



Behavioral measures of risk taking, sensation seeking and sensitivity to reward may reflect different motivations for spicy food liking and consumption



Nadia K. Byrnes ^{a, b, 1}, John E. Hayes ^{a, b, *}

^a Sensory Evaluation Center, College of Agricultural Sciences, The Pennsylvania State University, University Park, PA, 16802, USA

^b Department of Food Science, College of Agricultural Sciences, The Pennsylvania State University, University Park, PA, 16802, USA

ARTICLE INFO

Article history:

Received 9 September 2015

Received in revised form

25 January 2016

Accepted 28 April 2016

Available online 29 April 2016

Keywords:

Sensation seeking

Sensitivity to reward

BART

Spicy food

Capsaicin

PID5

ABSTRACT

Based on work a quarter century ago, it is widely accepted personality traits like sensation seeking are related to the enjoyment and intake of spicy foods; however, data supporting this belief is actually quite limited. Recently, we reported strong to moderate correlations between remembered spicy food liking and two personality traits measured with validated questionnaires. Here, participants consumed capsaicin-containing strawberry jelly to generate acute estimates of spicy food liking. Additionally, we used a laboratory-based behavioral measure of risk taking (the mobile Balloon Analogue Risk Task; mBART) to complement a range of validated self-report measures of risk-related personality traits. Present data confirm Sensation Seeking correlates with overall spicy meal liking and liking of the burn of a spicy meal, and extends prior findings by showing novel correlations with the liking of sampled stimuli. Other personality measures, including Sensitivity to Punishment (SP), Sensitivity to Reward (SR), and the Impulsivity and Risk Taking subscales of the DSM5 Personality Inventory (PID-5) did not show significant relationships with liking of spicy foods, either sampled or remembered. Our behavioral risk taking measure, the mBART, also failed to show a relationship with remembered or sampled liking. However, significant relationships were observed between reported intake of spicy foods and Sensitivity to Reward, and the Risk Taking subscale of the PID-5 (PID5-RT). Based on the observed patterns among various personality measures, and spicy food liking and intake, we propose that personality measures may exert their influence on intake of spicy food via different mechanisms. We also speculate that Sensation Seeking may reflect motivations for consuming spicy foods that are more intrinsic, while the motivations for eating spicy foods measured by SR and PID5-RT may be more extrinsic.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Myriad reasons have been proposed to explain the large individual differences in consumption of foods that elicit sensations that are initially aversive. These include biological reasons, such as genetic effects (Allen, McGeary, & Hayes, 2014; Kim et al., 2004; Perry et al., 2007; Tærnwall, Silventoinen, Kaprio, & Tuorila, 2012), differences in oral anatomy (Bartoshuk, 1993; Miller & Reedy, 1990), and physiology (Duffy & Bartoshuk, 2000; Duffy,

2007), which may make someone more or less sensitive to innately aversive sensations on their first encounter. Here, we focus on the burn from chili peppers, as capsaicin (the active ingredient) paradoxically triggers appetitive or chemofensive responses, depending on concentration and context. Desensitization (i.e., the drop in perceived intensity following repeated exposure) (Cliff & Green, 1996; Cowart, 1981; Green & Rentmeister-Bryant, 1998; Green, 1989, 1996; Karrer & Bartoshuk, 1991; Lawless, Rozin, & Shenker, 1985; Prescott & Swain-Campbell, 2000; Rozin & Schiller, 1980; Stevenson & Prescott, 1994), may also influence the liking of spicy foods. Reports on the importance of desensitization conflict, as some suggest the supposed increased liking is merely an effect of decreased sensitivity (Logue & Smith, 1986; Rozin & Schiller, 1980; Rozin, 1990a, 1990b), while others suggest that the effects of desensitization on liking are minimal (Rozin & Schiller, 1980; Rozin,

* Corresponding author. Department of Food Science, Pennsylvania State University, 220 Food Science Building, University Park, PA, 16802, USA.

E-mail address: jeh40@psu.edu (J.E. Hayes).

¹ Current address: Department of Viticulture & Enology, University of California – Davis, One Shields Avenue, Davis, CA, 95616–5270, USA.

Mark, & Schiller, 1981).

While there may or may not be differences in initial sensitivity to capsaicin that are innate, there are clearly large individual differences in the affective responses to the burn capsaicin elicits (Rozin & Schiller, 1980; Stevenson & Yeomans, 1993). Social and cultural effects also play a role in the development of liking for spicy foods. Some work (Zajonc, 1968) suggests repeated exposure to spicy foods and specific types of cuisines increases the liking for these foods (Logue & Smith, 1986), consistent with the mere exposure hypothesis (Zajonc, 1968). Cultural factors, such as the desire to be perceived as an adult, or the desire to be involved in cultural customs, may also influence the liking of spicy foods (Rozin & Schiller, 1980; Rozin & Vollmecke, 1986; Stevens, 1990).

A variety of personality traits have been associated with the liking of spicy foods. Work beginning in the 1970's and continuing through the early 1990's associated the liking of spicy foods and spices with personality traits such as sensation seeking and thrill seeking (Kish & Donnenwerth, 1972; Logue & Smith, 1986; Rozin & Schiller, 1980; Rozin, 1990b; Stevens, 1990; Terasaki & Imada, 1988). This body of work theorizes there is a link between trait sensation seeking and the liking of spices and spicy foods. More recent work has been conducted evaluating the relationship between personality and liking of spicy foods, with reports suggesting that spicy food liking is linked with trait anger (Ji, Ding, Deng, Jing, & Jiang, 2013) and Extraversion (Wheeler & Berger, 2007). Although suggestive, much of the work looking specifically at sensation seeking was not performed using validated measures of personality, or was not conducted in large enough groups to allow for statistical analysis. Recently, we (Byrnes & Hayes, 2013) reported empirical evidence of strong correlations between validated measures of Sensation Seeking (Arnett, 1994) and Sensitivity to Reward (Torrubia, Avila, Moltà, & Caseras, 2001), and the liking and intake of spicy foods, suggesting individuals high in Sensation Seeking and Sensitivity to Reward are more likely to like spicy foods than individuals low in these traits. Around the same time, Ludy and Mattes failed to observe this relationship (Ludy & Mattes, 2012), although it seems likely these divergent findings may result from a smaller sample size or their use of a brief measure of sensation seeking for adolescents (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002) that may not measure the same construct as the longer adult Sensation Seeking inventory we used.

Many related traits such as impulsivity, behavioral constraint, disinhibition, thrill seeking, and risk taking have been associated with risky behaviors, including alcohol and drug consumption, theft, risky sexual behavior, and risky driving behavior (i.e., drunk driving, speeding, not wearing a seatbelt, etc.) (Aklin, Lejuez, Zvolensky, Kahler, & Gwadz, 2005; Fernie, Cole, Goudie, & Field, 2010; Greene, Krmar, Walters, Rubin, & Hale, 2000; Grossarth-Maticke & Eysenck, 1991; Hopko et al., 2006; Jonah, 1997; Lauriola & Levin, 2001; MacPherson, Magidson, Reynolds, Kahler, & Lejuez, 2010; Marino et al., 2013; Powell, Hardoon, Derevensky, & Gupta, 1999; Stanford, Greve, Boudreaux, Mathias, & Brumbelow, 1996; Stout, Rock, Campbell, Busemeyer, & Finn, 2005; Zurborg, Yurgionas, Jira, Caspani, & Heppenstall, 2007). Accordingly, associations between these traits and behaviors justifies classifying them as risk-related traits. While there is controversy about where these traits fall in the hierarchical organization of personality (e.g., Costa & McCrae, 1998; Eysenck & Eysenck, 1978b; Zuckerman, 2002), and about the exact definition of the related traits (e.g., Arnett, 1994; Cloninger, 1987; Zuckerman, Kolin, Price, & Zoob, 1964), it is agreed that many of these traits are multidimensional (Dawe & Loxton, 2004; Evenden, 1999; Lauriola, Panno, Levin, & Lejuez, 2014; Lejuez et al., 2002). The variety of conceptualizations of these traits has led to an assortment of personality scales designed to measure these traits.

Previously, the relatedness of such personality instruments has been assessed using correlations (e.g., Torrubia et al., 2001; Zuckerman & Cloninger, 1996), but this approach can only provide information about the extent of overlap between the instruments themselves. As an alternative, comparing the common behaviors that two personality scales associate with provides more nuanced information as to whether the scales are measuring similar dimensions of the specific trait. For example, if two scales that are designed to measure impulsivity both associate strongly with the tendency of an individual to drive drunk, it is likely that they measure similar dimensions of trait impulsivity.

Assessment of trait influences on risky behaviors has often relied heavily on the use of self-report instruments that measure constructs such as Sensation Seeking (Zuckerman et al., 1964), Venturesomeness (Eysenck & Eysenck, 1978a), Impulsivity (Barratt, 1985; Eysenck & Eysenck, 1978a), and deficits in behavioral constraint (Tellegen & Waller, 2008). While these constructs certainly overlap with risk taking, none fully capture the multidimensional nature of risky behavior. Additionally, self-report measures are limited in that certain individuals may not be able to provide an accurate report of their own behavior. It is also possible that individuals perceive certain consequences or stigma associated with reporting risky behaviors, which may also influence the fidelity of self-report measures of risk taking. Alternatively, behavioral measures of risk taking, such as the Bechara Gambling Task (BGT; Bechara, Damasio, Damasio, & Anderson, 1994), also have their own advantages and disadvantages (Lejuez et al., 2002). Accordingly, it has been recommended that the best approach is to use both self-report and behavioral measures, as they may provide complementary information (Meyer et al., 2001; Weiner, 2005).

One relevant behavioral measure is the Balloon Analogue Risk Task (BART; Lejuez et al., 2002). Scores on this measure have been significantly correlated with relevant measures of risk-related personality constructs including Sensation Seeking total score, Barratt Impulsiveness total score, Eysenck Impulsivity subscale score, and the MPQ Behavioral Constraint superfactor score (Holmes et al., 2009; Hopko et al., 2006; Lejuez, Aklin, Jones, et al., 2003; Lejuez et al., 2002). The BART also correlates well with measures of real-life risky behavior, such as alcohol use, number of drugs used in the past year, and smoking behavior (Lejuez et al., 2002). This measure has seen limited use in the field of food choice research (Lejuez et al., 2002).

In addition to exploring relationships between measures of personality, perceived intensity of burning sensations, and liking and intake of capsaicin containing foods, here we also explore the possibility that individuals exhibit different responses to varying levels of capsaicin. In the sweet (Drewnowski, Henderson, Shore, & Barratt-Fornell, 1997; Lundgren et al., 1978; Pangborn, 1970) and sour (Molinier, Prescott and Hayes, submitted for review) liking literature, multiple response types have been observed. These responses, were summarized by Drewnowski and colleagues as inverted-U (Type I), linear increasing (Type II), linear decreasing (Type III) responses, and a flat response style (Type IV) where no systematic change in response is observed with increased concentration of stimulus (Drewnowski et al., 1997). Accordingly, we wished to clarify whether reported liking of increased capsaicin concentrations can be attributed to decreased sensitivity (Logue & Smith, 1986; Rozin & Schiller, 1980; Rozin, 1990a) or whether some individuals actually enjoy the pungency of capsaicin, regardless of the perceived intensity of the burn (Rozin & Schiller, 1980; Rozin et al., 1981).

Here, we expand on prior work by examining relationships between liking of spicy foods and personality traits using a range of self-report and behavioral measures of risk-related personality traits, including Arnett's Inventory of Sensation Seeking (AISS;

Download English Version:

<https://daneshyari.com/en/article/7307587>

Download Persian Version:

<https://daneshyari.com/article/7307587>

[Daneshyari.com](https://daneshyari.com)