

ORIGINAL ARTICLE

A BRIEF OVERVIEW OF DIFFERENT NICOTINE ADDICTION SCALES

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ABSTRACT

Substance abuse is a serious public health problem across the world and is one of the biggest curses that modern society is facing. The assessment of nicotine addiction has been considered as a key topic as research into tobacco addiction progresses. Improved measurement may be required to make progress in tobacco research. The way nicotine addiction is defined and assessed can have an impact on the findings and interpretations of studies and clinical trials. The Fagerström Tolerance Questionnaire (FTQ) and its shorter counterpart, the Fagerström Test for Nicotine Dependence (FTND), are the most well-known measures in terms of history and have been utilised in clinical and research contexts. The Fagerström scales, on the other hand, were designed to assess physical tolerance and thus do not assess several important aspects of nicotine dependence, such as cravings, subjective compulsion to smoke, nicotine withdrawal, behavioural saliency, or behavioural automaticity, which are frequently regarded as core constructs for dependence. Some evaluation instruments have been created in order to capture various features of nicotine addiction. Each new iteration of these scaling algorithms improves on the previous one. The purpose of this article is to provide a quick overview of several scales and to explore their properties.

Keywords: Nicotine, behavioral, Fagerstrom. Dependence, Smoking

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INTRODUCTION

Substance abuse is a serious public health problem across the world and is one of the biggest curses that modern society is facing. Of the various substances used, the most widely used is tobacco. In 2011, 1.2 billion persons were using tobacco, which was expected to rise to 1.6 billion by 2020. Tobacco consumption is responsible for half of all the cancers in men and a quarter of all cancers in women. Oral cancer is the third leading cause of death among tobacco users. 90% of oral cancers are caused by tobacco use in some form and more than half are caused by SLT use. (1,2)

The assessment of nicotine addiction has been considered as a key topic as research into tobacco addiction progresses. Improved measurement may be required to make progress in tobacco research. The way nicotine addiction is defined and assessed can have an impact on the findings and interpretations of studies and clinical trials.(3)

The Fagerström Tolerance Questionnaire (FTQ) and its shorter counterpart, the Fagerström Test for Nicotine Dependence (FTND), are the most well-known measures in terms of history and have been utilised in clinical and research contexts. The Fagerström scales, on the other hand, were designed to assess physical tolerance and thus do not assess several important aspects of nicotine dependence, such as cravings, subjective compulsion to smoke, nicotine withdrawal, behavioural saliency, or behavioural automaticity, which are frequently regarded as core constructs for dependence. (3-6)

Nicotine addiction may also be diagnosed using diagnostic criteria from the American Psychiatric Association's Diagnostic and Statistical Manual (DSM) and the World Health Organization's International Classification of Diseases 10th version (ICD-10). The Tobacco Dependence Screener (TDS, which will be discussed later) is a 10-item questionnaire that is used to test for tobacco/nicotine addiction using these criteria.(7-10)

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a quick overview of several scales and to explore their properties.

Nicotine Dependence scales

1. Fagerström Tolerance Questionnaire (FTQ) (5) was given in the year 1978 by Fagerström. It contains 8 Items to measure physical dependence which includes withdrawal response and tolerance. Three tests were conducted to assess the validity of the Tolerance Questionnaire, which was designed to quantify physical reliance on nicotine. The three experiments used (1) a withdrawal response defined as a change in body temperature, (2) a degree or acquired increase in tolerance defined as a heart rate increase for regular smokers while smoking a cigarette, and (3) initial tolerance defined as a heart rate increase for ex-smokers while smoking a cigarette as indicators of physical dependence.

2. Fagerström Test for Nicotine Dependence (FTND) (6) is a 6-item scale given by Todd F. Heatherton et al in the year 1991 by revising the items in the FTQ. Morning smoking (Time to First Cigarette of the Day, Smoking in the Morning, Hating to Give Up Morning Cigarettes) and cigarettes consumed per day were among the domains (CPD, Smoke if ill, Trouble refraining). In 254 smokers, the relationship between each FTQ item and biochemical indicators of smoking heaviness was investigated. The nicotine rating and inhalation items were shown to be unrelated to any of the biochemical indicators, and these two items were the principal contributors to the FTQ's psychometric flaws. The scale was also enhanced by re-scoring the time to the first cigarette of the day (TTF) and the number of cigarettes smoked per day (CFD).

3. The Cigarette Dependence Scale (CDS) (11) was given by Jean-Francois Etter. The CDS-12 scale is a 12-item scale that evaluates various aspects of formal diagnostic systems' (e.g., DSM-IV and ICD-10) criteria of addiction, with a focus on urge to smoke, withdrawal, loss of control, time allocation, neglect of other activities, and perseverance despite damage. This device does not assess tolerance. There are also questions on self-perceptions of addiction and smoking rates. A five-point Likert scale was used to choose responses.

4. The Nicotine Dependence Syndrome Scale (NDSS) (12) is a 19 Items scale developed by Saul Shiffman in 2004. It's a novel multi-dimensional assessment of nicotine addiction, with five ratings for distinct facets of addiction and a total score. Drive (craving and withdrawal, as well as subjective urge to smoke), priority (desire for smoking over other reinforcers), tolerance (lower sensitivity to the effects of smoking), consistency (smoking rate consistency), and stereotypy are among the domains (invariance of smoking).

5. The Wisconsin Inventory of Smoking Dependence Motives (WISDM)- (13)

The Wisconsin Index of Smoking Dependence Motives (WISDM) consists of 68 items that assess 13 different motivational domains, including affiliative attachment, automaticity, loss of control, behavioural choice/melioration, cognitive enhancement, craving, cue exposure/associative processes, negative reinforcement, positive reinforcement, social/environmental goals, taste/sensory properties, tolerance, and weight control. The total scale's alpha coefficients vary from .98 to .99, whereas the various subscales' alpha coefficients range from .88 to .96.

6. The Heaviness of Smoking Index (HSI) (14) – The HIS was created in 1989 by Heatherton, Kozlowski, Frecker, Rickert, and Robinson. Time to first cigarette (TTFC) and smokes per day are two of the items (CPD). Both variables have predictive validity, according to recent research, however some studies imply that TTFC is more predictive, and at least one study demonstrated a curvilinear impact, with moderate dependents being the least likely to quit.

7. Hooked on Nicotine Checklist (HONC)(15) is a 10-item scale given by Joseph DiFranza in 2002. The HONC is a 10-item questionnaire designed to assess the onset and severity of tobacco addiction. The HONC is used to determine whether an adolescent has lost complete control over their tobacco usage. The authors describe this as when the consequences of tobacco use, whether physical or psychological, provide a barrier to quitting. A positive response to any HONC item indicates a loss of autonomy and the beginning of dependency. The quantity of affirmative replies is said to represent the level of reliance.

8. The Autonomy Over Smoking Scale (AUTOS)(16), a 12-item scale was given by Joseph R DiFranza in 2009. Withdrawal symptoms, psychological dependency, and cue-induced cravings are the three domains of the measure. The following are some of the new instrument's potentially useful features: (a) it assesses tobacco withdrawal, cue-induced craving, and psychological dependence on cigarettes; (b) it measures symptom intensity; and (c) it only asks about current symptoms, so it could be used to track the resolution of symptoms in quitting smokers.

9. Tobacco Dependence Screener (TDS)(17) developed by Kawakami consists of 10- Items which includes smoking more than he/she intended, a desire to quit smoking and unsuccessful efforts to quit smoking, craving for tobacco, withdrawal symptoms, smoking to avoid withdrawal symptoms, smoking despite a serious illness, smoking despite health problems, smoking despite mental problems, feeling dependent on tobacco, and giving up important activities for smoking.

10. Diagnostic and Statistical Manual of Mental Disorder (DSM-IV)(18) was developed by American Psychiatric Association in 1994. The domains to assess nicotine addiction include smoking heaviness, latency to smoke upon awakening, craving to smoke, and withdrawal severity.

11. Smoking Consequences Questionnaire-Adult (SCQ-A)(19)- The original Smoking Consequences Questionnaire (SCQ; T. H. Brandon & T. B. Baker, 1991) measured college students' outcome expectancies for cigarette smoking. A version (SCQ-Adult) was needed for assessing expectancies in more typical, older, nicotine-dependent smokers. The scale consisted of 55 items in various domains which includes Negative Affect Reduction (NAR), Stimulation/State Enhancement (SSE), Health Risk (HR), Taste/Sensorimotor Manipulation (TSM), Social Facilitation (SF), Weight Control (WC), Craving/Addiction (CA), Negative Physical Feeling (NPF), Boredom Reduction (BR) and Negative Social Impression (NSI).

12. Brief form of the Smoking Consequences Questionnaire-Adult (BSCQ-A) (20) – given by Mark G. Myers (2003) contains 25 items. . This modified version of the SCQ examines teenagers' and young

adults' cigarette smoking outcome expectations. The chance of each smoking consequence question is rated on a 10-point Likert scale (0=completely improbable to 9=completely likely) in this 21-item self-report assessment. Negative Consequences (4 items), Positive Reinforcement (5 items), Negative Reinforcement (7 items), and Appetite-Weight Control are the four components that are consistent with the original SCQ subscales (5 items).

13. Questionnaire on Smoking Urges- (QSU)(21): Tiffany & Drobes created the QSU in 1991 to indicate four different types of smoking urges: "(1) desire to smoke; (2) anticipation of an immediate good result from smoking; (3) anticipation of quick respite from nicotine withdrawal or relief from negative consequence; (4) intention to smoke." The Questionnaire on Smoking Urges-Brief (QSU-Brief) was created as a shortened version with only two domains and ten items, covering Intention/Desire to Smoke, Relief of Negative Affect, and Urgent Desire to Smoke.

14. The Tobacco Craving Questionnaire (TCQ)(22) – The Nicotine Craving Questionnaire (TCQ) is a 47-item self-report tool that evaluates tobacco craving on four dimensions: emotionality, expectation, compulsivity, and purposefulness. The TCQ Short Form (TCQ-SF) version has 12 items with three questions for each of the four domains.

15. Minnesota Nicotine Withdrawal Scale (MNWS)(23) –This eight-item scale measures withdrawal symptoms (i.e., craving, irritability, anxiety, difficulty concentrating, restlessness, increased appetite or weight gain, depression, and insomnia) listed in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 1994), and these symptoms are generally scored on an ordinal scale ranging from 0 (not present) to 4 (severe).

16. Positive and Negative Affect Schedule (PANAS)(24) was developed by Watson, D., Clark, L. A., & Tellegen, A. in 1988. The Positive and Negative Affect Schedule (PANAS) is a self-report questionnaire that consists of two 10-item scales to measure both Positive affect (PA: active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, strong) and Negative affect (NA: afraid, ashamed, distressed, guilty, hostile, irritable, jittery, nervous, scared, upset).

Each item is rated on a 5-point scale of 1 (not at all) to 5 (very much).

17. Four C model (25)

The four c includes

- Compulsion—the intensity with which they desire to use a chemical overwhelms the patient's thoughts, feelings, and judgment.
- Control—the degree to which patients can (or cannot) control their chemical use once they have started using.
- Cutting down—the effects of reducing chemical intake; withdrawal symptoms.
- Consequences- Withdrawal symptoms

CONCLUSION

We've gone over the several scales that are used to measure nicotine addiction. Multidimensional scales have been created to broaden the scope of hypotheses and mechanisms behind nicotine addiction. Nicotine dependency is a diverse construct, according to the sources that describe the process of generating these metrics. Continual efforts to capture various facets of nicotine addiction are required. Because these scales are utilised locally, taking advantage of their properties and comparing them across populations might be useful in determining the hereditary and non-genetic basis of nicotine dependency.

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