Psychometric tools in the study of behavioural addiction: A personal overview (Part 1)

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'M NOT A PSYCHOMETRICIAN but I've co-written over 50 refereed psychometrics papers in my career, mainly concerning behavioural addictions. When I began my PhD on slot machine addiction in 1987 there were already a number of robust screening instruments to assess pathological gambling including those adapted from the criteria in the *Diagnostic and Statistical Manual of Mental Disorders* and the *South Oaks Gambling Screen* (SOGS). Since 1987, dozens of instruments to assess problematic gambling have been developed but I've always been content to use the DSM criteria. Despite publishing hundreds of papers and articles on gambling, I've only ever co-written four psychometric gambling papers. My first concerned the development of the *Casino Attitudes Scale* (Sutton & Griffiths, 2008), whereas the remaining three comprised the psychometric testing of the *Reasons for Gambling Questionnaire* (Canale et al., 2015), *Attitudes Towards Gambling Scale* (Canale et al., 2016), and the Portuguese validation of the DSM-IV [multiple response junior version] criteria for adolescent pathological gambling (DSM-IV-MR-J; Calado et al., 2016).

In other areas of my behavioural addiction research I've co-developed many new assessment instruments mainly because (i) there was a lack of psychometrically validated scales for a specific behavioural addiction, (ii) the existing instruments were arguably not fit for purpose and not based on core criteria of addiction, and/or (iii) the existing instruments were psychometrically weak and/or had not undergone any psychometric testing. For epidemiological purposes, Koronczai et al. (2011) asserted that the most appropriate measures in assessing problematic behaviours should meet six requirements. Such instruments should have: (i) brevity (to make surveys as short as possible and help overcome question fatigue); (ii) comprehensiveness (to examine as many aspects of the behaviour as possible); (iii) reliability and validity across age groups (e.g. adolescents vs. adults); (iv) reliability and validity across data collection methods (e.g. online, face-to-face interview, paper-and-pencil); (v) cross-cultural reliability and validity; and (vi) clinical validation. They also noted that an ideal assessment instrument should serve as the basis for defining adequate cut-off scores in terms of both specificity and sensitivity. These measures are something that I've tried my best to follow when developing new psychometric instruments.

The first instrument I ever co-developed was the *Exercise Addiction Inventory* (EAI; Griffiths, Szabo & Terry, 2005; Terry, Szabo & Griffiths, 2004), a short 6-item scale based on the six core criteria in the components model of addiction (i.e. salience, mood modification, tolerance, withdrawal, symptoms, conflict, and relapse; Griffiths, 2005). The EAI has now been translated and validated in many different languages and led to a relatively recent study where many different datasets from around the world were combined to test the psychometric properties of the EAI across cultures (Griffiths et al., 2015).

The two areas where I have co-developed many psychometrically validated instruments are in the area of problematic gaming and problematic internet use. To assess different aspects of gaming, my colleagues and I have developed the *Problematic Online Gaming Questionnaire* (Demetrovics et al., 2012), *Problematic Online Gaming Questionnaire Short-Form* (Pápay et al., 2013), *Game Transfer Phenomena Scale* (Ortiz de Gortari, 2015), *Video Game Functional Assessment-Revised* (Buono et al., 2016), *Internet Gaming Disorder-20 Test* (Pontes et al., 2014), *Internet Gaming Disorder-10 Test* (Király et al., 2017), *Internet Gaming Disorder Scale-9–Short-Form* (Pontes & Griffiths, 2015) and *Video Game Addiction Scale for Children* (Yilmaz, 2017).

I also helped translate and validate the *Internet Gaming Disorder Scale 9 – Short-Form* into Portuguese (Pontes & Griffiths, 2016b), Italian (Monacis et al., 2016), Slovenian (Pontes et al., 2016a), and Persian (Wu et al., 2017), as well as the *Internet Gaming Disorder 20 Test* into Spanish. To assess problematic internet use, my colleagues and I have developed the *Problematic Internet Use Questionnaire Short-Form* (Demetrovics et al., 2016), *Internet Disorder Scale* (Pontes & Griffiths, 2017), and the *Internet Disorder Scale – Short Form* (Pontes & Griffiths, 2016a). I have also helped translate and validate both the *Generalized Problematic Internet Use Scale 2* (Pontes et al., 2016b) and *Internet Addiction Test* (Pontes et al., 2014) into Portuguese (Fuster et al., 2016), and the *Problematic Internet Use Questionnaire* into Chinese (Koronczai et al., 2017).

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