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Adaptation and Psychometric Properties of the Electronic Cigarette Dependence Index (ECDI) in a Colombian Sample

Adaptación y propiedades psicométricas del Índice de Dependencia del Cigarrillo Electrónico (IDCE) en adultos colombianos

Maria Alejandra Manrique-Ruiz Tapia[1,*], Maria Paula Macías-López[1], Debby Zamara Murcia-Casas[1], Geraldine Lozada Ramírez[1], Karen Torres Barreto[1], Leidy Carolina Bohórquez Torres[1], Fernando Riveros Munevar[2], Paulo Sergio Dillon Soares-Filho[1,*].

[1] *Universidad de San Buenaventura, Bogotá, Colombia.*

[2] *Universidad de La Sabana, Chía, Colombia.*

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***Corresponding author**:
Paulo Sergio Dillon Soares-Filho.
Email: paulodillon@gmail.com

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Abstract.
Electronic cigarettes had become a public health concern, generating the need of having standardized instruments to evaluate the consequences of their use. **Objective:** The goal of this study was to adapt and evaluate the validity and reliability of the Electronic Cigarette Dependence Index (ECDI) to a Colombian sample. **Method:** In this instrumental quantitative research, the instrument was adapted to the Spanish language, evaluated by expert judges and contested by 128 adult regular electronic cigarettes users. **Results:** The results suggest a single factor structure with reliable goodness of fit measures and values of internal consistency between acceptable and adequate. **Conclusion:** These results suggest the ECDI as a valid and reliable index to be used in Colombian samples.

Resumen.
El consumo de cigarrillo electrónico se ha convertido en un problema de salud publica, lo que ha generado la necesidad de contar con instrumentos estandarizados que evalúen las consecuencias de su uso. **Objetivo:** El objetivo del presente estudio fue adaptar y evaluar las condiciones de validez y confiabilidad del Índice de Dependencia del Cigarrillo Electrónico (IDCE) en una muestra de adultos colombianos. **Método:** Se realizó una investigación de tipo cuantitativa instrumental, en la cual el instrumento fue adaptado al español, evaluado por jueces y aplicado a 128 consumidores de cigarrillo electrónico. **Resultados:** El análisis factorial confirmatorio muestra una estructura unifactorial, con adecuados índices de bondad de ajuste, que concuerda con la propuesta teórica, y se hallan valores de consistencia interna entre aceptables y adecuados. **Conclusión:** Los resultados permiten indicar que el índice de dependencia del cigarrillo electrónico es una escala válida y confiable para ser utilizada en adultos colombianos.

Keywords.
Electronic Cigarettes; Substance-Related Disorders; Validation Study; Reliability and Validity.

Palabras Clave.
Cigarrillos electrónicos; Trastornos relacionados con sustancias; Estudio de validación; Confiabilidad y validez.

1. Introduction

Nicotine is the main component of tobacco and it is also the psychoactive agent responsible for dependence (Pérez et al., 2007). Although conventional cigarettes are still the most common nicotine consumption method, there has recently been an increase in other forms of nicotine administration such as Electronic Nicotine Delivery Systems (ENDS; popularly known as vapes or Electronic Cigarettes; E-Cig). ENDS can have different types of presentations, but, in general, they contain a liquid (with multiple substances, including nicotine) that, when heated, produces an aerosol (vapor), which is inhaled (vaped) by the user (Córdoba, 2014).

According to the World Health Organization (WHO, 2020), the use of E-Cig has increased, particularly in young adults. For example, in the United States its use has increased from 2% of the general population in 2017 to 3.2% in 2018, and the use in young people between 16 and 19 years has gone up from 11.1% to 16.2% in the same years. In Colombia, as specified by the National Administrative Statistic Department (DANE, by its Spanish initials), it is estimated that 5% of the Colombian population (approx. 1.1 million people) use some type of E-Cig or vape with nicotine, making it the third most widely used psychoactive substance in the country (DANE, 2019). As stated by the third Andean epidemiological study of drug consumption in Colombian college population, in 2016, 16.1% students had used electronic cigarettes at some point in their lives, and approximately 50% of these students were under 22 years (Pulido et al., 2018).

Despite the fact that some entities have adopted less restrictive positions regarding the use of E-Cig, pointing out that, by no requiring a combustion process, not only it becomes 95% safer than conventional cigarettes, but it also has the potential to be used as a form of smoking reduction with traditional cigarettes (Royal College of Physicians of London [RCPL], 2016; Selya et al., 2018). Other organizations, like the World Health Organization, have emphasized that, although its harmful long-term consequences are not known, its use is yet dangerous (WHO, 2014, 2020).

One of the main concerns with the increase in early consumption of E-Cig is the development of nicotine dependence patterns from its use, which can function as a catalyst or enhancer for the consumption of conventional cigarettes (Rennie et al., 2016; Selya et al., 2018). These concerns about the harmful consequences of the use of E-Cig have also been shared by Colombian researchers (Botero-Rodríguez et al., 2019; Robayo-González et al., 2019).

Within this context, many studies have sought ways to measure the dependence caused by electronic cigarettes (e-cigarettes; Bold et al., 2018; Etter & Eissenberg, 2015; Foulds et al, 2015; Morean, et al., 2019; Piper et al, 2019; González-Roz, et al., 2017; Vogel et al, 2018). One of the main instruments used for this assessment is the Electronic Cigarette Dependence Index (PS-ECDI) developed by Penn State University (Foulds et al, 2015).

The PS-ECDI is a 10-item test that assesses the main characteristics of nicotine dependence indicated by the DSM-V (frequency of consumption, motivation, withdrawal, difficulty in quitting, and craving). The instrument was constructed based on the most predictive items of the questionnaires for the classification of dependence on conventional cigarette from Fagerström Test for Nicotine Dependence (FTND; Fagerström et al., 2012; Heatherton et al., 1991), the Heavy Smoking Index (HSI; Heatherton et al., 1989), and the Hooke on Nicotine Checklist (HONC; DiFranza et al., 2002). Additionally, it has questions about the frequency with which consumers wake up at night to consume and the subjective desire (i.e. craving) for consumption (Foulds et al., 2015).

In consonance with Foulds et al. (2015), the instrument was designed to display a one-dimensional measure of electronic cigarettes dependence, and its scoring was adjusted to allow the assessment of the broad spectrum of dependence produced by the administration of nicotine. Furthermore, the authors developed a version of the instrument for the assessment of conventional cigarette dependence to allow the comparison of the level of dependence between the two modalities of administration of nicotine.

Studies using the PS-ECDI have revealed that the level of dependency shown by the instruments is directly related to the concentration of nicotine consumed and with the self-report of the frequency of daily/weekly vaping in regular consumers of e-cigarettes (Dowd et al., 2018; Foulds et al., 2015; Piper et al., 2019). On the other hand, the psychometric properties of the PS-ECDI have shown that the instrument has an acceptable internal consistency ($\alpha = .71$ and $\alpha = .74$; Dowd et al., 2018; Piper et al., 2019). Despite the fact that confirmatory factor analysis does not support the one-dimensional structure of the instrument, it has demonstrated predictive validity. In the study carried out by Piper et al., part of the participants was contacted one year after participating in their study, and it was observed that those who had scored low dependency indexes were less likely to have used the ENDS in the last 30 days (Piper et al., 2019).

Consequently, this study is justified for the following reasons: 1) the Electronic Cigarette Dependence Index (PS-ECDI; Foulds et al., 2015) has proven to be a useful, valid and reliable instrument in the assessment of e-cigarette dependence (Dowd et al., 2018; Foulds et al., 2015; Piper et al., 2019); 2) appropriately measuring dependence on electronic cigarettes would contribute to the assessment of its harmful consequences and to the creation of public policies that would regulate its use; and 3) to date, its adaptation has not been reported

either in Spanish nor in Colombia. Therefore, the aim of the study was to adapt and assess the psychometric properties of the Electronic Cigarette Dependence Index (PS-ECDI) in a sample of Colombian adults.

2. Method

2.1 Design

The present research is a methodological quantitative study (Montero & León, 2007), since the aim of the study was to adapt and assess the psychometric properties of the Electronic Cigarette Dependence Index (PS-ECDI; Foulds et al., 2015) in a sample of Colombian adults.

2.2 Participants

By means of a non-probability sampling by available subjects, 128 adults, born and living in Colombia, participated, with ages between 18 and 67 years (Mean=27.852; S.D.=8.851), out of which 78.125% were males (for more information about the sample, consult Table 1). All participants were contacted by personal means or via social media advertising; the participation was voluntary and was under the agreements and terms of an informed consent. Participants who reported consuming e-cigarettes continuously in the three months prior to their participation in the study were included; meanwhile, participants who reported being under the effect of psychiatric drugs or other psychoactive substances other than nicotine during their participation, and the ones who did not answer completely the instruments used in the study, were excluded. As a result of the ethical regulations for conducting research with human participants in Colombia (Congreso de la República, 2006; Ministerio de la Salud, 1993), this research is of minimal risk and participation was only given through the acceptance of the informed consent in which the participants were informed of the study objectives and were assured of all the ethical requirements for their participation.

Table 1

Sociodemographic Characteristics of the Participants

Characteristics	F	%
Sex		
Female	28	21.875
Male	100	78.125
Socioeconomic Level		
1	3	2.344
2	23	17.969
3	59	46.094
4	31	24.219
5	7	5.469
6	5	3.906
First use		
Standard Cigarette	98	76.563
Electronic Cigarette	30	23.438
Schooling Level		
High School	19	14.844
Specialist	17	13.281
Master	6	4.688
Undergrad	57	44.531
Elementary	3	2.344
Technologist	16	12.500
Technician	10	7.813
Present user		
Dual	38	29.688
Solo CE	90	70.313

2.3 Instruments

A sociodemographic questionnaire was used, allowing to obtain data on age, sex, place of residence, level of education, monthly income, and socioeconomic level. Another questionnaire asked about the patterns of electronic cigarette consumption; some of the questions were: "Which of the nicotine delivery products did you start consuming with? Currently, which of the following nicotine delivery products do you use regularly? How long have you used the electronic device? How did you find out about the electronic device? How many milligrams per milliliter of nicotine do you use in your electronic device? Finally, when was the last time you used your electronic device?"

Also, the Electronic Cigarette Dependence Index (PS-ECDI) developed by Foulds et al. (2015) was used. The PS-ECDI is a 10-item questionnaire that asks about the frequency, intensity and motivation to consume, withdrawal development, and, finally, difficulty in quitting. Scoring of each item is given by assigning a score between 0 and 5, depending on the risk level represented by each condition, with 0 being the lowest risk and 5 the highest. The total score ranges from 0 to 50 and can be classified into four levels of dependence: low (1 to 5 points), moderate (6 to 17 points), high with signals of onset of dependence (18 to 29 points), and dependence (30 to 50 points); scoring classification is defined by the fulfillment of various criteria, like intensity, frequency, associated problems, and presence of nicotine dependence indicators (see details of the instrument and the scoring system in Appendix I). In previous studies, the instrument has shown internal consistency with a Cronbach α between .71 and .74 (Dowd et al., 2018; Piper et al., 2019).

2.4 Procedure

Initially, the instrument went through a translation-counter-translation process, which consisted of translating the items from English to Spanish and then a second translation into English, in order to guarantee the equivalence of the terms in both languages. Then, 10 expert judges carried out an assessment of the writing, structure, language, and relevance of each item on a Likert-type rating

scale ranging from 1 to 4, where a higher score means a higher assessment of the criterion. After the results of the expert judgment, the items were adjusted according to the level of agreement of the judges to each item and analyzed with the Content Validity Index (CVI) of Lawshe (Lawshe, 1975), plus an assessment of concordance of this validation process was made from Kendalls Coefficient of concordance (W). The items were considered to have low content validity when their criterions (writing, structure, language, and relevance) had CVI values equal to or less than 0.8 (following the recommendations of Pedrosa et al., 2013) and when Kendalls W values were between 0 and 1, plus the level of agreement needed to be statistically significant ($p < .05$) (as suggested by Escobar & Cuervo, 2008).

After the PS-ECDI was adapted to Spanish, the participants filled out the instruments. Once the participants reported accepting the informed consent, in which the general characteristics of the study and the ethical considerations were presented, the sociodemographic questionnaire was handed out, followed by the questionnaire on e-cigarette consumption, and, finally, the Spanish adaptation of the Electronic Cigarette Dependence Index (PS-ECDI). The application process was electronic and was carried out through the Google Forms platform.

Regarding the analysis from the data of the application process, a confirmatory factor analysis was made, replicating the original factor structure, with an EQS-type emulation throughout a robust method to weighing the difficulties of the multivariate normal data with Diagonally Weighted Least Squares estimators (DWLS; Lloret-Segura et al., 2014), with a standardization of the latent variables. The following values were expected: the division of the χ^2 and the degrees of freedom (χ^2/df) should be less than 3; the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Bentler-Bonnett Non-normed Fit Index (NNFI) and the Bollen's Incremental Fit Index (IFI) needed to be greater than .90 (Martínez et al., 2014; Ruiz et al., 2010); plus the Root Mean Square Error of Approximation (RMSEA), less than < .08 (Samperio, 2019). Due to the fact that the number of participants was less than 200, the Pearson Product-Moment Matrix was used for the factor analysis, as recommended by Lloret-Segura et al. (2014).

Finally, the internal consistency coefficient values of Cronbach's Alpha, McDonald's Omega, Gutman Index $\lambda 6$, and the Greatest Lower Bound (GLB) were obtained (Barbero, 2010; Ramos et al., 2015). All of the analyzes explained above were performed using the statistical software Jasp 14.0.

3. Results

3.1 Expert Judgment (Content Validity)

With the results from the judge's assessment, it was observed that the items 1, 2, 5, 6, 7, 9, and 10 —for the writing and language criteria—, the items 9 and 10 —for the structure criteria—, plus the item 3 —for the relevance criteria— presented a CVI less than or equal to .8; therefore, they were adjusted to fit the criteria based on the qualitative comments of the judges. The items that presented a CVI greater than 0.8 for each criterion were considered adequate and were not adjusted. The judge's assessment showed a significant agreement (Kendall's W values between 0 and 1 $p < .05$), with the exception of the items 3, 6, and 7 (see the adapted version of the instrument in Appendix I).

3.2 Level of Electronic Cigarette Dependence

The instrument was successfully applied to the 128 e-cigarette users, and according to the classification suggested for the instrument, it was observed that 3.1% ($n = 4$) of the participants were considered dependent, 19.5% had a high level ($n = 25$), 55.5% ($n = 71$) had a medium level of dependence, 5.5% had a low level ($n = 25$), and 16.4% ($n = 21$) were not dependent on e-cigarettes.

3.3 Confirmatory Factor Analysis

Based on the assessment of the fit indices of the unifactorial model (Table 2), it can be observed that the values show adequate goodness-of-fit indices, and when verifying that all the estimation paraments, plus the residual variances, were also significant ($p < .05$), the suitability of the items grouping in a single factor can be confirmed.

Table 2

Goodness-of-fit Indexes of the Confirmatory Model

Fit indexes	Value
χ^2	120.490
Degrees of freedom	45
χ^2/degrees of freedom	2.677
Comparative Fit Index (CFI)	.947
Tucker-Lewis Index (TLI)	.932
Bentler-Bonett Non-normed Fit Index (NNFI)	.932
Bollens Relative Fit Index (IFI)	.952
Root mean square error of approximation (RMSEA)	.034
Confidence intervals of the RMSEA error (90%)	.000 to .075

3.4 Internal Consistency (Reliability)

As a result of the internal consistency assessment of the scale, the general indicators of McDonald's ω, Cronbach's α, and Guttman's $\lambda 6$ were considered acceptable (between .60 and .70; Nunnally & Bernstein, 1994) and adequate (GLB= .741) (see Table 3; Barbero, 2010; Ramos et al., 2015). When assessing how each item contributed to the results of the reliability indications, it was evident that by eliminating item 2, 5 or 8, the reliability indices values increased, especially for item 8 (see Table 4).

Table 3

Internal Consistency Values of the Scale

	McDonald's ω	Cronbach's α	Guttman's $\lambda 6$	**GLB**
Scale	.607	.624	.685	.741
Limit less than 95%	.437	.559	.584	.670
Limit greater than 95%	.721	.682	.791	.851

Table 4

Internal Consistency Values of the Scale when each of the Items are Dropped

Item	**McDonald's ω**	Cronbach's α	Guttman's $\lambda 6$	**GLB**
1	.590	.607	.607	.720
2	.616	.640	.694	.728
3	.551	.548	.572	.686
4	.565	.556	.577	.695
5	.613	.616	.685	.777
6	.565	.591	.648	.695
7	.560	.578	.638	.692
8	.622	.657	.704	.751
9	.568	.590	.655	.704
10	.569	.592	.660	.697

4. Discussion

The present study aimed to adapt and determine the content validity, structure, and reliability of the Electronic Cigarette Dependence Index (PS-ECDI), developed by Fould's et al. (2015). In order to accomplish it, the instrument first passed through a translation-counter-translation process and the items were validated by expert judgement. Then, the instrument was applied to 128 Colombian adults who consumed e-cigarettes.

The results from the adaptation phase suggested that the instrument was adequately adapted to the Spanish and the Colombian context. The majority of the items were considered suitable by the judges, with observations mainly on redaction and language. Thus, the adjustments were made.

Actually, in the last decade many instruments that assess the consequences of smoking e-cigarettes have been developed (see the review made by Bold et al., 2018). However, in the Latin American context, especially in Colombia, there are no instruments adapted to Spanish that fulfill this purpose. The only assessment regarding the level of dependence of e-cigarettes in Spanish; up to the present day, is the one carried out by González-Roz et al. (2017), in which the researchers used the adaptation for both the Fagerström Test for Nicotine Dependence (FTND; Heatherton et al., 1991) and the Nicotine Dependence Syndrome Scale (NDSS; Shiffman et al., 2004). Even though the data shown by the authors suggest that the instruments correctly assess the dependency of the participants, these adapted instruments are not available for use and the study does not display an evaluation of their psychometric properties. Hence, it is stated that the present study is the first one in Spanish to adapt, assess the psychometric properties, and publicly offer an instrument for assessing the dependence provoked by e-cigarettes so far.

The adjustments made to the instrument, in terms of the language and writing criterion, are in line with the main recommendations made by the literature about the measurement of the consumption of e-cigarettes. For instance, it was observed that the novelty of the products implied an introduction of new concepts and an adaptation of the terms to Colombian culture. Having in mind the recommendations of the judges, the term "vaping" or "using an e-cigarette" was used instead of "smoking" (as advised by Weaver et al., 2018). Moreover, the judges gave proposals for overcoming the difficulty in identifying the unit of consumption of e-cigarettes. As presented in the literature (e.g., Weaver et al., 2018; Bold et al., 2018), it was decided to use, simultaneously, the concepts of "vaping" and "puffs", accompanied by an explanation of what the instrument considers to be the use of an electronic cigarette (see item 1 of the instrument). The adjustment recommendations of the PS-ECDI allowed its Spanish adaptation, the correct application of the instrument to the participants, and the assessment of some of its psychometric properties.

Results from the confirmatory factor analysis showed adequate values in all the goodness-of-fit indicators for a unifactorial model ($p > .05$ for all indicators). These results diverge from what was observed in Piper's et al. study (2019), in which the PS-ECDI did not adjust to a one-dimension model. Nevertheless, the results from the present study are in accordance with the original structure proposed by Foulds et al. (2015), where the

instrument must respond to a single measure of the degree of dependence caused by electronic cigarettes.

Internal consistency analysis demonstrated that, with the exception of GLB, the instrument presented lower indices than those observed in the literature. In the study of Dowd et al. (2018), they found Cronbach's Alpha values of .71, whereas in the one by Piper et al. (2019), they had values of .74. Despite of this, it should be considered that the present study is the first research in which the Spanish version of the PS-ECDI was used, and the sample used was lower compared to other studies. Truly, the study proposed by Dowd et al. (2018) had 210 participants, the one by Piper et al. (2019) had 256, yet the present study had 128 participants, which, in turn, could have contributed to the moderate indices of reliability.

Furthermore, it is worth mentioning that in this study only 3.1% participants presented a considerable level of dependence; the majority of the sample (55%) had a medium level of dependence. This small number of participants in the higher levels of dependence could have contributed for a higher level of variability in the data, as well as for the moderate levels of internal consistency.

Nunnally and Bernstein (1994) affirm that alpha indexes (α) between .5 and .6 are considered to be expected on the initial stages of the development of a scale. Therefore, based on the fact that the present study has indexes above .6, that it has a GLB of .74, which is acknowledged as appropriate, and, as far as it was possible to identify, this is the first study in Spanish that uses the PS-ECDI, it is considered that this scale has acceptable indexes of internal reliability, that the instrument could be used in researches of levels of e-cigarette dependence, and further studies could, in turn, perfection some of its characteristics.

Although the confirmatory factor analysis results suggest that a unidimensional model adjusts to the data, Foulds et al. (2015) and Piper et al. (2019) advise that low levels of internal consistency, as the ones observed in the present study, may imply that the items are assessing different aspects of dependency. The latter affirmation would be in consonance with the proposal by Foulds et al., which stated that the instrument could be capable of assessing the different patterns used as criteria to diagnose users with problems due to nicotine consumption included in the DSM-V, such as frequency of consumption, motivation, withdrawal, difficulty with quitting, and craving.

Based on the suggestion done by Piper et al. (2019), some authors have recently pointed out that, although the aforementioned criteria can be identified in individuals with problems caused by substance dependence, these patterns can be relatively independent and be differentially associated with the possibilities of treatments or interventions (e.g., Witkiewitz & Tucker, 2020; Witkiewitz et al., 2020). These considerations lead to suggest that future studies could, separately, assess the different elements of the PS-ECDI (frequency of consumption, motivation, withdrawal, difficulty in quitting, and craving), include other instruments used in the assessment of similar characteristics (see review of Bold et al., 2018), and assess its correlation with other measures of consumption, for example, the amount of nicotine consumed in mg (as carried out by Foulds et al, 2015) or biomarkers of nicotine concentration in the blood (as in Piper et al., 2019).

As it was previously mentioned, one of the main limitations of the present study is the small number of participants, which may have influenced the internal consistency results lower than what was expected, based on the literature. Also, it is observed that the sample was composed, for the most part, by users with a medium dependence level, with few participants with a high level of dependence or completely dependent on electronic cigarettes. Therefore, it is suggested that future studies assess the psychometric properties of the Spanish adaptation of the PS-ECDI with a larger sample than the one presented in this study, as well as to have a greater number of participants from all levels of dependence of e-cigarettes.

5. Conclusion

As a result of the adaptation process of the Electronic Cigarette Dependence Index (PS-ECDI) developed by Foulds et al. (2015), it can be said, on the whole, that the adjustments made, based on the suggestions of the expert judges, were satisfactory, and in agreement with the recommendations of the literature, which suggests the content validity of the instrument. The confirmatory factorial analysis displays that the instrument has an adequate construct validity and that its items correspond to the assessment of the dependence on electronic cigarettes. Finally, it is observed that the items of the instrument present acceptable indexes of internal consistency. Thus, it can be said that the Spanish version of the PS-ECDI is a valid and reliable instrument that can be used for the objective assessment of dependence on e-cigarettes, which will allow future research on variables related to the consumption and dependence on electronic cigarettes.

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Appendix I

Índice de Dependencia del Cigarrillo Electrónico (Ítems, opciones y Forma de Calificación)

Índice de Dependencia del Cigarrillo Electrónico (IDCE)

1. En un día normal, ¿cuántas veces por día usa su vaporizador/vapeador/cigarrillo electrónico? (asuma que una vez consiste en aproximadamente 15 vapeos/bocanadas o utilizarlos por aproximadamente 10 minutos) _____

Puntuación:

- 0–4 Veces=0
- 5–9 Veces=1
- 10–14 Veces=2
- 15–19 Veces=3
- 20–29 Veces=4
- 30– más Veces=5

2. En los días en que usa su dispositivo electrónico normalmente, ¿cuántas horas o minutos después de despertarse tarda en usar su vaporizador/vapeador/cigarrillo electrónico? Respuesta: Horas _____ o minutos_____

Puntuación:

- Menor – 5 Minutos=5
- 6–15 Minutos=4
- 16–30 Minutos=3
- 31–60 Minutos=2
- 61–120 Minutos=1
- 121– más Minutos=0

3. ¿Se despierta por la noche para usar su vaporizador/vapeador/cigarrillo electrónico?

- a) Si
- b) No

Puntuación:

- Si=5
- No=0

4. En caso de que la respuesta a la pregunta anterior haya sido afirmativa, ¿cuántas veces por semana se despierta en la noche para usar su vaporizador/vapeador/cigarrillo electrónico? _____

Puntuación:

- 0–1 Noches=0
- 2–3 Noches=3
- 4–más noches=5

5. ¿Considera que usa vaporizador/vapeador/cigarrillo electrónico (con nicotina) porque es muy difícil dejar de fumar?

- a) Si
- b) No

Puntuación:

- Si=5
- No=0

6. ¿Alguna vez ha presentado fuerte deseo de usar su vaporizador/vapeador/cigarrillo electrónico?
   - a) Si
   - b) No

Puntuación:
   - Si=5
   - No=0

7. Durante la semana pasada, ¿qué tan fuertes fueron sus deseos de usar su vaporizador/vapeador/cigarrillo electrónico?
   - a) No ha presentado
   - b) Bajo
   - c) Moderado
   - d) Fuerte

Puntuación:
   - No ha presentado=0
   - Bajo=1
   - Moderado=3
   - Fuerte=5

8. ¿En lugares en los que **NO** es adecuado usar vaporizador/vapeador/cigarrillo electrónico, le es difícil controlarse para **NO** hacerlo?
   - a) Si
   - b) No

Puntuación:
   - Si=5
   - No=0

9. Cuando lleva un tiempo sin utilizar un vaporizador/vapeador/cigarrillo electrónico o ha intentado dejar de utilizarlo, ¿se sintió más irritable por no poder hacerlo?
   - a) Si
   - b) No

Puntuación:
   - Si=5
   - No=0

10. Cuando lleva un tiempo sin utilizar vaporizador/vapeador/cigarrillo electrónico o ha intentado dejar de utilizarlo, ¿alguna vez se sintió nervioso, inquieto o ansioso porque **NO** podía hacerlo?
   - a) Si
   - b) No

Puntuación:
   - Si=5
   - No=0

Puntuación total:
   - 0–3=No dependiente
   - 1–5= Dependencia baja
   - 6–17=Dependencia media
   - 18–29=Dependencia alta
   - 30–50=Dependiente