Validation of an online questionnaire measure of the relative reinforcing value of food

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Introduction
Typically, the relative reinforcing value of food (RRV-F) is assessed using a laboratory-based computerized choice task wherein participants work for units of food. Despite yielding important information, measuring the RRV-F in the laboratory is time consuming and generally allows for the examination of only small sample sizes. Although a paper-and-pencil questionnaire measure of the relative reinforcing value of two food reinforcers has been established and validated (see Goldfield, Epstein, Davidson, & Saad, 2005), this too was designed for laboratory administration. The aim of the current investigation was thus to validate a questionnaire measure of the RRV-F deployed using an online survey methodology. The advantages of online data collection include reduced administration time, lower cost, greater anonymity, and increased ability to recruit from larger samples (Granello & Wheaton, 2004).

Methods
The full sample included 281 undergraduate college students, 72% of whom were female, with a self-reported mean BMI of 25.67 (SD = 5.66). Students were invited to complete a 20-30 min online survey. The online survey assessed demographic variables, liking for chocolate and cheese, self-reported height and weight, and the RRV-F. Eligible survey participants (N = 21; female, non-pregnant, non-smokers, and without carpal tunnel syndrome) were also invited to take part in an experimental laboratory food choice task lasting 30 min. Participants were asked to refrain from eating 2 hr prior to the experiment. They were told that unit food amount would remain constant (1 piece per trial), but response requirement (i.e., number of mouse button presses) would increase on successive trials. Food was consumed post-session.

Results
The online RRV-F instrument showed strong predictive validity for laboratory food choice behavior, convergent validity with overweight status, and discriminant validity with unrelated constructs (age, gender, height).

Data Analysis
There was a significant positive skew for responses to the online questionnaire. Therefore, non-parametric correlations were used to assess the association between online and laboratory food choice responding and their relationships with height, age, gender, and BMI. Consistent with studies that have assessed the association between food reinforcement and BMI (e.g., Giesen et al., 2010), participants were classified as normal weight (BMI < 25 kg/m²) or overweight (BMI ≥ 25 kg/m²). A binary version of the online measure of the RRV-F was created and chi-square analyses were conducted to examine whether food choice responding on the online questionnaire differed between overweight and non-overweight respondents.

Discussion
• This was the first study to validate an online questionnaire measure of the RRV-F
  The online RRV instrument showed strong predictive validity for laboratory food choice behavior and convergent validity with overweight status. Discriminant validity was supported by a lack of association between data from the online measure of the RRV-F and theoretically unrelated constructs (age, gender, and height).

Advantages of online assessment of the RRV-F
• The relative privacy of online assessment may be preferable for assessing eating behavior, given the secretive nature of various forms of disordered eating (APA, 2000).
• Relative to completing a food choice task in the laboratory, online data collection also requires less time, is more cost-efficient, and affords greater candor in responding.
• More respondents were recruited utilizing this online survey methodology relative to studies assessing food choice behavior in the lab (Epstein & Dearing, 2010; Reslan et al., 2011).

Future Research
• Focus on validating this questionnaire with a clinical sample.