10-5-2018

Psychometric Investigation & Measurement of Hunger & Pleasure

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Background

Study 1

In a number of educational interventions, Hilty and colleagues (Hilty & Shea, 2017; Shea, Hilty, & Duke, 2018a, 2018b; Shea & Hilty, 2018; Hilty & Shea, 2018a, 2018b) examined four diets: OmniHeart (based on the DASH Diet), Fancy Fast Foods (e.g., Panera), Fast Foods (e.g., McDonalds), and Snack Diets (e.g., Vending Machine). In the initial study, Hilty & Shea (2017) used an educational intervention (i.e., a 45 minute presentation) which included a nutrient analysis per meal for four diets. First, students were presented with recommendations for goal intakes of selected nutrients (i.e., calories, fiber, sodium, protein, saturated fat, and added sugar) based on the Dietary Guidelines for Americans (U.S. Department, 2015 December). Second, students observed how different diet choices hinder one's ability to meet those recommendations. For example, the combination of two meals per day from OmniHeart with one meal from any of the other three diets resulted in positive energy balance with potential for significant weight gain. Hilty and colleagues report changing the length of the presentation from 45 minutes to 30 minutes (Shea et al. 2018a, 2018b; Shea & Hilty, 2018; Hilty & Shea, 2018a, 2018b).

According to Hilty and Shea (2017), 45 first year Bachelor of Science in Nursing (BSN) students completed the intrapersonal food choices questionnaire (IFCQ) and the interpersonal conflict handling styles questionnaire (ICHS; Leung & Kim, 2007). The IFCQ is an adaption of the ICHS reflecting conflict between healthy and unhealthy food choices. Second year students (N=76) and the accelerated students (N=56) completed the IFCQ and ICHS as comparison groups design to replicate the intrapersonal and interpersonal findings from the first year students. Cox (2003) reports the importance of intrapersonal and interpersonal comparisons.

BSN students (N=45) completed five cognitive knowledge questions (pre-test) before and after (post-test) the 45 minute educational presentation (Hilty & Shea, 2017). There were also a few opened questions. A statistical comparison (SPSS 24, Dependent t-test) of the cognitive pre- and post-test questions were statistically significant ($p=.001$) for first year students. Qualitative theme analysis (based on open-ended questions) revealed meaning, relevancy to nursing practice. The correlational data analysis exploring the relationship between the intrapersonal (IFCQ) and interpersonal (ICHS) conflict styles revealed a significant relationship ($p<.01$) for four interpersonal and intrapersonal conflict types (i.e., compromising, integrating, obliging, avoiding/smoothing).

The IFCQ (intrapersonal) and ICHS (interpersonal) use the same eight scale names. First, Shea et al. (2018a, 2018b) report, when the *Integrating* IFCQ and ICHS scales were analyzed, significant correlations were found for 1st year, 2nd year, and the SDAP students. Second, the correlation coefficients were significant for *Avoiding/Smoothing* scales for all three student groups. Third, in the SDAP sample, a significant correlation was found between the IFCQ and ICHS *Deceiving* scales. Fourth, the correlation between the IFCQ and ICHS *Obliging* scale were significant for the 1 year and 2nd year students. Fifth, in the 1st year student sample, a significant correlation was found between IFCQ and ICHS *Compromising* scales.

Study 2

In the Shea and Hilty (2018) study, traditional BSN students (N=130) were participants. Sixty-six students were in their 3rd year and 64 students were in first semester of their 1st year. Pre- and post-test questions included five cognitive knowledge questions and the Nutrition Assessment Questionnaire (NAQ). Fiber, added sugar, saturated fat, protein, and sodium subscale scores are available for the NAQ. Using SPSS 25, the dependent *t*-test analyses found significance ($p=.001$) for each cognitive question. On the NAQ, which measured fiber, added sugar, saturated fat, protein, and sodium, the comparison of the post-test NAQ overall score was significantly higher than the pre-test ($p=.001$). When comparing the five NAQ subscales, dependent *t*-test analyses reveal significance (fiber, $p=.001$; added sugar, $p=.001$; saturated fat, $p=.002$; protein, $p=.003$; sodium, $p=.001$). The means on the post-test assessment were significantly higher than for each of the pre-test comparisons. Comparison of the means for the 1st year and 3rd year BSN students on the five NAQ post-test subscales (independent *t*-test) revealed significance on each scale (fiber, $p=.001$; added sugar, $p=.030$; saturated fat, $p=.006$; protein, $p=.009$; sodium, $p=.001$). Third year student mean scores were higher on all five NAQ subscales in comparison with 1st year students (Hilty& Shea, 2018a, 2018b).

Background (Cont'd)

Hunger & Pleasure

Fernandez's (2001) Anger Parameters Scale (APS) conceptualizes anger activity according to frequency, duration, intensity, latency, and threshold. The first three of the five parameters are based on the Multidimensional Anger Inventory (MAI) subscales while latency and threshold measures are related to pain and other perceptual responses (Fernandez, 2010). "Thus, we have five parameters measuring (i) how often one gets angry, (ii) how long the anger lasts, (iii) how strong the anger is, (iv) how quick to anger, and (v) how sensitive to provocation" (Fernandez, Day, & Boyle, 2015, p. 92). Cronbach reliability estimates for an adult community sample (Fernandez, Vargas, & Day, 2010) were .85 (Frequency), .90 (Duration), .62 (Intensity), .88 (Latency), and .74 (Threshold). Five anger parameters were extracted with a principal components analysis (PCA). "A separate PCA analysis based on the subscale inter-correlations led to a one-component solution ... termed the Degree of maladaptiveness of anger ... The parameters are internally consistent and supported by preliminary factor analytic investigation." Fernandez and colleagues (2014) report significant differences on the frequency, intensity, and duration scales with the forensic sample (N=125) having high scores on these three parameters than a non-forensic (N=182) samples.

Methods

The purpose of the educational intervention was to apply the Fernandez five parameters model (frequency, duration, intensity, latency, threshold) to the constructs of hunger and pleasure. Participants were 130 traditional undergraduate nursing students. Principal-axis exploratory factor analysis (PAEFA) and Cronbach reliability estimates found two common factors were extracted for the hunger and pleasure constructs with reliability coefficients above .80.

Findings

The Hunger questionnaire (HQ) and Pleasure questionnaire (PQ) consist of 30 items based on Fernandez APS model. Using SPSS 25, PAEFA found two common factors based on the scree test for both the HQ and PQ instruments. The HQ had eignvalues of 9.363 and 3.115 accounting for approximately 42% of the variance. The PQ had eignvalues of 6.659 and 5.511accounting for approximately 42% of the variance. The items loading on the two common factors were identical for HQ and PQ.

Coefficient alpha reliability estimates were .849 for HQ Factor 1 and .861 for HQ Factor 2. The estimates for PQ Factor 1 was .824, and for PQ factor 2 was .869.

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