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Addictive Behaviors 31 (2006) 581–592

ADDICTIVE BEHAVIORS

The relationship between impaired decision-making, sensation seeking and readiness to change in cigarette smokers

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Abstract

Objective: The study investigated whether impaired decision-making as measured by the Gambling Task and Sensation Seeking, on one hand, and nicotine-dependence and readiness to change, on the other hand, show mutual influences in cigarette smokers.

Methods: Cigarette smokers were classified as dependent or non-dependent smokers. Assessment included stages of change (RCQ), decisional balance (DBS), Sensation Seeking Scale Form-V (SSS-V), and performance on the Gambling Task (GT).

Results: With the exception of a significant higher score in the SSS-V subscale Experience Seeking in dependent smokers, correlations between nicotine-dependence and cognitive features were not significant. The directions of the non-significant differences were not consistent. No significant relationship was found between the SSS-V and the GT, on one hand, and the readiness to change smoking behaviour, on the other hand.

Conclusions: The results of the present study suggest that impaired performance on the GT and high scores in Sensation Seeking do not play an important role in nicotine-dependence and readiness to change smoking behaviour or vice versa.

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Keywords: Nicotine-dependence; Motivation to quit; Personal factors

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0306-4603/$ - see front matter © 2005 Elsevier Ltd. All rights reserved.
doi:10.1016/j.addbeh.2005.05.038

1. Introduction

Tobacco smoking is the single most important preventable health risk in the developed world, and an important cause of premature death world-wide (Fagerström, 2002). Among tobacco products, the cigarette is the most frequently consumed (Grise, 1992).

Based upon the ICD-10 criteria for tobacco with respect to nicotine-dependence, 70 to 80% of the smokers can be classified as dependent smokers (Batra & Fagerström, 1997). Thus, tobacco (cigarette) smoking is the most common substance use disorder with regard to its widespread consumption.

Although most smokers are aware of the enormous health risks due to cigarette smoking (American College of Physicians Health and Public Policy Committee, 1985), only about 20 to 60% of them report readiness to quit smoking within the foreseeable future of the next 6 months (Rumpf, Meyer, Hapke, Dilling, & John, 1998; Velicer et al., 1995; Wewers, Stillman, Hartman, & Shopland, 2003). Thus, the question arises why so many smokers do not intend to give up smoking, especially because many of the adverse health effects and increased health risks are reversible when people stop smoking (Shopland & Burns, 1993). Therefore, this study aimed at finding variables that have an impact on the readiness to quit smoking. The theories of Sensation Seeking (Zuckerman, 1979) and impaired decision-making as measured by the GT (Bechara, Damasio, Damasio, & Anderson, 1994) may provide such variables which influence or which are influenced by nicotine-dependence and motivational state. Until we started our research project, these relationships had not been investigated.

Most smokers know about the long-term health risks of tobacco smoking, but their motives for smoking reflect immediate needs, like reduction of tension or improvement of concentration. In this respect, smokers reveal characteristic features underlying the theory of impaired decision-making as measured by the GT. In its original sense, impaired decision-making implies the inability to integrate earlier and available experiences and knowledge about similar situations and different option-outcome pairs (Bechara, Damasio, & Damasio, 2000). Persons with impaired decision-making prefer options that bring an immediate benefit but involve greater loss and damage in the future, although they know what is likely to happen when choosing a disadvantageous option.

Until now, several studies gave evidence for relationships between impaired performance on the GT and dependence on alcohol, cocaine, heroin, stimulants, and in polydrug abusers (Bechara et al., 2001: alcohol, cocaine, methamphetamine; Grant, Contereggi, & London, 2000: polydrug abusers; Petry, Bickel, & Arnett, 1998: heroin).

The Transtheoretical Model posits that change of a problem behaviour, like smoking, involves progressing through different motivational stages which reflect the current readiness to quit smoking (Prochaska & DiClemente, 1983; Prochaska & Prochaska, 1991). During the early stages of change, cognitive processes (Perz, DiClemente, & Carbonari, 1996) and decisional balance (DiClemente & Prochaska, 1982) have been identified as decisive for producing progress.

Sensation Seeking describes "...the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience" (Zuckerman, 1979: p. 10). The theoretical background is the assumption of an optimal level of arousal which is interindividually different (Zuckerman, 1969). Sensation Seeking behaviour serves this purpose in order to guarantee well-being and mental balance. Therefore, situations are sought that the Sensation Seeker (subjectively) regards as stimulating. Correlates of Sensation Seeking are among others cortical arousal, neuroendocrine activation and positive reinforcement (Brocke, Strobel, & Müller, 2003; Möller, Hell, & Kröber, 1998). Because nicotine has stimulating properties by triggering exactly these effects (Fisher,

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