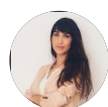# 🌐 A pragmatic approach to neuropsychological assessment for clinical treatment in smoking cessation.

Raquel Martín-Ríos[1]

[1]University Isabel I

Raquel Martín-Ríos: Faculty of Psychology. Department of Personality, Assessment and Psychological Treatment.

#01

EVIDENCE-BASED
CLINICAL PRACTICE
GUIDELINE

A pragmatic approach to neuropsychological assessment
for clinical treatment in smoking cessation.

Raquel Martín-Ríos
PhD in Psychology

JUL 12, 2023

Raquel Martín-Ríos
University Isabel I

DOI:

dx.doi.org/10.17504/protocols.io.e6nvwd9rzlmk/v1

Protocol Citation: Raquel Martín-Ríos 2023. A pragmatic approach to neuropsychological assessment for clinical treatment in smoking cessation.. **protocols.io**
https://dx.doi.org/10.17504/protocols.io.e6nvwd9rzlmk/v1

Protocol status: Working
We use this protocol and it's working

Created: Jul 06, 2023

Last Modified: Jul 12, 2023

PROTOCOL integer ID:
84586

ABSTRACT

Smoking is a psycho-organic disorder characterised by a compulsive urge to smoke despite the negative effects of such abuse. Such addictive behaviour constitutes one of the main causes that lead to the development of diseases and mortality, causing more than 7 million deaths per year. In Spain, the daily smoking rate ranges between 23.3% of men and 16.4% of women, according to the European Health Survey 2020.

Numerous scientific reviews highlight the impact of smoking on physical health and the development of cardiovascular and cerebrovascular diseases. In fact, chronic smoking has been associated with differences in executive functioning between smokers and non-smokers. In addition, smokers show marked impairments in cognitive flexibility, visual attention, impulsivity, maladaptive decision-making, lower inhibitory control abilities, poorer working memory performance, as well as altered brain functioning patterns. However, studies on smoking have mostly focused on studying the executive components separately. Thus, a comprehensive assessment that clarifies the contribution of each executive component in smoking is still lacking.

Given the lack of neuropsychological assessment protocols in smoking, there is a need to develop a neuropsychological battery aimed at measuring executive performance in such a specific group in order to fill this methodological gap. Also, clinical practice requires assessments with ecological validity where the instruments show a certain degree of correspondence with real situations.

Based on the above, we outline a validated protocol that adopts an academic approach to the assessment of executive functioning in smokers seeking treatment.The protocol specifies the structure of the screening process and incorporates a screening schedule to assess the patient's executive capacity. This protocol can be implemented easily over several sessions and is designed to ensure reliable assessment of executive function inhibition, flexibility and updating in adults. With regard to the neuropsychological instruments used, six executive function tasks were selected based on the type of measurement construct provided as a psychometric indicator of validity established in the technical manuals of each test used, as well as on their degree of correspondence with the criteria of ecological validity.

Evidence-based clinical

[Martin Rios, R., López-Torrecillas, F., & Martin Tamayo, I. (2021). Executive functions in tobacco use disorder: new challenges and opportunities. Frontiers in Psychiatry, 12, 586520.](#)
[Martín-Ríos, R., Martín-Tamayo, I., & López-Torrecillas, F. (2021). Impact of neuropsychological disorders on clinical aspects of smoking. Adicciones 35(1).](#)
[Martín Ríos, R., & López Torrecillas, F. (2022). Potential predictors of smoking relapse in treatment-seeking smokers.](#)
[Martín-Ríos R, López-Torrecillas F, Martín-Tamayo I, Lozano-Fernández LM. Development of a neuropsychological assessment in smoking. Revista de Neurologia. 2022 Mar;74(5):149-155. DOI: 10.33588/rn.7405.2021306. PMID: 35211948.](#)

Additional Resources:

- WHO –[Core Protocol for Tobacco](#)
- [45 CFR Part 46: Protection of Human Subjects Research](#)
- [Tobacco Products](#) - Food and Drugs Administrarion (FDA)
- [Guidance for Clinical Investigators, Sponsors, and IRBs Adverse Event Reporting to IRBs – Improving Human Subject Protection](#)

Objective

1

#01

EVIDENCE-BASED CLINICAL PRACTICE GUIDELINE

A pragmatic approach to neuropsychological assessment for clinical treatment in smoking cessation.

Raquel Martín-Ríos
PhD in Psychology

Promote a protocol for assessing **executive functioning** in **chronic smokers** based on a selection of neuropsychological tasks that assess the executive functions of inhibition, updating and change/flexibility.

2   Based on previous research, we designed a protocol to assess executive function in smokers. For this purpose, we used a multiple-component analysis that determined that the different tasks selected assessed the executive components important for addiction.

The results of the study show it has been possible to develop a smoking-adapted assessment battery adapted to smoking that is short in length and has adequate discriminant validity. To our knowledge, there is no research that has provided tools for executive assessment in smoking. The advantage of this type of specialised assessment would be to provide clinical psychologists with an accessible and useful methodology for assessment and treatment.

Quality Criteria

3   The assessment protocol presented offers an opportunity to address the study of executive function in smokers. Data acquisition optimization, taking approximately 30 minutes, combined with a wide range of measures to effectively obtain a global vision of executive behavior, enables us to consider it an **adequate and plausible** approach for clinical practice.

It is also worth highlighting the usefulness of obtaining three different components that

provide a broad spectrum of processes and functionalities that are included in executive functioning. Likewise, the opportunity to develop an **Executive Functioning Profile** attributable to smokers symbolizes a link to make visible, achieve parsimony and standardize neuropsychological assessment in smoking, since cognitive assessment in smokers is often a complex process as they persist in consumption despite knowing the risks. Furthermore, a battery based on **ecological validity** circumvents the inflexibility of certain neuropsychological assessment tasks that are commonly used in the clinical context.
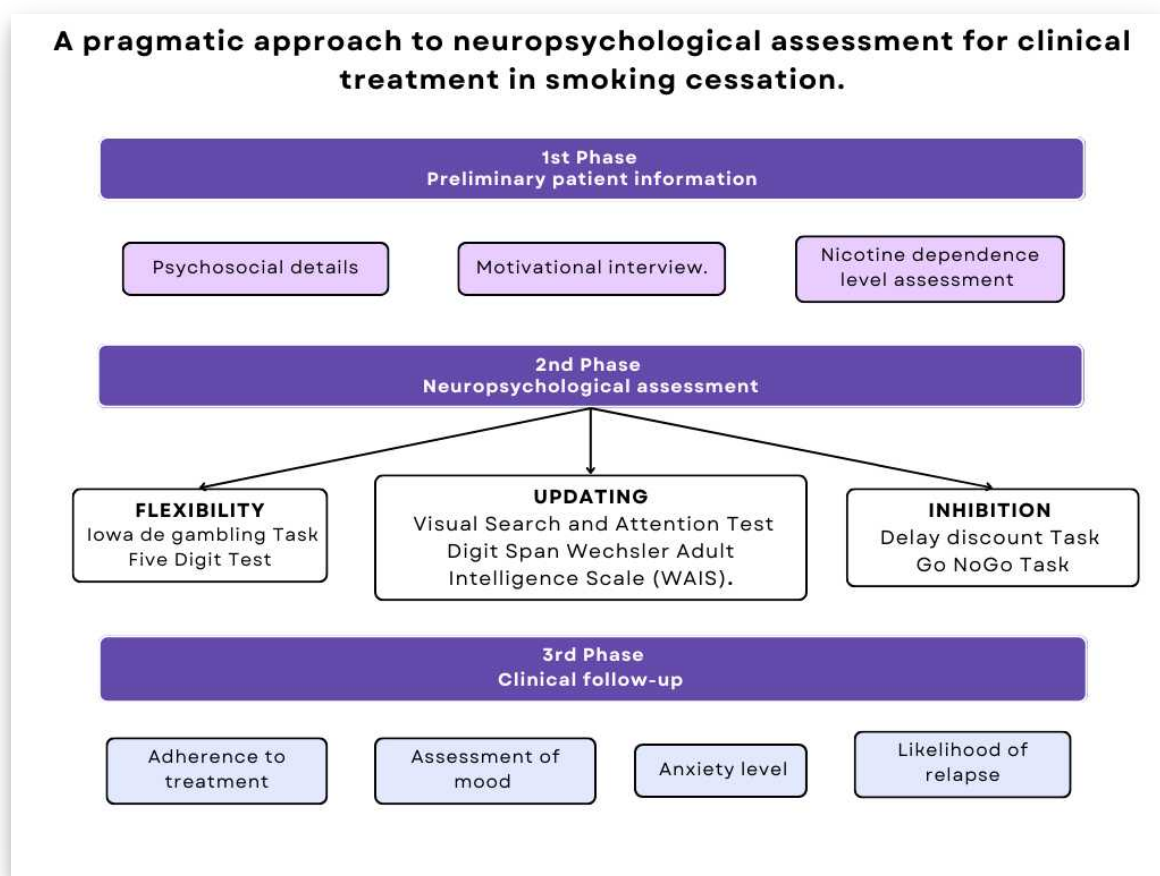
Procedure

4
This evaluation protocol consists of three phases:

(1) Psychoeducational phase in order to reduce smoking (activity planning and goal setting). Patient profile assessment through the Nicotinic Dependence Test, a semi-structured interview for smokers and a motivational interview.

(2) Neuropsychological assessment of smokers based on the proposal.

A pragmatic approach to neuropsychological assessment for clinical treatment in smoking cessation.

1st Phase
Preliminary patient information

Psychosocial details | Motivational interview. | Nicotine dependence level assessment

2nd Phase
Neuropsychological assessment

FLEXIBILITY
Iowa de gambling Task
Five Digit Test

UPDATING
Visual Search and Attention Test
Digit Span Wechsler Adult
Intelligence Scale (WAIS).

INHIBITION
Delay discount Task
Go NoGo Task

3rd Phase
Clinical follow-up

Adherence to treatment | Assessment of mood | Anxiety level | Likelihood of relapse

(3) Clinical follow-up to assess the predictive ability of the executive components to predict clinical variables in treatment. During this phase, relapse prevention strategy training is recommended.

Evidence-based approach

5   Results also indicate that executive measures which assess updating may be useful for prospectively predicting years of addiction, so that they could be used to identify potential severe smokers. In addition, smoking behavior reflects a decline in performance on tasks demanding working memory and attentional capacity requiring visual search. Results also indicate that executive measures which assess updating may be useful for prospectively predicting years of addiction, so that they could be used to identify potential severe smokers. In addition, smoking behaviour reflects a decline in performance on tasks demanding working memory and attentional capacity requiring visual search.