Optimism scale: Evidence of psychometric validity in two countries and correlations with personality

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ABSTRACT

Optimism can be defined as the hope that something good is going to happen in the future. It is a relevant construct in the study of happiness, and is associated with a range of variables, including subjective well-being, reduced risk of suicidal ideation, quality of social relationships, and a healthier lifestyle. However, current measures of optimism were criticized regarding their structure and reliability. To address these limitations, Pedrosa et al. (2015) proposed a new scale of dispositional optimism that was originally published in Spanish. In the present research, we aimed to provide further psychometric evidence of the 9-item Optimism Scale in the United Kingdom ($N = 325$) and Brazil ($N = 421$). Exploratory and confirmatory factor analyses in both countries were consistent with the original findings, supporting the unifactorial structure. Item Response Theory revealed good discrimination, level of difficulty, and informativeness of the items. Further, we found good reliability estimates of the scale, full factorial invariance across participants' gender and partial invariance across countries, and positive correlations with all Big-5 personality traits. In sum, our findings suggest that the dispositional Optimism Scale is a psychometrically adequate measure that can be used cross-culturally.

*"You can try the best you can,
The best you can is good enough."*

Radiohead — Optimistic

1. Introduction

Optimism plays an important role across many areas in our lives, such as in educational, organizational, and health-related contexts. For instance, optimism is an essential characteristic for leaders, because being optimistic allows them to inspire people, to see opportunities even in adverse situations, and to lead people to a better future (Gallo, 2012). More specifically, optimistic politicians are perceived as more appealing to voters (Malhotra & Margalit, 2014), and school teachers who are optimistic about the future of their students help them to obtain higher academic achievements (Kirby & Dipaola, 2011). Further, a meta-analysis conducted across 83 countries found that optimism was positively associated with a range of physical health variables, including lower pain and diseases outcomes such as cancer or

cardiovascular outcomes (Rasmussen, Scheier, & Greenhouse, 2009).

Optimism is defined as the hope that something good is going to happen in the future (Carver, Scheier, & Segerstrom, 2010). It can be characterized as a cognitive construct, but with emotional overtones (whether expecting good or bad things to happen) and motivational implications (levels of expectation; Carver & Scheier, 2014). It is therefore not surprising that optimism is a key variable in positive psychology — the sub-field of psychology that studies virtuous aspects, psychological strengths, and positive emotions in our lives (Snyder, Lopez, & Pedrotti, 2010).

To study optimism, it is essential to measure it in a reliable and valid way. However, as we outline below, previous measures of optimism were criticized for various reasons, indicating the need for an improved and well-validated scale to measure optimism. To fill this gap, the present research aimed to validate a recently developed measure of dispositional optimism (Pedrosa et al., 2015) in the United Kingdom and Brazil to provide further evidence of the structure and validity of the scale.

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1.1. Explanatory and dispositional optimism

The literature differentiates between explanatory and dispositional optimism. The first relies on explanations of events, such as the way people explain the occurrences of good or bad situations in everyday life, including positive thoughts and the interpretation of the causes of negative situations (Bastianello & Hutz, 2015; Peterson & Steen, 2009). For example, when getting good grades at school, students can see them as a reward for their effort and assume they will get even better grades in the future. On the other hand, the core of dispositional optimism is composed of expectations about future events. In this case, the focus is on the projection of how well the student would do in the next year. These expectations have different intensity levels and are modifiable during life, are specific, and occur because of a lack of certainty or conviction regarding future events (Bastianello & Hutz, 2015).

Dispositional optimism originates from the *expectancy-value* model of motivation (Carver et al., 2010), and it is the focus in the present research, offering beneficial links with a range of attitudes and behaviors. Research has found positive associations between dispositional optimism and healthier lifestyle and dietary habits (Giltay, Geleijnse, Zitman, Buijsse, & Kromhout, 2007), greater career success and better social relations (Carver & Scheier, 2014), reduced risk of suicidal ideation (Hirsch, Wolford, LaLonde, Brunk, & Morris, 2007), and subjective well-being (He, Cao, Feng, Guan, & Peng, 2013).

1.2. How to measure optimism?

When assessing dispositional optimism, however, it is still unclear if the construct is unidimensional and bipolar — with pessimism on one end and optimism on another, or if it has two dimensions. That is, whether optimism and pessimism form two separate, but correlated dimensions. Carver and Scheier (2003) considered dispositional optimism as a one-dimensional construct ranging from pessimism to optimism. This unidimensional view of optimism-pessimism was supported across a range of studies (e.g., Chiesi, Galli, Primi, Innocenti Borgi, & Bonacchi, 2013; Segerstrom, Evans, & Eisenlohr-Moul, 2011). In contrast, others have argued that optimism and pessimism are empirically different, albeit correlated, and should therefore be measured separately to avoid losing information (Marshall, Wortman, Kusulas, Hervig, & Vickers Jr, 1992). Further studies supported the separate factor structure (Chang, D'Zurilla, & Maydeu-Olivares, 1994; Glaesmer et al., 2012; Herzberg, Glaesmer, & Hoyer, 2006; Kubzansky, Kubzansky, & Maselko, 2004).

Two of the most influential measures of optimism are the *Life Orientation Test* (LOT; Scheier & Carver, 1985), and its successor, the *Life Orientation Test — Revised* (LOT-R; Scheier, Carver, & Bridges, 1994). These measures were developed to assess individual differences regarding optimism versus pessimism, following the one-dimensional continuum approach described above. They were validated across different contexts and languages (e.g., Jovanović & Gavrilov-Jerković, 2013; Monzani, Steca, & Greco, 2014; Perczek, Carver, Price, & Pozo-Kaderman, 2000; Schou, Ekeberg, Ruland, Sandvik, & Kåresen, 2004).

However, some limitations of the LOT and LOT-R became salient over the years, such as the unidimensional structure and low internal consistency. Although several studies provided evidence for the unidimensional structure (e.g., Scheier et al., 1994; Monzani et al., 2014), other studies suggested a two-factors structure (cf. Bastianello & Hutz, 2015). This two-factor structure was further empirically supported (Gaspar, Ribeiro, Matos, Leal, & Ferreira, 2009; Reilley, Geers, Lindsay, Deronde, & Dember, 2005). Indeed, in some situations, separating optimism-pessimism led to better prediction of outcome variables, such as dimensions of mood and personality, and psychological and physical health (e.g., Marshall et al., 1992; Robinson-Whelen, Kim, Maccallum, and Kiecolt-Glaser, 1997).

Another limitation of the LOT and LOT-R is the low internal consistencies found in many samples. For example, the reliability levels

estimated through Cronbach's alpha ranged between 0.63 and 0.68 in some studies (Bandeira, Bekou, Lott, Teixeira, & Rocha, 2002; Glaesmer et al., 2012; Herzberg et al., 2006; Jovanović & Gavrilov-Jerković, 2013; Vera-Villarroel et al., 2017) — a borderline acceptable range (e.g., α between 0.60 and 0.70; Kline, 2013).

Despite these limitations of the structure and reliability of the LOT and LOT-R, it is important to highlight that both measures are very popular to measure optimism. They have been used across the world with overall satisfactory results that are in line with theoretical predictions (e.g., Monzani et al., 2014; Perczek et al., 2000, Schou et al., 2004). Thus, the present research did not aim to discredit the measures, but instead hopes to introduce an alternative scale of dispositional optimism — which might help to expand our knowledge on the topic. To achieve this aim, the present research sought to validate the *Optimism Scale* across two countries (United Kingdom and Brazil), using a range of stringent psychometric methods. The measure was proposed by Pedrosa et al. (2015), with a unidimensional structure that focuses only on the positive aspects of optimism.

1.3. Optimism Scale

The initial 10-item *Optimism Scale* was validated in a sample of 2.693 participants from Spain (Pedrosa et al., 2015). The sample was divided to assess the structure of the scale across methods, such as exploratory factor analysis and confirmatory factor analysis. One item was excluded from the analysis because it loaded too low on the main optimism factor, leaving nine items that formed a unidimensional structure with a good internal consistency (α = 0.84; Kline, 2013). Item Response Theory revealed that all items presented high to very high discrimination levels (Baker, 2001).

To test its convergent validity, the scale was correlated with the *Overall Personality Assessment Scale* that measures the Big-5 (Vigil-Colet, Morales-Vives, Camps, Tous, & Lorenzo-Seva, 2013) and the Trait Meta-Mood Scale (emotional intelligence; Fernández-Berrocal, Extremera, & Ramos, 2004). Results showed significant correlations of dispositional optimism with all five big factors: emotional stability (i.e., neuroticism [negative], $r = 0.62$, $p < .001$), extroversion ($r = 0.31$, $p < .001$), conscientiousness ($r = 0.33$, $p < .001$), openness to change ($r = 0.15$, $p < .001$), and agreeableness ($r = 0.26$; $p < .001$). Also, the construct was positively correlated with both emotional intelligence dimensions: emotional clearness ($r = 0.34$, $p < .001$) and emotional repair ($r = 0.62$, $p < .001$). As the *Optimism Scale* was only published recently in Spanish, we found just one study that used this scale: Optimism was positively related with perception of health and positive affect (Vera-Villarroel et al., 2017).

1.4. The present research

Given the importance of dispositional optimism in predicting a range of important psychological outcomes such as emotional stability, socialization, and career success, we aimed to contribute to the literature by validating the *Optimism Scale* in English and Portuguese, with samples from the United Kingdom and Brazil. Further, while Pedrosa et al. (2015) mainly relied on students as participants, we aimed to extend their findings to other populations (general public and convenience sample). Overall, we hoped to show that the *Optimism Scale* is a reliable and cross-cultural validated alternative measure of dispositional optimism. Also, as the *Optimism Scale* was only recently published (2015), it is crucial to test its psychometric properties in different cultures before it can be used in wider research.

We followed the same analytical approach of Pedrosa et al. (2015) by dividing our samples into two groups, to separately perform the exploratory and confirmatory factor analysis. We also used Item Response Theory to further assess the psychometric properties of the *Optimism Scale*, and correlated the scale with the Big-5 personality dimensions. Additionally, extending Pedrosa et al.'s work, we tested for