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Method - Quantitative (Other)  
20-minute oral presentation (including questions)  
Abstract 2019-434

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Likert and Likert-type scales are often used to quantify subjective-constructs of interest in sport-management research and practice (Likert, 1932). However, the nature of these numbered-measures is ordinal and thus violates many statistical assumptions needed to present and evaluate as continuous-, normally-distributed, and parametric data (Bishop & Herron, 2015). This is an issue because continuous data, and their statistics, are generally well understood and perceived as being more statistically powerful than non-parametric techniques. Nevertheless, the tendency to incorrectly interpret, present, and evaluate data collected in Likert-formats, limits one’s ability to capture relevant data and make valid conclusions (Kuzon Jr, Urbanchek, & McCabe, 1996). For example, on a 5-point Likert-scale item assessing satisfaction in which the arithmetic average of the responses collected is equal to 3.5, how is one to interpret a mean score that falls between two non-equidistant, ranked categories? In this example, 3.5 is not a valid rank or category. Furthermore, reporting a standard deviation for these data would not provide any relevant information related to the variance of the data collected. Nor would one be able to assume that participants reporting a 4 are twice as satisfied as those participants reporting a 2. Ultimately, utilizing a robust and statistically-sound tool to evaluate subjective responses is warranted to improve assessment and evaluation in several sport-management applications. Fortunately, a visual analog scale can be used. A research question that includes a visual-analog-scale response, provides the participant with a horizontal or vertical line on which the participants mark where they fall on a continuum between two extreme anchor points. The participants’ marks can then be measured by the researcher as an absolute distance (i.e., 50 mm) or distance relative to the length of the full line (i.e., 75 mm mark on a 150 mm line could be a score of 50). Thus, visual analog scales can provide continuous data related to the construct that one intends to measure without dramatically changing the nature of the question, only the level of measurement. Visual analog tools have been used in evaluating mood, physical exertion, thermal sensation, wetness sensation, pain, and physical recovery respectively (Bryan et al., 2017; Casey, Herron, Bishop, Ryan, & Bishop, 2015; Chinazzo, Wienold, & Andersen, 2017; Filingeri, Hodder, & Havenith, 2015; Gallagher, Liebman, & Bijur, 2001; Herron, 2016). For example, if the visual analog scale response for a satisfaction question was 100 mm long (anchored at one side as maximal satisfaction and the other as no satisfaction) and the average response marking was equal to 65 mm with a standard deviation of 10 mm, one could interpret and analyze these data as ratio data, apply parametric-statistical tools, calculate a percent change in comparing repeated measures, and utilize several other common techniques and applications. These changes would give the researcher or practitioner more information and tools at their disposal in order to help research inform practice. Therefore, the purpose of this presentation is to discuss the validity of visual analog scales in related-research settings and explore appropriate applications in sport-management research.