**Supplementary material**

**Intervention**

1. Control Group (CG)

The active control intervention lasted 30 minutes and was structured around the 5 A’s technique(Parkes et al., 2008). Following the recommendations endorsed by the Treating Tobacco Guideline(Fiore et al., 2008) and based on Motivational Interviewing (MI)(Miller and Rollnick, 1991), the smoking habit, personal circumstances and general health risks derived from the current tobacco consumption were discussed with patients. Information stressing the general health benefits of quitting smoking was provided by means of educational materials.

1. Experimental Group (EG)

Patients in this group went through a spirometry examination aimed at establishing lung age and degree of obstruction. The tests were performed at each MHC using a Sibelmed Datospir Touch Easy D spirometer. The protocol for obtaining volumes and diagnosing respiratory pathology (see supplementary material) specifies briefly the following: the accredited training given to the team; the skills acquired–calibration, preparing patients, performing maneuvers, bronchodilation and repetition of spirometry–; and the automatic and external validation (acceptability and repeatability criteria) by the Respiratory Service at HURS, which adhered to the standardization criteria endorsed by the American Thoracic Society and the European Respiratory Society(Miller et al., 2005).

For all the participants, a pulmonologist calculated lung age and evaluated the presence and degree of respiratory obstruction, according to the criteria established by the GOLD guidelines(Vogelmeier et al., 2017). This expert was allowed access to the curve records, pre- and post-bronchodilation lung volumes, respiratory clinic scales, age, gender and anthropometric measurements of the participants, but was blind to all other variables.

The smoking cessation intervention was matched with the control group in terms of duration and general structure. In this case, when dealing with the health risks, personalized information about the lung damage and prevention opportunities—which was automated and based on assessment by the pulmonology specialist—was included.

The intervention was strengthened by motivational messages—half of which were linked to the possibility of preventing respiratory damage—in an attempt to give continuity to the personal message and sent to the patient's cell phone via SMS during 3 months. SMSs were sent with a decreasing rate: three messages per week in the first month, and two and one per week in the following months (see examples in below).Patients who did not use mobile phones received a landline phone call to convey the same messages.

1. Both Groups

Apart from the scheduled visits, all the patients were given the option to make an appointment to speak with the nurses, either by phone or in person, after the intervention and each programmed visit. The aim was to provide supervision and support over the trial, as well as identification and management of withdrawal symptoms in patients after reducing or quitting smoking.

Although the use of pharmacological treatment for cessation was not an exclusion criterion, it was not provided as a resource in the study and was not publicly financed in Spain during the trial.

**Schedule task**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Visit number | V0 | V1 | V2 | V3 | V4 | V5 |
| Week |  | Baseline | Intervention | W12 | W24 | W48 |
| Inclusion/exclusion criteria | X |  |  |  |  |  |
| Informed consent | X |  |  |  |  |  |
| Nº packets/year | X |  |  |  |  |  |
| Expired CO | X | X | X | X | X | X |
| **Sociodemographic Data** | X | X |  |  |  |  |
| **Smoking history** |  |  |  |  |  |  |
| Type/Brand of tobacco |  | X |  | X | X | X |
| Fagerström Test for Nicotine Dependence (FTND) |  | X |  | X | X | X |
| Previous attempts to quit |  | X |  | X | X | X |
| **Current smoking habit** |  |  |  |  |  |  |
| Cigarettes per day (CPD) |  | X | X | X | X | X |
| Desire to quit |  | X |  | X | X | X |
| Self-perception of ability to quit |  | X |  | X | X | X |
| Richmond test |  | X |  | X | X | X |
| Stage of change |  | X |  | X | X | X |
| Application and follow-up on addictions network |  |  |  | X | X | X |
| **Psychopathology** |  |  |  |  |  |  |
| Positive and Negative Syndrome Scale (PANSS) |  | X |  | X | X | X |
| Hamilton Rating Scale for Depression (HDRS) |  | X |  | X | X | X |
| Young Mania Rating Scale (YMRS) |  | X |  | X | X | X |
| Hamilton Anxiety Rating Scale (HAM-A) |  | X |  | X | X | X |
| Global Activity Evaluation Scale (GAES) |  | X |  | X | X | X |
| **Secondary diagnosis** |  | X |  |  |  |  |
| **Medical history** |  | X |  |  |  |  |
| **Other substance use** |  |  |  |  |  |  |
| Alcohol, cannabis |  | X |  |  |  |  |
| **Treatment** |  | X |  | X | X | X |
| **Respiratory Variables** |  |  |  |  |  |  |
| COPD Assessment Test (CAT) |  | X |  |  |  |  |
| modified Medical Research Council (mMRC) |  | X |  |  |  |  |
| **Spirometry Variables**  FCV, FEV1. FEV1/FVC, pulmonary age, FVC post BD, FEV1 post BD, FEV1/FVC post BD, degree of obstruction (following GOLD) |  | X  (EG) |  |  |  | X  (CG) |
| **Anthropometric Measurements and vital signs** |  | X |  | X | X | X |

**Protocol for evaluation and diagnosis of respiratory pathology**

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| --- | --- | --- |
|  | Persons responsible and venue | Nursing Team (Mental Health Unit) |
|  | Training | Accredited training1 given by the pulmonology service of Reina Sofía Hospital, Córdoba, Spain |
| Evaluation and validation | Skills acquired | Calibration, preparing patients, performing manoeuvres, bronchodilation and repetition of spirometry |
|  | Automatic Validation | Automatic validation. Maximum of 8 manoeuvres before achieving a minimum of 3 manoeuvres of an acceptable standard2. Classification and automatic choice of the 2 best curves with repeatability criteria3 |
|  | Reversibility test | Repetition of 3 acceptable manoeuvres 15 minutes after inhalation by bronchodilator (Salbutamol, 400 micrograms) |

|  |  |  |
| --- | --- | --- |
|  | External  Validation | External validation curves and volumes are assessed by a single researcher, head of the functional test unit of the Pneumology Service at the Reina Sofía Hospital, Córdoba, Spain |
| Quantification and diagnosis | Volumes | Forced vital capacity (FVC), forced expiratory volume (FEV1) and the quotient of the two (FEV1/FVC) |
|  | Calculation of lung age | Automatic and externally verified |
|  | Diagnosis and staging | Presence and degree of respiratory obstruction, according to criteria established by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines |

1The accredited training consisted of learning the theoretical principles behind the test, how to handle and look after the material and how to perform spirometry manoeuvres and secure the selected measurements

2Acceptability criteria: the flow/volume curve must not contain artefacts, must start well and should last for at least 6 seconds.

3Repeatability criteria: the two highest FVC and the two highest FEV1, with a difference between them of less than 0.15 L.

**Examples of messages conveyed by researcher after spirometry and of SMS messages sent during the following months in the experimental group.**

|  |  |  |
| --- | --- | --- |
| Example messages conveyed by researcher in the intervention visit (according to spirometry result). | | |
| Lung age greater than chronological age | Lung age greater than chronological age, plus obstruction | Lung age coincided with chronological age |
| Good Morning. How are you feeling?  We’ve got the result of the spirometry test you did with us. I’m afraid, the results show your lungs are like an older person’s lungs. They’ve been aged by smoking habit and it’s as if you were XX years old. But don't worry, this can change and improve if you stop smoking. Our team can help you and with motivation, you can do it! | Good Morning. How are you feeling?  We’ve got the result of the spirometry test you did with us. I’m afraid the results show your lungs are like an older person’s lungs. They’ve been aged by smoking habit and it’s as if you were XX years old. There are signs of obstruction too and I'm going to make a report to your family doctor so you can be seen by a pulmonology specialist. I’m sure you’ve noticed it already with coughing, expectoration and difficulty to make an effort. The best treatment is to quit smoking. Our team can help you and with motivation, you can do it! | Good Morning. How are you feeling?  We’ve got the result of the spirometry test you did with us. The result shows that your lung age matches your real age. There’s no obstructive lung disease yet, and that means now is the best time to quit smoking. We can make the process of lung damage slow down. Our team can help you and with motivation, you can do it! |
| Examples of SMS messages: | | |
| Wanting to smoke is temporary, but the damage to your lungs is permanent – which kind of suffering do you want to choose? | | |
| The pleasure of breathing in deeply and enjoying a beautiful spring morning would be easier with cleaner lungs. How about trying it? | | |
| Did that little run down the street leave you breathless? Ever thought about giving up smoking? Life is much more bearable with clean lungs. | | |
| If your lungs could speak, they’d be really angry at how you’re treating them. It’s up to you - you can make your life better. | | |
| Better health and lung capacity, more cash to spend and less smelly clothes. That’s what you gain when you give up smoking. Difficult to imagine giving up? You're not alone! Come and see us and we’ll plan it together. | | |