



A comparison of the psychometric properties of the hooked on nicotine checklist and the modified Fagerström tolerance questionnaire

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Abstract

We compared the psychometric properties of the Hooked on Nicotine Checklist (HONC) and the Modified Fagerström Tolerance Questionnaire (MFTQ). Adolescent current smokers ($n=215$) completed both instruments three times, at baseline and 6- and 12-month follow-up. Internal consistency of the HONC was high ($\alpha=0.92$), as was its stability over the follow-up interval (intraclass correlation (ICC)=0.93 over 6 months and 0.91 over 1 year). Internal consistency of the MFTQ was acceptable ($\alpha=0.83$), and its stability over the follow-up interval was similar to that reported previously (ICC=0.79 at 6 months and 0.76 at 1 year). The HONC predicted smoking at both follow-up points, while the MFTQ did so only at 6 months. The HONC compared favorably with the MFTQ in all respects. The most important advantage of the HONC is that it is measuring a clearly defined concept, diminished autonomy over tobacco, which begins when the sequelae of tobacco use present a barrier to quitting. © 2005 Elsevier Ltd. All rights reserved.

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In 2002 the U. S. Office on Smoking and Health reported that 29% of high school students smoked (Office on Smoking and Health, 2002). In 2003 an estimated 3.6 million youths used tobacco in the previous month, and approximately 5300 youths began to smoke every day (Substance Abuse and Mental Health Services Administration, 2004). Much remains to be done to reduce youth smoking rates to 16% or less by 2010, a goal of the U.S. government's *Healthy People 2010* initiative (U.S. Department of Health and Human Services, 2000).

The age at which youths begin to use tobacco is crucial; nicotine dependence is more severe when use begins during childhood or early adolescence (Chen & Millar, 1998). Recent studies provide strong evidence that adolescents are uniquely susceptible to nicotine (Abreu-Villaca et al., 2003; Brown & Kolb, 2001; Faraday, Elliott, Phillips, & Grunberg, 2003), that they develop symptoms of dependence very quickly, and that they have difficulty quitting smoking (DiFranza et al., 2002a; O'Loughlin, DiFranza et al., 2002; Wellman, DiFranza, Savageau, & Dussault, 2004). Yet for decades the medical literature reflected an underlying assumption that nicotine dependence did not develop until a person had smoked for approximately 2 years (Leventhal & Cleary, 1980), and current criteria for diagnosing dependence reflect the end-stage of a long process (e.g., American Psychiatric Association, 2000 (4th ed., text revision); World Health Organization, 1992 (10th rev.)).

DiFranza et al. (2002b) proposed that a smoker whose symptoms present a barrier to quitting has lost some autonomy over her or his use of tobacco. They developed the Hooked on Nicotine Checklist (HONC) to screen smokers for diminished autonomy. The HONC has proven reliable and valid for use in screening both adolescents and adults (Wellman et al., 2005; Wheeler, Fletcher, Wellman, & DiFranza, 2004). Although the HONC is now widely used in research settings, previous studies have not afforded an opportunity to compare it directly to the Modified Fagerström Tolerance Questionnaire (MFTQ), which is popularly used with adolescents (Prokhorov, de Moor, Pallonen, Hudmon, Koehly, & Hu, 2000; Prokhorov, Koehly, Pallonen, & Hudmon, 1998; Prokhorov, Pallonen, Fava, Ding, & Niaura, 1996). In the present paper we compare the psychometric properties of the HONC to those of the MFTQ in a year-long prospective study.

1. Methods

1.1. Subjects

Potential subjects for this study were 252 current smokers (defined as having smoked at least one cigarette in the month preceding baseline) selected from a larger cohort ($n=2709$) recruited for a randomized controlled trial evaluating the efficacy of a provider- and peer-delivered counseling intervention to reduce the prevalence of cigarette smoking among adolescents seen for routine pediatric care. Eight pediatric clinics in Massachusetts participated. Patients eligible for the trial were scheduled for a visit at one of the study sites. They completed a baseline survey prior to seeing their pediatric health care provider, and follow-up assessments at 6 and 12 months. The University of Massachusetts Medical School's Committee for Protection of Human Research Subjects approved the study.

The analyses in this paper are based on the 215 subjects who completed both the HONC and the MFTQ at baseline. Subjects ranged in age from 14 to 20 years ($M=17.7$, $S.D.=1.2$); 55% were female; 92% were white non-Hispanic, 3% were Black non-Hispanic, 1.4% were Hispanic, 0.5% were Asian, and 3% classified themselves as 'other'. Fifty-nine subjects (27%) were daily smokers and 72% percent

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