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The Looming Maladaptive Style Questionnaire: Measurement invariance and relations to anxiety and depression across 10 countries

Ryan Y. Hong[a,*], John H. Riskind[b,**], Mike W.-L. Cheung[a], Esther Calvete[c], Zahira González-Díez[c], Ayse Altan Atalay[d], Doris Curzik[e], Natasa Jokic-Begic[e], Adriana del Palacio-Gonzalez[f], Ljiljana Mihić[g], Nikola Samac[g], Claudio Sica[h], Yoshinori Sugiura[i], Safal Khatri[b], Evan M. Kleiman[j]

[a] National University of Singapore, Singapore
[b] George Mason University, USA
[c] University of Deusto, Spain
[d] Koç University, Turkey
[e] University of Zagreb, Croatia
[f] Aarhus University, Denmark
[g] University of Novi Sad, Serbia
[h] University of Firenze, Italy
[i] Hiroshima University, Japan
[j] Harvard University, USA

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ABSTRACT

The Looming Maladaptive Style Questionnaire (LMSQ) is a self-report measure designed to assess the looming cognitive style, a tendency to interpret threats as rapidly approaching and increasing in magnitude. To date, no systematic evaluation on the psychometric properties of the LMSQ across diverse cultural contexts has been done. In the present research, the measurement invariance of the LMSQ test scores was examined in 10 countries (N = 4000). Confirmatory factor analysis suggested that a two-factor model (i.e., physical looming and social looming) fitted the data well across countries. Partial measurement invariance was established for the LMSQ scores across the countries whereas full measurement invariance was achieved across gender. Meta-analytic structural equation modeling was applied to examine the unique contributions of the two looming factors to anxiety and depression symptoms. Results indicated that the test scores underlying two looming factors were crucial and valid predictors of symptoms. The LMSQ shows promise as a measure with cross-cultural generalizability and opens new avenues for its use in diverse cultural settings.

1. Introduction

An extensive body of evidence suggests that faulty cognitive appraisals and interpretations of threat may lead individuals to experience greater anxiety symptoms and increase their risk of anxiety disorders (Riskind & Alloy, 2006). Many cognitive models of anxiety postulate that some individuals, more than others, are vulnerable to anxiety because they develop cognitive vulnerabilities comprised of maladaptive negative cognitive styles or beliefs. These cognitive vulnerabilities presumably increase the probability that these individuals develop anxiety symptoms or disorders in response to stressful life events.

According to the looming vulnerability model of anxiety (Riskind, Williams, Gessner, Chrosniak, & Cortina, 2000), when people perceive a potential threat, they want to know whether it is approaching them, and if so, how fast the approach is. When threats are static or dissipating, individuals tend to perceive that it is safer to put off dealing with such threats and their anxiety tapers off. An important feature of this model is that threats are perceived and interpreted as rapidly approaching and increasing in threat values over prior levels such that the proximity, probability, urgency, and other threat values are becoming greater by the moment or over time (Haikal & Hong, 2010; Riskind & Williams, 2005; Riskind et al., 2000). In short, a looming cognitive style (LCS) represents an individual's tendency to

* Corresponding author at: Department of Psychology, National University of Singapore, 9 Arts Link, Singapore 117570, Singapore.
** Corresponding author at: Department of Psychology, George Mason University, 4400 University Drive, 3F5, Fairfax, VA 22030, USA.
E-mail addresses: ryan.hong@nus.edu.sg (R.Y. Hong), jriskind@gmu.edu (J.H. Riskind).

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perceive potentially threatening events as approaching rapidly and escalating in risk levels.

LCS is a distinctive cognitive vulnerability vis-à-vis other anxiety-related vulnerabilities (e.g., anxiety sensitivity or intolerance of uncertainty) by explicitly addressing the importance of perceptions of the approach movement of a threatening stimulus. Other vulnerabilities tend to focus on static trait-like features (e.g., the tendency to be frustrated with unknowns and ambiguity in the case of intolerance of uncertainty) whereas LCS's emphasis is on the dynamic threat perception that changes over time. LCS correlates with anxiety sensitivity and intolerance of uncertainty only moderately and independently predicts anxiety and related syndromes when these and other factors such as negative affectivity are controlled for (Elwood, Riskind, & Olatunji, 2011; Reardon & Williams, 2007; Riskind, Tzur, Williams, Mann, & Shahar, 2007; Sica, Caudek, Chiri, Ghisi, & Marchetti, 2012). In addition, LCS (but not anxiety sensitivity) predicts the intensity of fear reactions after a mood-induction procedure, but not the intensity of sadness reactions (del Palacio-González & Clark, 2015). Intolerance of uncertainty, but not LCS, is positively related to neuroticism – a common factor in anxiety and depression (see Table 8; Hong & Lee, 2015). LCS functions as a danger schema that influences both memory and interpretative biases for threat cues (Riskind et al., 2000; Riskind, Kleiman, Seifritz, & Neuhoff, 2014) and enhance the extent to which people generate stressful life events in an interpersonal context (Riskind, Black, & Shahar, 2010; Riskind et al., 2013).

1.1. Links to anxiety and depression

Previous work has largely established the LCS as a cognitive vulnerability to anxiety. Individuals rated highly on the Looming Maladaptive Style Questionnaire (LMSQ), a self-report measure that assesses the tendency to interpret ambiguous threats as rapidly increasing and approaching, have been shown to be more susceptible to stressful events and anxiety symptoms/disorders. A robust body of evidence has shown that the LCS is more closely related to anxiety than to depression (Reardon & Williams, 2007; Riskind et al., 2000; Riskind, Williams, & Joiner, 2006), and that it predicts future anxiety symptom changes (but not depression) after the occurrence of stressful life events (Adler & Strunk, 2010; Riskind et al., 2000, 2007). LCS predicts increases in anxiety symptoms, worry, and OCD symptoms but not depression symptoms over time (Adler & Strunk, 2010; Elwood et al., 2011; González-Díez, Calvete, Riskind, & Orue, 2015; Riskind et al., 2007; Sica et al., 2012). LCS is also found to be elevated among individuals with generalized anxiety disorder compared to individuals with depression or healthy controls (Riskind & Williams, 2005).

Despite the strong specificity to anxiety shown by the LCS, emerging data suggest that its associations with depression might be substantial as well, under certain conditions. The LCS of patients with terminal leukaemia predicted both anxiety and depression (Levin, Li, & Riskind, 2007), presumably because the inevitable negative outcomes (suffering and early death) could not be evaded. Several other studies demonstrate that LCS predict elevated symptoms of both anxiety and depression (Kleiman & Riskind, 2012; Riskind et al., 2013; Tzur-Bitan, Meiran, Steinberg, & Shahar, 2012), suggesting that it may reflect a central mechanism in anxiety and depression comorbidity. Given these findings, more attention is needed to examine whether LCS predicts depression as well as anxiety. The conditions under which LCS might predict depression may have to do with the timing of the threat and the perceived potential of evading harm. When threat is uncertain – and there is still a possibility of evading harm – anxiety might be the strongest reaction. However, when one perceives that harm cannot likely be evaded, or already happened, depression should also likely occur.

1.2. Psychometric properties of the LMSQ

The LMSQ is divided into two subscales: social looming – which pertains to an anticipatory style for socially threatening scenarios, and physical looming – which refers to a style for scenarios that are physically dangerous (Riskind et al., 2000). Although these two subscales are typically highly correlated, and often function as a unitary construct, recent findings have indicated that they are predictive of different outcomes. For example, a study by Riskind et al. (2014) on the auditory looming effect found that among anxious participants, the physical looming subscale predicted a tendency to overestimate the closeness of an approaching sound source, whereas the social looming subscale predicted the opposite tendency to underestimate the closeness of the sound source. Another recent study showed that participants who were shown images of potentially ambiguous approaching threats (e.g., different animals) showed stronger immobilizing freeze responses if they had the physical (but not the social) component of LCS (Riskind, Sagliano, Trojano, & Conson, 2016). Furthermore, the social looming subscale has been found to predict social anxiety better than the physical looming subscale (Brown & Stopa, 2008; González-Díez, Orue, Calvete, & Riskind, 2014; Riskind, Rector, & Cassin, 2011). Hence, there is a need to examine the effects of each subscale separately as well as the effects of the total LMSQ scale in research.

Numerous studies have found strong internal consistency reliabilities for the total LMSQ and its subscale scores (e.g., Adler & Strunk, 2010; Brown & Stopa, 2008; Reardon & Williams, 2007; Riskind et al., 2000). González-Díez et al. (2014) examined the structure and measurement invariance across subsamples, and the concurrent validity, consistency, and stability of a Spanish translation of the LMSQ (N = 1128, 56.47% women). In their model, they specified LMSQ items loading onto scenarios (i.e., first-order factors), and scenarios loading onto the social and physical looming factors (i.e., second-order factors). (The Measures section includes information on the LMSQ scenarios.) This hierarchical two-factor model yielded a better fit than a single-factor (i.e., overall looming) model. Moreover, they conducted a multiple-group analysis that indicated metric invariance of the model for men and women and for groups that displayed clinically significant social anxiety and those that did not. González-Díez et al. reported that women scored higher on the LMSQ than men. However, these means were based on observed scores rather than latent factor means.

1.3. The present study

The looming vulnerability model of anxiety and threat appraisal posits that the perception of rapidly rising risk and approaching danger is an evolutionarily-based parameter of threat cognition and therefore should apply species-wide to all humans (Riskind et al., 2000). Indeed, defensive reactions to approaching danger are also observed in all other animals, including invertebrate animals (Riskind, 1997; Riskind et al., 2014). Thus the looming vulnerability model presupposes that the association between LMSQ and relevant criteria (i.e., anxiety and depression) should be present across distinct cultural groups. There is a critical need to examine the validity of the LMSQ scores in predicting symptoms in a cross-cultural context. However, such a systematic test has yet to be done.

Information about the measurement properties of the LMSQ as used in various cultural contexts is scarce, casting doubt on whether the LMSQ can be used reliably across cultures. This is especially important because the questionnaire is based on people's perceived reactions to scenarios or vignettes (e.g., threat of a potential social rejection). The scenarios of the LMSQ may elicit cultural-specific influences on responses. Therefore, our first research goal was to address the question of whether the measurement properties of LMSQ remain invariant across cultural groups. This would allow researchers to ascertain if the LMSQ is being interpreted and responded in the same manner across