smoking Cessation Process

Date: 15th July 2016

So-Lo-Mo Pilot: Clinical Trial Protocol

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1. Clinical Trial Protocol Agreement Form

Biomedical Research Project
Favorable Report
CP SFB-APP_EC-2016-01 - CI
July 12th, 2016

Virgen Macarena y Virgen del Rocío University Hospitals CREC

Dr. Víctor Sánchez Margalet
President of the Virgen Macarena and Virgen del Rocío University Hospitals CREC

CERTIFIES

1º. That Virgen Macarena and Virgen del Rocío University Hospitals CREC, in its meeting held on 27th June, 2016, with record number 07/2016, has evaluated the proposal of the promoter referred to the study:

Title: A randomized open- label parallel-group trial is to analyze the efficacy and the efficiency of the Social- Local and Mobile (So-Lo-Mo) intervention applied to the smoking cessation process.

Promoter Code: SFB-APP_EC-2016-01 **Internal Code**:
Promoter: Researcher

1º. Considers that

- The study is considered to be following the requirements of Law 14/2007, of July 3, on Biomedical Research, and its execution is pertinent.
- The necessary requirements of suitability of the protocol in relation to the objectives of the study are met, and the risks and foreseeable inconveniences for the subjects are justified.
- Both the procedure to obtain the informed consent and the compensation provided for the subjects for damages that could derive from their participation in the study are adequate.
- The scope of the provided economic compensations does not interfere with respect to ethical postulates.
- The capacity of the Researchers and the available means are appropriate to carry out the study.

2º. Therefore, this CREC issues a **FAVORABLE OPINION.**

3º.This CREC accepts that this study be carried out in the following CREC / Centers by the Researchers:

Virgen Macarena and Virgen del Rocío University Hospitals CREC	Dr. Francisco Ortega Ruíz (Pneumology) Virgen del Rocío University Hospital

I sign in Seville, on June 12, 2016
Signed:

Digitaly Signed by SANCHEZ MARGALET VICTOR MANUEL – I.D. Number 28691159Q. On 2016.07.12 13:13:38 +2'00'

Dr. Víctor Sánchez Margalet
President of the CREC of the Virgen Macarena and Virgen del Rocío University Hospitals

This translation is endorsed by:

Mr. MSc Carlos Luis Parra Calderón
Head of the Technological Innovation Unit at Virgen del Rocío University Hospital

2. List of abbreviations

SAS	Servicio Andaluz de Salud (Andalusian Health Service)
So-Lo-Mo	Social-Local-Mobile
ICER	Incremental Cost-Effectiveness Ratio
QALY	Quality-Adjusted Life Year
COPD	Chronic Obstructive Pulmonary Disease
R&D	Research & Development
NRT	Nicotine Replacement Therapy
MAOI	Monoamine Oxidase Inhibitor
WHO	World Health Organization
IARC	Agency for Research on Cancer
SIDS	Sudden Infant Death Syndrome
ICT	Information and Communication Technologies
SMS	Short Message Service
EMA	European Medication Agency
APP	Mobile Application
CO	Carbon Monoxide
DoA	Document of Agreement
AE	Adverse Event

3. Contact information

Clinical Principal Chief Investigator	Francisco Ortega Ruiz, PhD COPD and Respiratory Rehabilitation Department Medical-Surgical Unit of Respiratory Diseases Virgen del Rocío University Hospital Edificio de Laboratorio, 1ª Planta Sevilla 41013, Spain Tel: +34 955 313163 Fax: Email: francisco.ortega.sspa@juntadeandalucia.es
Clinical Co-Investigator	Laura Carrasco Hernández COPD and Respiratory Rehabilitation Department Medical-Surgical Unit of Respiratory Diseases Virgen del Rocío University Hospital Edificio de Laboratorio, 1ª Planta Sevilla 41013, Spain Tel: +34 955013164 Fax: Email: sakuraalo@hotmail.com
Psychologist	Marco Mesa González COPD and Respiratory Rehabilitation Department Medical-Surgical Unit of Respiratory Diseases Virgen del Rocío University Hospital Edificio de Laboratorio, 1ª Planta Sevilla 41013, Spain Tel: +34 955013164 Fax: Email: mesagonza@gmail.com
Academic Principal Investigator	Carlos Luis Parra Calderón Health Informatics R&D Group Centro de Documentación Clínica Virgen del Rocío University Hospital Sevilla 41013, Spain Tel: +34 955 01 36 62 Fax: +34 955 013310 Email:carlos.parra.sspa@juntadeandalucia.es
Academic Co-Investigator	Francisco J. Núñez Benjumea, MSc Health Informatics R&D Group Centro de Documentación Clínica Virgen del Rocío University Hospital Sevilla 41013, Spain Tel: +34 955 01 36 16 Fax: +34 955 013310 Email: francisco.nunez.exts@juntadeandalucia.es
Academic Co-Investigator	Francisco Jódar Sánchez, MSc, PhD Health Informatics R&D Group Centro de Documentación Clínica

	Virgen del Rocío University Hospital Sevilla 41013, Spain Tel: +34 955 01 36 17 Fax: +34 955 013310 Email: francisco.jodar.exts@juntadeandalucia.es

4. Protocol synopsis

Title	A randomized open-label parallel-group trial is to analyze the efficacy and the efficiency of the Social-Local-Mobile (So-Lo-Mo) intervention applied to the smoking cessation process.
Sponsor	Virgen del Rocío University Hospital and European Commission.
Principal Investigator **Trial Location**	Francisco Ortega Ruiz, PhD COPD and Respiratory Rehabilitation Department Medical-Surgical Unit of Respiratory Diseases Virgen del Rocío University Hospital Edificio de Laboratorio, 1ª Planta Sevilla 41013, Spain
Project Phase	Pilot study.
Indication	Interventional/treatment.
Primary study objectives	To analyze the efficacy and efficiency of the So-Lo-Mo intervention applied to the smoking cessation process compared to usual care.
Secondary study objectives	● To monitor usual psycho-pharmacological therapies (bupropion, varenicline and behavioural therapy). ● To monitor healthy lifestyle and physical exercise habits.
Study design	A randomized open-label parallel-group trial.
Population	Smoking population attending to the Smoking Cessation Unit of Virgen del Rocío University Hospital.
Sample size	240 patients: 120 patients in the intervention group (So-Lo-Mo intervention) and 120 patients in the control group (usual care).
Inclusion criteria	● Smoking population attending to the Smoking Cessation Unit of Virgen del Rocío University Hospital. ● Subjects >18 years old who want to give up smoking. ● Android-based smartphone availability. ● Ability to interact with the smartphone. ● To sign an Informed Consent Form.
Exclusion criteria	● Subjects had some previous adverse effects related to the pharmacological treatment included in the study.
Intervention	The So-Lo-Mo intervention will monitor usual psycho-pharmacological therapy (bupropion + behavioral therapy, varenicline + behavioral therapy), healthy lifestyle and physical exercise.
Concurrent controls	Usual intervention consists of pharmacological therapy (bupropion or varenicline) and behavioural therapy.
Parameters of efficacy	The main clinical outcome will be the smoking abstinence rate at 1 year measured by means of exhaled CO and urinary cotinine tests as detailed in the appendix A.

Parameters of efficiency	The result of economic evaluation will be expressed in terms of incremental cost-effectiveness ratio (ICER).
Parameters of safety	Adverse events related with pharmacological therapies.
Assessment schedule	The follow-up will be carried out according to the following schedule: ● Basal consultation: The patient is assessed for the first time in the Smoking Cessation Unit as he/she is referred from either Pneumology Unit or another clinical department. All the information fields included in the appendix A will be collected. ● 2nd consultation: 15 (± 5) days after the basal consultation. Information regarding the following sections will be collected: smoking related symptoms, treatment adherence, daily cigarettes, possible adverse events, exhaled CO, cotinine test, clinical information. Relaxation techniques and risk avoiding techniques are also explained to the subject. ● 3rd consultation: 30 (± 5) days after the basal consultation. Information regarding the following sections will be collected: smoking related symptoms, treatment adherence, possible adverse events, exhaled CO, cotinine test, clinical information. New relaxation techniques are explained in case the former resulted useless. Coaching for relapse prevention is performed. ● 4th consultation: 60 (± 5) days after the basal consultation. Information regarding the following sections will be collected: smoking related symptoms, treatment adherence, and possible adverse events. Risk avoiding techniques are reinforced. ● 5th consultation: 90 (± 5) days after the basal consultation. Information regarding the following sections will be collected: physical and psychological health state, exhaled CO, cotinine test, and clinical information. ● 6th consultation: 120 (± 5) days after the basal consultation. The patient could be assessed by phone in case he/she has completed the pharmacological treatment. Information regarding symptoms related to abstinence will be collected in this session. Coaching for relapse prevention is performed and confronting techniques are explained to the subject. ● 7th consultation: 180 (± 5) days after the basal consultation. Information regarding the following sections will be collected: exhaled CO, cotinine test, clinical information, quality of life (EuroQoL 5D questionnaire) and physical activity monitoring (IPAQ-27 questionnaire). Relaxation and confronting techniques are reinforced when needed. ● 8th consultation: 365 (± 5) days after the basal consultation. Information regarding the following sections will be collected: exhaled CO, cotinine test, blood pressure, weight, height, quality of life (EuroQoL 5D and SF-36 questionnaires) and physical activity monitoring (IPAQ-27 questionnaire).
Data analysis	A descriptive analysis of patients' characteristics by absolute and relative frequencies for qualitative variables and average +/- standard deviation for quantitative variables will be carried out at the end of the study. Furthermore, a bivariate analysis of study groups will be performed for qualitative variables by chi-square test or Fisher's exact test.

	Comparison of quantitative variables will be different depending on technical assumptions parametric (Student t-test or ANOVA) or nonparametric (Mann-Whitney U-or Kruskal-Wallis).
Duration of study period (per subject)	The assessment and follow-up of the patients included in the study will be carried out during 12 months.

5. Summary of study design and rationale

5.1. Introduction

Smoking is currently considered as a chronic-addictive and recidivist illness. Tobacco consumption is the main cause of death that might be prevented in the western side of the world; it is also the cause of premature death as to 50% out of the population who smoke regularly basically due to respiratory, cardiovascular problems and various neoplasms [1].

According to World Health Organization (WHO) one third of the world adult population today, 1.1 billion people are smokers and 3.5 million deaths per year are attributed to smoking. It is estimated that in 2020 the number of deaths per year will be increased to 10 million. Smokers are 13 times more likely to die from COPD than nonsmokers [2]. The main smoking attributable effects on the respiratory system are:

- Cancer of the trachea, bronchus and lung [1, 2]. 70%-90% deaths from lung cancer are due to smoking (since 4000 chemical compounds are contained in a cigarette that have been listed by the International Agency for Research on Cancer (IARC) as directly associated with cancer in humans ("class A" carcinogens).
- Chronic obstructive pulmonary disease (Chronic bronchitis and emphysema) [2, 3]. Smoking is the main cause of 80-85% of COPD.
- Lung infections (pneumonia, influenza) are increased.
- Exacerbation of asthma [2, 3].
- Pulmonary fibrosis
- Triggering autoimmune disease.
- Pregnant women and effects on the fetus (mainly sudden infant death syndrome a.k.a. SIDS or crib death, and a 60% increase of the mortality rate)

Tobacco consumption is highly influenced by socioeconomic factors, affecting mostly low- and middle-income countries as well as vulnerable populations within high income countries. Additionally, smoking causes health inequality between gender and age groups while it significantly elevates the preventable morbidity and premature mortality worldwide [4].

Frequently and erroneously, it is considered that smoking is a personal option exclusively. This statement seems not to be true since the vast majority of smoking people claim that they would wish to stop the tobacco consumption when they are deeply aware of all the negative side effects in their health, yet they find it difficult to cope with their desire of stop smoking due to the great addictive engagement to nicotine. Fortunately there are a variety of useful treatments to help them to achieve

their goal, like bupropion, varenicline and nicotine replacement therapy, which are currently prescribed to those patients attending the Smoke Cessation Unit at Virgen del Rocío University Hospital and wish to quit smoking.

Recent research on the beneficial effect that physical exercise and the feedback through Social Networks from people that successfully completed the smoking cessation process has on people who is currently undergoing this process has shown its usefulness with a moderate level of evidence [5, 6]. Therefore an intervention based on adherence to physical activity with ICT support (App Gamification, Facebook and SMS) may provide a valuable aid in smoking cessation [7]. In addition, craving is one key component that has been shown to vary over time during a smoking-cessation attempt and be highly related to treatment efficacy and cessation success [8]. It is well documented though that craving fades away during the first 2 weeks of abstinence. However, craving may return given that smokers although initially able to cope with negative affect using limited alternate coping strategies, over time such strategies lose their effectiveness, leaving smokers with less and less ability to resist the urge to smoke.

5.2 Summary of Study Design

This is a randomized open-label parallel-group trial. We will recruit up to 240 patients during 8 months and a 12 months follow-up will be carried out for each one of the recruited patients. The sample will split in two groups: control group (n=120) who will receive usual psycho-pharmacological therapy and the intervention group (n=120) who will receive usual therapy plus So-Lo-Mo app.

5.2.1 Profile of Study Drugs

- Zyntabac® (Bupropion) 150 mg, manufactured by Glaxosmithkline lab
- Champix® (Varenicline) 0.5 mg or 1 mg, manufactured by Pfizer lab.
- So-Lo-Mo app is an Android-based mobile application that is being designed and developed by University of Seville and SaluMedia, SL.

5.3 Potential risks and benefits

It is envisaged the use one drug in this intervention. This drug is safe; however clinical researchers should prescribe it with caution and taking into account its related potential adverse effects and contraindications.

Bupropion, though safe, is the drug with more contraindications that will be prescribed during the So-Lo-Mo study. This drug should be prescribed carefully to subjects with liver failure, kidney failure

and/or elder patients. It is contraindicated in the following scenarios: mental disease, central nervous system tumor, liver cirrhosis, and/or patients already prescribed with Monoamine Oxidase Inhibitors (MAOIs). Further information from the Spanish Medicine Agency can be found on this link.

Varenicline is a very safe drug, which can be prescribed to elders with liver failure. The dose should be adjusted in the presence of kidney failure. Further information from the EMA can be found on this link.

5.4 Study Rationale

Nowadays, the treatment usually prescribed to patients who wish to give up smoking is a multidisciplinary intervention, combining both psychological advice and drug therapy, since the application of both strategies significantly increases the chance of success in a quit attempt.

Psychological interventions can be performed at different levels depending on resources availability and the level of care, without difference in efficacy between individual and group therapies. Interventions through telephone and internet have also shown to be effective [9, 10].

In this scenario, psychological treatments are based on confronting techniques including behavioral and cognitive-behavioral therapies. Behavioral therapies are designed to help smokers to recognize and avoid external stimuli temporarily associated with the consumption of tobacco, while cognitive-behavioral therapies provide the tools to confront both physiological and cognitive stimuli with the urge to smoke.

During the smoking cessation process, patients usually rely on the pharmacological treatment too. There is a wide range of drugs that could support this process, and the physicians in the Smoking Cessation Unit at Virgen del Rocío University Hospital usually prescribe either bupropion or varenicline. Their efficacy differs according to the following rates when compared to a placebo cohort: Bupropion doubles the abstinence rate related to placebo, although its efficacy is lower than varenicline. However, the most effective drug in the smoking cessation process is varenicline, which triples the efficacy compared to placebo, improving bupropion performance [11]. In this sense, we will compare the effectiveness of usual pharmacological treatment prescribed (varenicline or bupropion) plus behavioral and cognitive-behavioral therapies routinely delivered at VRUH when added to the So-Lo-Mo intervention. Should the addition of the So-Lo-Mo intervention prove any meaningful increase in the smoke cessation treatment effectiveness rate, it could therefore be inferred

that this increment will also take place when added to nicotine replacement therapy, given that varenicline and bupropion are currently more effective than it.

Nowadays, social networks influence our daily lives and, therefore, may influence our smoking habits. This could be then used as an extra aid to quit smoking. For instance, an intervention based on adherence to physical activity with ICT support (App Gamification, Facebook and SMS) may provide a valuable aid in smoking cessation [7].

In addition, craving is one key component that has been shown to vary over time during a smoking cessation attempt and is highly related to treatment efficacy and cessation success [8]. It is well documented though that craving decreases during the first 2 weeks of a quit attempt. However, it may be that smokers are initially able to cope with negative affect using limited alternate coping strategies, but over time, the ability to use such strategies, or the effectiveness of such strategies, may diminish, leaving smokers with less and less ability to resist the urge to smoke.

The word for the first quarter of our century is hyper-connection. In this hyper-connected world two main actors are the degree of penetration of the mobile technologies and the social networks. Understanding the way social networks and mobile technologies can influence individual behavior and the decision to smoke or not, is essential to optimize their utilization as a means of prevention and treatment in the future.

Additionally, and on the basis of previous studies of members of our consortium, we hypothesize that an increase in adherence to physical activity in a 20% can increase the number of people who quit smoking in a 25%.

The objective of the So-Lo-Mo intervention would be twofold. First of all the So-Lo-Mo intervention will focus on distracting the user by delivering a number of tasks through a mobile app. Taking into consideration the understanding of craving during smoking cessation attempts and based on the user's profile, So-Lo-Mo will ask the user to undertake some short-term or long-term tasks.

6. Study objectives and endpoints

The main clinical outcome of the So-Lo-Mo intervention will be the smoking abstinence rate at 1 year measured by means of exhaled carbon monoxide and urinary cotinine tests. It is expected that So-Lo-Mo intervention will increase this rate approximately 10% in the intervention group (So-Lo-Mo plus routine therapies) compared to control group (routine therapies).

6.1 Study Objectives

6.1.1 Primary Objective

- The main objective is to analyze the efficacy and the efficiency of the So-Lo-Mo intervention applied to the smoking cessation process.

6.1.2 Secondary Objectives

- Monitoring of the routine psycho-pharmacological therapy (varenicline + behavioral therapy and bupropion + behavioral therapy).
- Monitoring of healthy lifestyle and physical exercise.

6.2. Study outcomes

6.2.1 Parameters of efficacy

The main clinical outcome will be the smoking abstinence rate at 1 year measured by means of exhaled CO and urinary cotinine tests. Patients with cotinine concentrations over 200 ng/ml will be considered as smokers.

6.2.2 Parameters of efficiency

Results of the economic evaluation (efficiency analysis) will be expressed in terms of the ICER, calculated by dividing the difference in total costs between the intervention group (So-Lo-Mo) and the control group by the difference in quality-adjusted life year (QALY) between both groups.

In order to estimate the costs associated to control and intervention groups, healthcare resources utilization will be measured in terms of specialist (including psychologist) consultations carried out off the protocol related to the smoking cessation process. Costs of pharmacological treatment will also be taken into account. In addition, the time employed by healthcare professionals during the So-Lo-Mo intervention will also be taken into account when estimating the costs of the So-Lo-Mo intervention.

Benefit for patients will be expressed in terms of QALYs. QALY is a variable that expresses both the quality and the quantity of life. EuroQol-5D-5L questionnaire will be used to estimate QALYs.

6.2.3 Parameters of safety

Safety will be measured as the number of adverse events related with pharmacological therapies. The following adverse events have been identified related to each pharmacological therapy:

- Varenicline:
    - Nausea, vomit.
    - Headache.
    - Insomnia, abnormal dreams.
    - Constipation, flatulence
- Bupropion:
    - Insomnia.
    - Headache.
    - Dryness in the mouth. Alteration of taste.
    - Skin reactions.
    - Convulsions, cardiovascular side effects and severe skin reactions.

7. Subject Selection and Withdrawal criteria

7.1 Population base

The So-Lo-Mo pilot is configured as a 12-month randomized open-label parallel-group trial to determine the impact of the intervention in smoking population attending to the Smoking Cessation Unit at the Virgen del Rocío University Hospital in Seville. It is expected that most of the subjects recruited will be patients referred from different clinical departments of the Hospital (e.g. Digestive, Hematology, Pneumology, etc) and from primary care.

Control group (N = 120)

Control intervention consists of pharmacological and plus behavioral therapy, as well as advices about exercise and healthy lifestyle habits. Taking into account that the Smoking Cessation Unit usually prescribes two pharmacological therapies, patients randomly assigned to the control group will be randomized again into 2 subgroups:

1. Behavioral therapy + bupropion (N = 60)
2. Behavioral therapy + varenicline (N = 60)

Intervention group (n=120)

The So-Lo-Mo intervention will monitor usual psycho-pharmacological therapy, advices about exercise and healthy lifestyle habits added to the use of the So-Lo-Mo App as part of the treatment. Taking into account that the Smoking Cessation Unit usually prescribes two pharmacological therapies, patients randomly assigned to the control group will be randomized again into 2 subgroups:

3. Behavioral therapy + bupropion + So-Lo-Mo (N = 60)
4. Behavioral therapy + varenicline + So-Lo-Mo (N = 60)

So-Lo-Mo intervention group (N=120)	**Control group (N=120)**
Behavioral therapy + bupropion + So-Lo-Mo (N = 60) Behavioral therapy + varenicline + So-Lo-Mo (N = 60)	Behavioral therapy + bupropion (N = 60) Behavioral therapy + varenicline (N = 60)

Table 1. Sample distribution between intervention and control groups.

7.2 Recruitment

All participants will sign an Informed Consent Form and Information Sheet in language and terms that they understand. It will follow the guidelines stated at the part A of the corresponding DoA and will inform the participants regarding their rights:

- To know that participation is voluntary.
- To ask questions and receive understandable answers before making a decision.
- To know the degree of risk and burden involved in participation.
- To know who will benefit from participation.
- To receive assurances that appropriate insurance cover is in place.
- To know how their data will be collected, protected during the project and either destroyed or reused at the end of the research, if plan to reuse the data exist.
- To know that anonymized data may be shared within the consortium during the project.
- To be duly informed, and consent also for this further usage.
- To withdraw themselves and their data from the project at any time without any kind of negative consequence and/or penalty in their usual care.

The copy of the provided permission must explicitly mention that such information has been provided to the committee prior to any authorization being delivered and thus taken into consideration by the latter. All the personal information will be anonymized.

7.3 Inclusion criteria

- Smoking population attending to the Smoking Cessation Unit of Virgen del Rocío University Hospital.
- Subjects >18 years old who want to give up smoking.
- Android-based smartphone availability.
- Ability to interact with the smartphone. The subject will be considered suitable for recruitment if he/she (or his/her usual caregiver) is able to open an App and interact with it. Example: The subject (or his/her usual caregiver) is able to send an e-mail or SMS through his/her smartphone.
- To sign an Informed Consent Form.

7.4 Exclusion criteria

- Subjects had reported some previous adverse effects with the treatment that will be given.

7.5 Discontinuation and Withdrawal of subjects the Study

- Subjects voluntarily interrupting the treatment.
- Subjects interrupting the treatment due to adverse effects.
- Subjects changing initial treatment.
- Subjects having some adverse effects.
- Subjects leaving the follow up.

8. Clinical trial protocol

8.1 Study Procedures

The total patient sample to be included in the trial is 240. Half (120) of them will take part in the intervention group (So-Lo-Mo intervention). The other (120) patients will act as the control group undergoing the usual care.

8.1.1 Collected variables

Information from all patients undergoing this trial will be gathered according to the following domains. An exhaustive description of the clinical variables that will be collected can be found in the Appendix 1 of this document.

- Demographic data.
- Socio-economic data.
- Relevant clinical data: Diseases, treatment, co-morbidities, weight, blood pressure, etc.
- Nicotine dependence (Fagerström test). See Appendix 2. [12-14].
- Patients' motivation to give up smoking (Richmond test). See Appendix 3 [15].
- Health-related quality of life: Measured through the following questionnaires:
    - EuroQol-5D. See Appendix 4 [16]. This questionnaire describes health status making use of five dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression), and each dimension is further assessed with five levels of severity.
    - SF-36. See Appendix 5 [17]. The SF-36 consists of eight scaled scores, which are the weighted sums of the questions in their section. Each scale is directly transformed into a 0-100 scale on the assumption that each question carries equal weight. The lower the score the more disability. The eight sections are:
        a) Vitality
        b) Physical functioning
        c) Bodily pain
        d) General health perceptions
        e) Physical role functioning
        f) Emotional role functioning
        g) Social role functioning
        h) Mental health.
- Physical activity: Measured through the Physical Activity International Questionnaire (IPAQ-27). See Appendix 6 [18]. The IPAQ-27 questionnaire aims to provide common metrics to gather internationally comparable data regarding health related physical activity.

- Exhaled carbon monoxide (CO). Exhaled CO is part of the smoke, and can be measured by a CO tester. The subject must perform a deep inspiration and hold the air for 15 seconds. Afterwards, the subject must exhale the air inside the CO tester (Micro+ Smokerlyzer®) in a slow, sustained and complete fashion. The CO tester then yields the exact number of exhaled CO parts per million (ppm). Highest exhaled CO levels are found between 3 and 6 hours after smoking a cigarette. A person is considered to be smoker when his/her exhaled CO is higher than 6 ppm [19]. A more detailed classification is shown in the Table 2 [1].

CO (ppm)	Kind of smoker
$CO \geq 10$	Usual
$5 < CO < 10$	Occasionally
$CO \leq 5$	Non smoker

Table 2. Smoker classification regarding exhaled CO in ppm.

- Urine Cotinine (SmokeScreen® test). It is a colorimetric test that measures the main metabolites of the nicotine, including the cotinine. Subjects with cotinine concentrations over 200 ng/ml are considered as smokers [20].

8.1.2 Follow-up

The follow-up will be carried out according to the following schedule:

- **Basal consultation**. The patient is assessed for the first time at the Smoking Cessation Unit as he/she is referred from either Pneumology Unit or another clinical department. All the information fields included in the Appendix 1 will be collected. In this consultation all the patients will sign the informed consent.
- **2nd consultation.** 15 (± 5) days after the basal consultation. Information regarding the following sections will be collected: smoking related symptoms, treatment adherence, daily cigarettes, possible adverse events, exhaled CO, cotinine test, clinical information. Relaxation techniques and risk avoiding techniques are also explained to the subject.
- **3rd consultation**. 30 (± 5) days after the basal consultation. Information regarding the following sections will be collected: smoking related symptoms, treatment adherence, possible adverse events, exhaled CO, cotinine test, clinical information. New relaxation techniques are explained in case the former resulted useless. Coaching for relapse prevention is performed.

- **4th consultation**. 60 (± 5) days after the basal consultation. Information regarding the following sections will be collected: smoking related symptoms, treatment adherence, and possible adverse events. Risk avoiding techniques are reinforced.
- **5th consultation**. 90 (± 5) days after the basal consultation. Information regarding the following sections will be collected: physical and psychological health state, exhaled CO, cotinine test, and clinical information.
- **6th consultation**. 120 (± 5) days after the basal consultation. The patient could be assessed by phone in case he/she has completed the pharmacological treatment. Information regarding symptoms related to abstinence will be collected in this session. Coaching for relapse prevention is performed and confronting techniques are explained to the subject.
- **7th consultation**. 180 (± 5) days after the basal consultation. Information regarding the following sections will be collected: exhaled CO, cotinine test, clinical information, quality of life (EuroQoL 5D questionnaire) and physical activity monitoring (IPAQ-27 questionnaire). Relaxation and confronting techniques are reinforced when needed.
- **8th consultation**. 365 (± 5) days after the basal consultation. Information regarding the following sections will be collected: exhaled CO, cotinine test, blood pressure, weight, height, quality of life (EuroQoL 5D and SF-36 questionnaires) and physical activity monitoring (IPAQ-27 questionnaire).

In order to facilitate the follow-up process, patients will occasionally be assessed by phone in case physical presence in the consultation is not mandatory.

8.2 Duration of study participation

The assessment and follow-up of the patients included in the study will be carried out during 12 months in the Smoking Cessation Unit of Virgen del Rocío University Hospital

9. Trial medication

9.1 Treatment plan

9.1.1 Bupropion therapy

Bupropion is the first nicotine-free drug approved for smoking cessation purposes. It is an atypical antidepressant which acts as inhibitor of dopamine and noradrenaline receptors, with an antagonistic and noncompetitive role of the nicotine receptor, improving the symptoms of the abstinence syndrome. It is formulated as a 150 mg long discharge pill, usually being prescribed a daily dose of 300 mg, except for week one which would be prescribed 150 mg per day. The usual length of the treatment ranges from 7 to 9 weeks. However, 12 weeks treatments could be prescribed for severe cases of smokers. Even though it is considered as a state of the art treatment to quit smoking, its use has been limited due to the risk of its interaction with various drugs regarding its liver metabolism through cytrochrome P450 and the risk of important side effects in certain groups of patients. It doubles the rates of abstinence against a placebo. Although its efficiency can be improved in combination with NRT, it does not outperform the combination of varenicline and NRT [11].

9.1.2 Varenicline therapy

Varenicline is the first drug specifically designed as a smoking cessation treatment. It is a partial antagonist of the α4β2 nicotine receptors. Thanks to its antagonist action, it stimulates these receptors thus improving abstinence syndrome and cravings symptoms. On the other hand, its antagonist role produces a receptor blocking, decreasing the pleasure associated to the consumption of nicotine. It has a high profile of safety due to the lack of liver metabolism and its effect on the kidney protein conveyors. Additionally, it does not present any interaction with other drugs. The dose should be adjusted in case the patient suffers from severe kidney failure.

Its side effects are mild and decrease with the time, although sometimes it may be necessary to reduce the dose. On its own, is the most effective treatment to quit smoking. It triples the efficacy from placebo, being higher than the combination of bupropion and NRT, and achieves a similar efficacy when combined with NRT [11]. It is formulated as 0,5 mg and 1 mg pills, and the dose should be progressively incremented during the first days in order to facilitate tolerance. The recommended length of the treatment is 12 weeks, although longer treatments could be necessary for severe smokers. There is evidence of increased efficacy and safety at 6 and 12 months [21, 22]. The cessation consumption of tobacco with varenicline, according to the usual pattern of performance, must be performed after the first week of treatment.

However there is a study that highlights increased abstinence rates when a pretreatment regimen of 4 weeks prior the beginning of the smoking cessation process is carried out [23]. The usual dose is 2 mg/day.

Drug	Week before day D		From day D to 12 weeks
Varenicline	Day 1-3	Day 4-7	1mg/12h
	0.5mg/24h	0.5mg/12h	

Table 4. Doses of varenicline.

9.2 Treatment Assignment procedures

9.2.1 Randomization

Currently, Smoking Cessation Unit of Virgen del Rocío University Hospital proposes a treatment consisting of psycho-pharmacological therapy. In addition, pharmacological therapy includes 2 different medications: bupropion and varenicline.

Therefore, the selection of patients will be made randomly on a 2 stage process:

- 1st stage: Randomization between So-Lo-Mo intervention (intervention group) and usual intervention (control group).
- 2nd stage: Pharmacological therapy will be prescribed randomly to both intervention and control groups.

Both pharmacological therapy and So-Lo-Mo intervention will be provided for free to our patients.

10. Safety monitoring

10.1 Adverse Events (AE)

10.1.1 Definition

An adverse event could be considered as any untoward medical occurrence that may present during treatment with a pharmaceutical product but which does not necessarily have a causal relationship with this treatment [24].

An adverse event can arise from any use of the drug (e.g., off-label use, use in combination with another drug) and from any route of administration, formulation, or dose, including an overdose.

10.1.2 Adverse events of the different treatments

Drug	Adverse effects
Bupropion	Insomnia. Headache. Dryness in the mouth. Alteration of taste. Skin reactions Convulsions, cardiovascular side effects and severe skin reactions.
Varenicline	Nausea, vomit. Headache. Insomnia, abnormal dreams. Constipation, flatulence

Table 5. Adverse effects

11. Statistical considerations and analytical plan

11.1 Responsibility for analysis

The statistical analysis of the data obtained from this study will be the responsibility of SAS researchers.

11.2 Justification of sample size

Total patient sample to be included in the trial will be 240 patients. 120 of them will take part in the intervention group (So-Lo-Mo intervention) and 120 patients will act as the control group undergoing the usual care.

This sample size is not based on power calculations. To estimate the sample size the following premises have been taken into account:

- Total number of smoking population attending to the Smoking Cessation Unit of Virgen del Rocío University Hospital during one year.
- Number of months available to recruit patients.

11.3 Data analysis

- A descriptive analysis of patients' characteristics by absolute and relative frequencies for qualitative variables and average +/- standard deviation for quantitative variables will be carried out at the end of the study.
- Furthermore, a bivariate analysis of study groups will be performed for qualitative variables by chi-square test or Fisher's exact test. Comparison of quantitative variables will be different depending on technical assumptions parametric (Student t-test or ANOVA) or nonparametric (Mann-Whitney U-or Kruskal-Wallis).
- For cost analysis of the healthcare resources, costs of clinical interventions and equipment will be assessed according to current Spanish public health prices.

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13. Appendices

Appendix 1. Smoker form

RESPIRATORY DISEASES SURGICAL AND CLINICAL UNIT

Smoke Cessation Unit

Medical Doctors
Francisco Ortega Ruiz
Pilar Núñez Castillo
Laura Carrasco Hernández

Psychologist
Marco Mesa González

Nurse
Mercedes Molina Martínez

DATE: _____

NAME: _____

SURNAME: _____

NATIONAL ID: _____

HEALTH ID: _____

DATE OF BIRTH: _____

GENDER: ___ Male ___ Female

PROFFESION: _____

UNEMPLOYED: ___ YES ___ NO

PHONE NUMBER(S): _____ / _____

SMARTPHONE AVAILABILITY: ___ YES ___ NO

CONSUMPTION HISTORY

AGE AT START: _____

NUMBER OF DAILY CIGARETTES:

	S1	S2	S3
Daily cigarettes			

LIVE-IN RELATIVES SMOKERS?: ___ YES ___ NO

FRIENDS/PARTNERS SMOKERS?: ___ YES ___ NO

PRECEDENT QUITTING ATTEMPTS: _____

WHEN: _____

MAX TIME OF ABSTINENCE: _____

TYPE OF TREATMENT: _____

RELAPSE REASON: _____

COOXIMETRY (CO ppm):

	S1	S2	S3	S5	S7	S8
Co-oximetry (ppm)						

COTININE URINE TEST (ng/ml):

	S1	S2	S3	S7	S8
Cotinine (ng/ml)					

OBSERVATIONS:

_____

_____

_____

SMOKING RELATED SYMPTOMS:

	S1
Morning cough	___ YES ___ NO
Expectoration	___ YES ___ NO
Respiratory difficulty	___ YES ___ NO
Sibilant breath	___ YES ___ NO
Frequent colds	___ YES ___ NO
Throat ache	___ YES ___ NO
Dysgeusia	___ YES ___ NO
Halitosis	___ YES ___ NO
Stomach ache	___ YES ___ NO
Heavy digestions	___ YES ___ NO
Headache	___ YES ___ NO
Chest ache	___ YES ___ NO
Legs aching while walking	___ YES ___ NO
Dizziness	___ YES ___ NO

Insomnia	___ YES ___ NO
Palpitations	___ YES ___ NO
Nervousness	___ YES ___ NO
Sexual problems	___ YES ___ NO
Others:	___ YES ___ NO

CLINICAL INFORMATION:

	S1	S2	S3	S5	S7	S8
Weight (Kg)						
Size (cm)						
BMI						
Blood Pressure (mmHg)	/	/	/	/	/	/

COMORBIDITIES:

NONE: _____

DIABETES: _____

CHOLESTEROL: _____

HEART STROKE: _____

ARRHYTHMIAS: _____

HYPERTENSION: _____

INSOMNIA: _____

COPD: _____

EPILEPSY: _____

SKIN DISEASES: _____

DEPRESSION: _____

ANXIETY: _____

Observations: Current treatments, familiar history, …

_____

_____

_____

DEPENDENCY (FAGERSTRÖM TEST)

(See Appendix 2)

MOTIVATION (RICHMOND TEST)

(See Appendix 3)

	S1
FAGERSTRÖM score	
RICHMOND score	

Patient motivation:

	S2	S3	S4	S5	S6	S7
High						
Moderated						
Low						

PHARMACOLOGICAL TREATMENT FOR SMOKE CESSATION:

	Y	N
Behavioral Therapy + Varenicline		
Behavioral Therapy + Varenicline + So-Lo-Mo		
Behavioral Therapy + Bupropion		
Behavioral Therapy + Bupropion + So-Lo-Mo		

Why have you planned to quit smoking now?

_____
_____

Why do you think it is a good time to quit smoking?

_____
_____

PSYCHO-PHYSIOLOGICAL SYMPTOMS RELATED TO SMOKING ABSTINENCE

(0=No, 1=Mild, 2=Moderate, 3=Intense)

	S2	S3	S4	S5	S6
Craving					
Irritability					
Anxiety					
Unease					
Lack of concentration					
Appetite rising					
Lack of energy					
Somnolence					
Insomnia					
Constipation					

Quality of Life

(See Appendices 4 and 5)

	S1	S7	S8
EuroQoL-5D score			
SF-36 score		N/A	

Physical Exercise Monitoring

(See Appendix 6)

	S1	S7	S8
IPAQ-27 score			

OBSERVATIONS:

Resources devoted to the patient between scheduled sessions (off the protocol):

Session interval	S1-S2	S2-S3	S3-S4	S4-S5	S5-S6	S6-S7	S7-S8
Time devoted to the patient (min)							
Number of telephone consultations							
Number of in-person consultations							
Number of email consultations							

General observations:

_____

_____

Appendix 2. Fagerström test

Name:_____ Date:_____

Fagerstrom Test for Nicotine Dependence (FTND)

	0	1	2	3
1. How soon after you wake up do you smoke your first cigarette?	After 60 Minutes	31 – 60 minutes	6-30 minutes	Within 5 minutes
2. Do you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, cinema, etc?	No	Yes		
3. Which cigarette would you hate most to give up?	All others	The first one in the morning		
4. How many cigarettes/day do you smoke?	10 or less	11-20	21-30	31 or more
5. Do you smoke more frequently during the first hours of waking than during the rest of the day?	No	Yes		
6. Do you smoke if you are so ill that you are in bed most of the day?	No	Yes		

Scoring the Fagerstrom Test for Nicotine Dependence (FTND)

In scoring the Fagerstrom Test for Nicotine Dependence, the three yes/no items are scored 0 (no) and 1 (yes). The three multiple-choice items are scored from 0 to 3. The items are summed to yield a total score of 0-10.

Classification of dependence:

0-2	Very low
3-4	Low
5	Moderate
6-7	High
8-10	Very high

Citation: Heatherton TF, Kozlowski LT, Frecker RC, Fagerstrom K. The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. British Journal of Addiction 1991;86:1119-1127.

Appendix 3. Richmond test

Name:

Answer the following questions, sincerely, please.

1. Do you want to give up smoking?

   0. No 1. Yes

2. How much motivation do you have to give up smoking?

   0. Nothing 1.A bit 2.Enough 3. A lot

3. Will you try to give up smoking next 2 weeks?

   0. No 1. Maybe 2. Probably 3. Yes

4. Do you believe that you will not smoking in 6 months?

   0. No 1. Maybe 2. Probably 3. Yes

High motivation: 10 points Moderate motivation: 7-9 Low motivation: ≤6

Appendix 4. EuroQol-5D

Cuestionario de Salud.

Versión en español para España

(Spanish version for Spain)

Debajo de cada enunciado, marque UNA casilla, la que mejor describe su salud HOY.

MOVILIDAD

No tengo problemas para caminar ❑
Tengo problemas leves para caminar ❑
Tengo problemas moderados para caminar ❑
Tengo problemas graves para caminar ❑
No puedo caminar ❑

AUTO-CUIDADO

No tengo problemas para lavarme o vestirme ❑
Tengo problemas leves para lavarme o vestirme ❑
Tengo problemas moderados para lavarme o vestirme ❑
Tengo problemas graves para lavarme o vestirme ❑
No puedo lavarme o vestirme ❑

ACTIVIDADES COTIDIANAS *(Ej.: trabajar, estudiar, hacer las tareas domésticas, actividades familiares o actividades durante el tiempo libre)*

No tengo problemas para realizar mis actividades cotidianas ❑
Tengo problemas leves para realizar mis actividades cotidianas ❑
Tengo problemas moderados para realizar mis actividades cotidianas ❑
Tengo problemas graves para realizar mis actividades cotidianas ❑
No puedo realizar mis actividades cotidianas ❑

DOLOR / MALESTAR

No tengo dolor ni malestar ❑
Tengo dolor o malestar leve ❑
Tengo dolor o malestar moderado ❑
Tengo dolor o malestar fuerte ❑
Tengo dolor o malestar extremo ❑

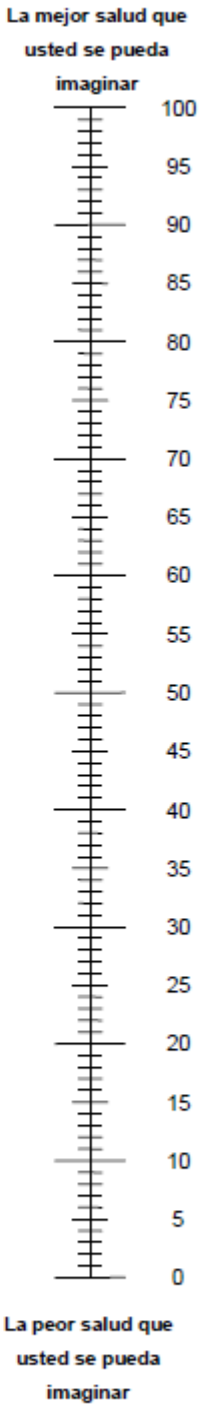
ANSIEDAD / DEPRESIÓN

No estoy ansioso ni deprimido ❑
Estoy levemente ansioso o deprimido ❑
Estoy moderadamente ansioso o deprimido ❑
Estoy muy ansioso o deprimido ❑
Estoy extremadamente ansioso o deprimido ❑

- Nos gustaría conocer lo buena o mala que es su salud HOY.
- La escala está numerada del 0 al 100.
- 100 representa la mejor salud que usted se pueda imaginar.

  0 representa la peor salud que usted se pueda imaginar.
- Marque con una X en la escala para indicar cuál es su estado de salud HOY.
- Ahora, en la casilla que encontrará a continuación escriba el número que ha marcado en la escala.

SU SALUD HOY = ☐



Appendix 5. SF-36

11549035

Datos para el estudio

Día:	Mes:	Año: (20...)	Número identificador:
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	☐ Enero ☐ Julio	0 ☐ ☐	0 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10	☐ Febrero ☐ Agosto	1 ☐ ☐	1 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15	☐ Marzo ☐ Septiembre	2 ☐ ☐	2 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20	☐ Abril ☐ Octubre	3 ☐ ☐	3 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐ 25	☐ Mayo ☐ Noviembre	4 ☐ ☐	4 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ 26 ☐ 27 ☐ 28 ☐ 29 ☐ 30	☐ Junio ☐ Diciembre	5 ☐ ☐	5 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
☐ 31		6 ☐ ☐	6 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
		7 ☐ ☐	7 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
		8 ☐ ☐	8 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
		9 ☐ ☐	9 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Cuestionario de Salud
SF-36 (versión 2)

Institut Municipal d´Investigació Mèdica (IMIM-IMAS)
Unidad de Investigación en Servicios Sanitarios
c/Doctor Aiguader, 80 E-08003 Barcelona
Tel. (+34) 93 225 75 53, Fax (+34) 93 221 40 02
www.imim.es

Institut Municipal d´Investigació Mèdica (IMIM-IMAS)
Unidad de Investigación en Servicios Sanitarios
c/Doctor Aiguader, 80 E-08003 Barcelona
Tel. (+34) 93 225 75 53, Fax (+34) 93 221 40 02
www.imim.es

IMAS
Institut Municipal
d'Investigació Mèdica. IMIM

Este instrumento ha superado los estándares de calidad del **Medical Outcome Trust** y de la Red Cooperativa para la Investigación en Resultados de Salud y Servicios Sanitarios (**Red IRYSS**).
El cuestionario y su material de soporte están disponibles en BiblioPRO, la biblioteca virtual de la Red IRYSS (www.rediryss.net).

Su Salud y Bienestar

Por favor conteste las siguientes preguntas. Algunas preguntas pueden parecerse a otras pero cada una es diferente.

Tómese el tiempo necesario para leer cada pregunta, y marque con una ☒ la casilla que mejor describa su respuesta.

¡Gracias por contestar a estas preguntas!

1. En general, usted diría que su salud es:

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Excelente	Muy buena	Buena	Regular	Mala

2. ¿Cómo diría usted que es su salud actual, comparada con la de hace un año?:

Mucho mejor ahora que hace un año	Algo mejor ahora que hace un año	Más o menos igual que hace un año	Algo peor ahora que hace un año	Mucho peor ahora que hace un año
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

3. Las siguientes preguntas se refieren a actividades o cosas que usted podría hacer en un día normal. Su salud actual, ¿le limita para hacer esas actividades o cosas? Si es así, ¿cuánto?

	Sí, me limita mucho	Sí, me limita un poco	No, no me limita nada
a Esfuerzos intensos, tales como correr, levantar objetos pesados, o participar en deportes agotadores.	☐ 1	☐ 2	☐ 3
b Esfuerzos moderados, como mover una mesa, pasar la aspiradora, jugar a los bolos o caminar más de 1 hora.	☐ 1	☐ 2	☐ 3
c Coger o llevar la bolsa de la compra.	☐ 1	☐ 2	☐ 3
d Subir varios pisos por la escalera.	☐ 1	☐ 2	☐ 3
e Subir un sólo piso por la escalera.	☐ 1	☐ 2	☐ 3
f Agacharse o arrodillarse.	☐ 1	☐ 2	☐ 3
g Caminar un kilómetro o más	☐ 1	☐ 2	☐ 3
j Bañarse o vestirse por sí mismo.	☐ 1	☐ 2	☐ 3

4. Durante las 4 últimas semanas, ¿con qué frecuencia ha tenido alguno de los siguientes problemas en su trabajo o en sus actividades cotidianas, a causa de su salud física?

	Siempre	Casi siempre	Algunas veces	Sólo alguna vez	Nunca
a ¿Tuvo que reducir el tiempo dedicado al trabajo o a sus actividades cotidianas?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b ¿Hizo menos de lo que hubiera querido hacer?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c ¿Tuvo que dejar de hacer algunas tareas en su trabajo o en sus actividades cotidianas?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
d ¿Tuvo dificultad para hacer su trabajo o sus actividades cotidianas (por ejemplo, le costó más de lo normal)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5. Durante las 4 últimas semanas, ¿con qué frecuencia ha tenido alguno de los siguientes problemas en su trabajo o en sus actividades cotidianas, a causa de algún problema emocional (como estar triste, deprimido o nervioso)?

	Siempre	Casi siempre	Algunas veces	Sólo alguna vez	Nunca
a ¿Tuvo que reducir el tiempo dedicado al trabajo o a sus actividades cotidianas por algún problema emocional?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b ¿Hizo menos de lo que hubiera querido hacer por algún problema emocional?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c ¿Hizo su trabajo o sus actividades cotidianas menos cuidadosamente que de costumbre, por algún problema emocional?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

6. Durante las 4 últimas semanas, ¿hasta qué punto su salud física o los problemas emocionales han dificultado sus actividades sociales habituales con la familia, los amigos, los vecinos u otras personas?

Nada	Un poco	Regular	Bastante	Mucho
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

7. ¿Tuvo dolor en alguna parte del cuerpo durante las 4 últimas semanas?

No, ninguno	Sí, muy poco	Sí, un poco	Sí, moderado	Sí, mucho	Sí, muchísimo
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

8. Durante las 4 últimas semanas, ¿hasta qué punto el dolor le ha dificultado su trabajo habitual (incluido el trabajo fuera de casa y las tareas domésticas)?

Nada	Un poco	Regular	Bastante	Mucho
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

9. Las preguntas que siguen se refieren a cómo se ha sentido y cómo le han ido las cosas durante las 4 últimas semanas. En cada pregunta responda lo que se parezca más a cómo se ha sentido usted. Durante las últimas 4 semanas ¿con qué frecuencia...

	Siempre	Casi siempre	Algunas veces	Sólo alguna vez	Nunca
a se sintió lleno de vitalidad?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b estuvo muy nervioso?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c se sintió tan bajo de moral que nada podía animarle?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
d se sintió calmado y tranquilo?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
e tuvo mucha energía?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
f se sintió desanimado y deprimido?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
g se sintió agotado?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
h se sintió feliz?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
i se sintió cansado?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

10. Durante las 4 últimas semanas, ¿con qué frecuencia la salud física o los problemas emocionales le han dificultado sus actividades sociales (como visitar a los amigos o familiares)?

Siempre	Casi siempre	Algunas veces	Sólo alguna vez	Nunca
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

11. Por favor diga si le parece CIERTA o FALSA cada una de las siguientes frases:

	Totalmente cierta	Bastante cierta	No lo sé	Bastante falsa	Totalmente falsa
a Creo que me pongo enfermo más facilmente que otras personas	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b Estoy tan sano como cualquiera	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c Creo que mi salud va a empeorar	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
d Mi salud es excelente	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Gracias por contestar a estas preguntas

Appendix 6. IPAQ-27

CUESTIONARIO INTERNACIONAL DE ACTIVIDAD FÍSICA (Octubre de 2002)

VERSIÓN LARGA FORMATO AUTO ADMINISTRADO - ÚLTIMOS 7 DÍAS

PARA USO CON JÓVENES Y ADULTOS DE MEDIANA EDAD (15-69 años)

Los Cuestionarios Internacionales de Actividad Física (IPAQ, por sus siglas en inglés) contienen un grupo de 4 cuestionarios. La versión larga (5 objetivos de actividad evaluados independientemente) y una versión corta (4 preguntas generales) están disponibles para usar por los métodos por teléfono o auto administrada. El propósito de los cuestionarios es proveer instrumentos comunes que pueden ser usados para obtener datos internacionalmente comparables relacionados con actividad física relacionada con salud.

Antecedentes del IPAQ
El desarrollo de una medida internacional para actividad física comenzó en Ginebra en 1998 y fue seguida de un extensivo exámen de confiabilidad y validez hecho en 12 países (14 sitios) en el año 2000. Los resultados finales sugieren que estas medidas tienen aceptables propiedades de medición para usarse en diferentes lugares y en diferentes idiomas, y que son apropiadas para estudios nacionales poblacionales de prevalencia de participación en actividad física.

Uso del IPAQ
Se recomienda el uso de los instrumentos IPAQ con propósitos de monitoreo e investigación. Se recomienda que no se hagan cambios en el orden o redacción de las preguntas ya que esto afectará las propiedades sicométricas de los instrumentos.

Traducción del Inglés y Adaptación Cultural
Traducción del Inglés es sugerida para facilitar el uso mundial del IPAQ. Información acerca de la disponibilidad del IPAQ en diferentes idiomas puede ser obtenida en la página de internet www.ipaq.ki.se. Si se realiza una nueva traducción recomendamos encarecidamente usar los métodos de traducción nuevamente al Inglés disponibles en la página web de IPAQ. En lo possible por favor considere poner a disposición de otros su version traducida en la página web de IPAQ. Otros detalles acerca de traducciones y adaptación cultural pueden ser obtenidos en la página web.

Otros Desarrollos de *IPAQ*
Colaboración Internacional relacionada con IPAQ es continua y un ***Estudio Internacional de Prevalencia de Actividad Física*** se encuentra en progreso. Para mayor información consulte la página web de IPAQ.

Información Adicional

Información más detallada del proceso IPAQ y los métodos de investigación usados en el desarrollo de los instrumentos IPAQ se encuentra disponible en la página www.ipaq.ki.se y en Booth, M.L. (2000). Assessment of Physical Activity: An International Perspective. Research Quarterly for Exercise and Sport, 71 (2): s114-20. Otras publicaciones científicas y presentaciones acerca del uso del IPAQ se encuentran resumidas en la página Web.

CUESTIONARIO INTERNACIONAL DE ACTIVIDAD FÍSICA

Estamos interesados en saber acerca de la clase de actividad física que la gente hace como parte de su vida diaria. Las preguntas se referirán acerca del tiempo que usted utilizó siendo físicamente activo(a) en los **últimos 7 días**. Por favor responda cada pregunta aún si usted no se considera una persona activa. Por favor piense en aquellas actividades que usted hace como parte del trabajo, en el jardín y en la casa, para ir de un sitio a otro, y en su tiempo libre de descanso, ejercicio o deporte.

Piense acerca de todas aquellas actividades **vigorosas** y **moderadas** que usted realizó en los **últimos 7 días**. Actividades **vigorosas** son las que requieren un esfuerzo físico fuerte y le hacen respirar mucho más fuerte que lo normal. Actividades **moderadas** son aquellas que requieren un esfuerzo físico moderado y le hace respirar algo más fuerte que lo normal.

PARTE 1: ACTIVIDAD FÍSICA RELACIONADA CON EL TRABAJO

La primera sección es relacionada con su trabajo. Esto incluye trabajos con salario, agrícola, trabajo voluntario, clases, y cualquier otra clase de trabajo no pago que usted hizo fuera de su casa. No incluya trabajo no pago que usted hizo en su casa, tal como limpiar la casa, trabajo en el jardín, mantenimiento general, y el cuidado de su familia. Estas actividades serán preguntadas en la parte 3.

1. ¿Tiene usted actualmente un trabajo o hace algún trabajo no pago fuera de su casa?

☐ Sí

☐ No → ***Pase a la PARTE 2: TRANSPORTE***

Las siguientes preguntas se refieren a todas las actividades físicas que usted hizo en los **últimos 7 días** como parte de su trabajo pago o no pago. Esto no incluye ir y venir del trabajo.

2. Durante los **últimos 7 días**, ¿Cuántos días realizó usted actividades físicas **vigorosas** como levantar objetos pesados, excavar, construcción pesada, o subir escaleras **como parte de su trabajo**? Piense solamente en esas actividades que usted hizo por lo menos 10 minutos continuos.

_____ d**ías por semana**

☐ Ninguna actividad física vigorosa relacionada con el trabajo →
Pase a la pregunta 4

☐ No sabe/No está seguro(a)

3. ¿Cuánto tiempo en total usualmente le toma realizar actividades físicas **vigorosas** en uno de esos días que las realiza como parte de su trabajo?

_____ **horas por día**
_____ **minutos por día**

☐ No sabe/No está seguro(a)

4. Nuevamente, piense solamente en esas actividades que usted hizo por lo menos 10 minutos continuos. Durante **los últimos 7 días**, ¿Cuántos días hizo Usted actividades físicas **moderadas como** cargar cosas ligeras **como parte de su trabajo**? Por favor no incluya caminar.

_____ d**ías por semana**

☐ No actividad física moderada relacionada con el trabajo →
Pase a la pregunta 6

5. ¿Cuánto tiempo en total usualmente le toma realizar actividades físicas **moderadas** en uno de esos días que las realiza como parte de su trabajo?

_____ **horas por día**
_____ **minutos por día**

☐ No sabe/No está seguro(a)

6. Durante **los últimos 7 días**, ¿Cuántos días **caminó** usted por lo menos 10 minutos continuos **como parte de su trabajo**? Por favor no incluya ninguna caminata que usted hizo para desplazarse de o a su trabajo.

_____ d**ías por semana**

☐ Ninguna caminata relacionada con trabajo →
Pase a la PARTE 2: TRANSPORTE

7. ¿Cuánto tiempo en total pasó generalmente **caminado** en uno de esos días como parte de su trabajo?

_____ horas por día
_____ minutos por día

☐ **No sabe/No está seguro(a)**

PARTE 2: ACTIVIDAD FíSICA RELACIONADA CON TRANSPORTE

Estas preguntas se refieren a la forma como usted se desplazó de un lugar a otro, incluyendo lugares como el trabajo, las tiendas, el cine, entre otros.

8. Durante los **últimos 7 días**, ¿Cuántos días **viajó usted en un vehículo de motor** como un tren, bus, automóvil, o tranvía?

_____ días por semana

☐ No viajó en vehículo de motor → ***Pase a la pregunta 10***

9. Usualmente, ¿Cuánto tiempo gastó usted en uno de esos días **viajando** en un tren, bus, automóvil, tranvía u otra clase de vehículo de motor?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

Ahora piense únicamente acerca de **montar en bicicleta** o **caminatas** que usted hizo para desplazarse a o del trabajo, haciendo mandados, o para ir de un lugar a otro.

10. Durante los **últimos 7 días**, ¿Cuántos días **montó usted en bicicleta** por al menos 10 minutos continuos para **ir de un lugar a otro**?

_____ días por semana

☐ No montó en bicicleta de un sitio a otro → ***Pase a la pregunta 12***

11. Usualmente, ¿Cuánto tiempo gastó usted en uno de esos días **montando en bicicleta** de un lugar a otro?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

12. Durante los **últimos 7 días**, ¿Cuántos días caminó usted por al menos 10 minutos continuos para ir **de un sitio a otro**?

_____ días por semana

☐ No caminatas de un sitio a otro → ***Pase a la PARTE 3: TRABAJO DE LA CASA, MANTENIMIENTO DE LA CASA, Y CUIDADO DE LA FAMILIA***

13. Usualmente, ¿Cuánto tiempo gastó usted en uno de esos días **caminando** de un sitio a otro?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

PARTE 3: TRABAJO DE LA CASA, MANTENIMIENTO DE LA CASA, Y CUIDADO DE LA FAMILIA

Esta sección se refiere a algunas actividades físicas que usted hizo en los **últimos 7 días** en y alrededor de su casa tal como como arreglo de la casa, jardinería, trabajo en el césped, trabajo general de mantenimiento, y el cuidado de su familia.

14. Piense únicamente acerca de esas actividades físicas que hizo por lo menos 10 minutos continuos. Durante los **últimos 7 días**, ¿Cuántos días hizo usted actividades físicas **vigorosas** tal como levantar objetos pesados, cortar madera, palear nieve, o excavar **en el jardín o patio**?

    _____ días por semana

    ☐ Ninguna actvidad física vigorosa en el jardín o patio →
    Pase a la pregunta 16

15. Usualmente, ¿Cuánto tiempo dedica usted en uno de esos días haciendo actividades físicas **vigorosas** en el jardín o patio?

    _____ horas por día
    _____ minutos por día

    ☐ No sabe/No está seguro(a)

16. Nuevamente, piense únicamente acerca de esas actividades físicas que hizo por lo menos 10 minutos continuos. Durante los **últimos 7 días**, ¿Cuántos días hizo usted actividades físicas **moderadas** tal como cargar objetos livianos, barrer, lavar ventanas, y rastrillar **en el jardín o patio**?

    _____ días por semana

    ☐ Ninguna actvidad física moderada en el jardín o patio →
    Pase a la pregunta 18

17. Usualmente, ¿Cuánto tiempo dedica usted en uno de esos días haciendo actividades físicas **moderadas** en el jardín o patio?

    _____ horas por día
    _____ minutos por día

    ☐ No sabe/No está seguro(a)

18. Una vez más, piense únicamente acerca de esas actividades físicas que hizo por lo menos 10 minutos continuos. Durante los **últimos 7 días**, ¿Cuántos días hizo usted actividades físicas **moderadas** tal como cargar objetos livianos, lavar ventanas, estregar pisos y barrer **dentro de su casa**?

_____ días por semana

☐ Ninguna actvidad física moderada dentro de la casa →

Pase a la PARTE 4: ACTIVIDADES FíSICAS DE RECREACIÓN, DEPORTE Y TIEMPO LIBRE

19. Usualmente, ¿Cuánto tiempo dedica usted en uno de esos días haciendo actividades físicas **moderadas** dentro de su casa?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

PARTE 4: ACTIVIDADES FíSICAS DE RECREACIÓN, DEPORTE Y TIEMPO LIBRE

Esta sección se refiere a todas aquellas actividades físicas que usted hizo en los **últimos 7 días** únicamente por recreación, deporte, ejercicio o placer. Por favor no incluya ninguna de las actividades que ya haya mencionado.

20. Sin contar cualquier caminata que ya haya usted mencionado, durante los **últimos 7 días**, ¿Cuántos días **caminó** usted por lo menos 10 minutos continuos **en su tiempo libre**?

_____ días por semana

☐ Ninguna caminata en tiempo libre → ***Pase a la pregunta 22***

21. Usualmente, ¿Cuánto tiempo gastó usted en uno de esos días **caminando** en su tiempo libre?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

22. Piense únicamente acerca de esas actividades físicas que hizo por lo menos 10 minutos continuos. Durante los **últimos 7 días**, ¿Cuántos días hizo usted actividades físicas **vigorosas** tal como aeróbicos, correr, pedalear rápido en bicicleta, o nadar rápido en su **tiempo libre**?

_____ días por semana

☐ Ninguna actividad física vigorosa en tiempo libre →
Pase a la pregunta 24

23. Usualmente, ¿Cuánto tiempo dedica usted en uno de esos días haciendo actividades físicas **vigorosas** en su tiempo libre?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

24. Nuevamente, piense únicamente acerca de esas actividades físicas que hizo por lo menos 10 minutos continuos. Durante los **últimos 7 días**, ¿Cuántos días hizo usted actividades físicas **moderadas** tal como pedalear en bicicleta

a paso regular, nadar a paso regular, jugar dobles de tenis, **en su tiempo libre**?

_____ días por semana

☐ Ninguna actvidad física moderada en tiempo libre →
Pase a la PARTE 5: TIEMPO DEDICADO A ESTAR SENTADO(A)

25. Usualmente, ¿Cuánto tiempo dedica usted en uno de esos días haciendo actividades físicas **moderadas** en su tiempo libre?
_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

PARTE 5: TIEMPO DEDICADO A ESTAR SENTADO(A)

Las últimas preguntas se refieren al tiempo que usted permanence sentado(a) en el trabajo, la casa, estudiando, y en su tiempo libre. Esto incluye tiempo sentado(a) en un escritorio, visitando amigos(as), leyendo o permanecer sentado(a) o acostado(a) mirando television. No incluya el tiempo que permanence sentado(a) en un vehículo de motor que ya haya mencionado anteriormente.

26. Durante los **últimos 7 días**, ¿Cuánto tiempo permaneció **sentado(a)** en un **día en la semana**?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

27. Durante los **últimos 7 días**, ¿Cuánto tiempo permaneció **sentado(a)** en un **día del fin de semana**?

_____ horas por día
_____ minutos por día

☐ No sabe/No está seguro(a)

Este es el final del cuestionario, gracias por su participación.