Testing the $2 \times 2$ model of perfectionism in Ecuadorian adolescent population

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Abstract
This study aimed to test the $2 \times 2$ model of dispositional perfectionism in an Ecuadorian sample of 1562 students aged between 12 and 17 years ($M=14.83$ years, standard deviation $=1.86$ years). The Child and Adolescent Perfectionism Scale and the brief 21-item version of the Depression Anxiety Stress Scales were used. Cluster analysis revealed four profiles: Pure Self-Oriented Perfectionism, Pure Socially Prescribed Perfectionism, Mixed Perfectionism, and Non-perfectionism. Mixed Perfectionism and Non-perfectionism obtained, respectively, the highest and lowest scores in anxiety, depression, and stress. The results are discussed in light of cultural differences in the interpretation and consequences of perfectionism.

Keywords
$2 \times 2$ model of perfectionism, cluster analysis, Ecuadorian teenagers, psychological distress, self-oriented perfectionism, socially prescribed perfectionism

Introduction
The $2 \times 2$ model of dispositional perfectionism (Gaudreau and Thompson, 2010) has had a great acceptance in research about this topic because it is an integrative approach that allows the results to be contrasted independently of the scale and the methodology used (Inglés et al., 2016). The model establishes the existence of two perfectionistic dimensions, one adaptive (e.g. Self-Oriented Perfectionism) and another maladaptive (e.g. Socially Prescribed Perfectionism), and its combination results in four subtypes: Pure Self-Oriented Perfectionism (high Self-Oriented Perfectionism and low Socially Prescribed Perfectionism), Pure Socially Prescribed Perfectionism (high Socially Prescribed Perfectionism and low Self-Oriented Perfectionism), Mixed Perfectionism (high Self-Oriented Perfectionism and Socially Prescribed Perfectionism), and Non-perfectionism (low Self-Oriented Perfectionism and Socially Prescribed Perfectionism). These four subtypes differ from...
each other according to four hypotheses: Pure Self-Oriented Perfectionism is more adaptive than Non-perfectionism (Hypothesis 1), Pure Socially Prescribed Perfectionism is the most maladaptive subtype (Hypothesis 2), Mixed Perfectionism is more adaptive than Pure Socially Prescribed Perfectionism (Hypothesis 3), and Mixed Perfectionism is more maladaptive than Pure Self-Oriented Perfectionism (Hypothesis 4).

These four hypotheses have been supported by the majority of the studies that have tested the model (e.g. in Canada: Franche and Gaudreau (2016); in the United States: Gong et al. (2017) and Taylor et al. (2016); and in the United Kingdom: Madigan et al. (2016)). However, some investigations with non-English-speaking population (e.g. Li et al., 2014, with Taiwanese undergraduates; Inglés et al., 2016; Vicent et al., 2017, with Spanish children; and Arana and Furlan, 2016, with Argentinian undergraduates) rejected several of these hypotheses, questioning the cross-cultural validity of the 2 × 2 model. Similarly, comparing Caucasian-American and Asian-American population, Franche et al. (2012) concluded to the existence of cultural influences on academic outcomes for each subtype.

Currently, a limited but growing body of work focused on the analysis of perfectionism has used different cultural samples from those prevailing in the research, that is, Caucasian-American or Britons subjects (see Dibartolo and Rendón, 2012, for a review). These studies maintain that certain sociocultural factors, such as parenting or collectivism/individualism, influence the way in which perfectionism is manifested across cultures. On one hand, according to Green et al. (2005), individualism is characterized by “independence, autonomy, self-reliance, uniqueness, achievement orientation, and competition” (p. 322). On the other hand, typical attributes associated with collectivism are interdependence, the sense of duty toward the social group and the conformity with its norms as well as concern for social harmony. Nevertheless, the role of the cultural value of collectivism in the creation of vulnerability related to perfectionism is not clear. For instance, Nilsson et al. (1999) considered it as a beneficial construct due to the feeling of social support that characterize collectivistic societies which help individuals to cope with adverse situations. On the contrary, Yoon and Lau (2008) found that interdependence increases the appearance of maladaptive consequences of perfectionism because of parental pressure and the fear of losing the support from parents.

In the case of Ecuador, perfectionism has not been analyzed previously in this context. Nevertheless, it would be of great interest due to the link between perfectionism and pathology (Flett et al., 2016). In fact, it is a well-known fact that perfectionism in children and adolescents is a risk factor for a range of mental health problems such as depression, anxiety, eating disorders, obsessive compulsive disorders, and so on (see Morris and Lomax, 2014, for a review).

The purpose of this work was to test the cross-cultural validity of the 2 × 2 model in Ecuadorian adolescent population. Concretely, it was aimed to find out (a) whether it is possible to find four perfectionism profiles which match the 2 × 2 model and (b) whether the results of the four profiles in terms of anxiety, depression, and stress are consistent with the four hypotheses of the model. Thus, regarding this first goal, it is expected that the results of cluster analysis will replicate the four subtypes proposed by the model, in accordance with previous studies that have employed this methodology (Arana and Furlan, 2016; Cumming and Duda, 2012; Inglés et al., 2016; Li et al., 2014; Vicent et al., 2017). On the contrary, since Latin culture tend to be more collectivist than the North American (Oyserman and Wing-Sing, 2007), and given that the 2 × 2 model was originally tested in Canadian population, it is possible that the results of the comparison between profiles do not support all the hypotheses of the model.

Method

Participants and procedure

Nine school centers were selected. The initial sample comprised 1745 students recruited by
multistage random cluster sampling. A 4.87 percent of the students were excluded because they did not obtain paternal consent and 5.62 percent because of omissions and mistakes in their answers. A total of 1562 students aged between 12 and 17 years ($M=14.83$ years, standard deviation (SD)=1.86 years) from Quito (Ecuador) participated in this study (54.5% females). Non-significant differences between the eight groups were found across sex and age ($\chi^2=3.35, p=.34$). Students completed the test during normal school hours, for approximately 35 minutes, in group format and under the supervision of one trained researcher. Written parental informed consent was obtained from all parents or legal custodians of the minors that participated in the study. All procedures were performed according to the ethical standards of the 1964 Helsinki Declaration.

**Instruments**

**Perfectionism.** The Child and Adolescent Perfectionism Scale (CAPS; Flett et al., 2016) is a 22-item self-report measure of Self-Oriented Perfectionism ($\alpha=.85$), that is, the self-criticism and the strivings and motivation to be perfect, and Socially Prescribed Perfectionism ($\alpha=.81$), that is, the belief that significant others expect one to be perfect. In this study, the coefficients of internal consistency (Cronbach’s alpha) were .73 for Self-Oriented Perfectionism and .80 for Socially Prescribed Perfectionism.

**Psychological distress.** The brief 21-item version of the Depression Anxiety Stress Scales (DASS-21; Lovibond and Lovibond, 1995) is a self-report instrument to assess symptoms of psychological distress along three dimensions: anxiety ($\alpha=.81$), depression ($\alpha=.91$), and stress ($\alpha=.89$), among both clinical and non-clinical samples. In our study, internal consistency coefficients for these subscales were .77, .75, and .75, respectively. Both, the CAPS and the DASS-21, were adapted to Ecuadorian Spanish using a direct and back-translation methodology.

**Data analysis**

We used a non-hierarchical cluster analysis method (quick cluster analysis) to establish four perfectionism profiles. $z$ scores between $-.5$ and $+.5$ were considered moderate levels, whereas scores below $-0.5$ and over $+.5$ were considered to be low and high, respectively (Vicent et al., 2017). An analysis of variance (ANOVA) was conducted to examine the differences between groups in anxiety, depression and stress. Subsequently, post hoc tests were performed (Scheffé’s method) as well as the effect size, which were interpreted according to Cohen’s (1988) criteria.

**Results and discussion**

**Perfectionism profiles**

The cluster analysis revealed four groups consistent with the four subtypes defined by the $2 \times 2$ Gaudreau and Thomson’s model. The first cluster was formed by 330 subjects (21.13%) who displayed Non-perfectionism due to their low Self-Oriented Perfectionism ($z=−1.17$) and Socially Prescribed Perfectionism ($z=−1.27$). The second cluster was constituted by 394 subjects (25.22%) who presented Mixed Perfectionism because of their high scores in both Self-Oriented Perfectionism ($z=1.06$) and Socially Prescribed Perfectionism ($z=1.06$). The third cluster, which was named Pure Socially Prescribed Perfectionism, included 429 participants (27.46%) with low scores in Self-Oriented Perfectionism ($z=−0.57$) and high scores in Socially Prescribed Perfectionism ($z=0.52$). Finally, the fourth group had 409 participants (26.18%) characterized by high scores in Self-Oriented Perfectionism ($z=0.53$) and low scores in Socially Prescribed Perfectionism ($z=−0.53$), so it was called Pure Self-Oriented Perfectionism.

**Inter-profile differences in psychological distress**

Significant differences in the mean scores reported by the four clusters in the three
dimensions of psychological distress were found (i.e. anxiety, depression, and stress). However, results did not support the Hypothesis 1 (Pure Self-Oriented Perfectionism is more adaptive than Non-perfectionism), Hypothesis 2 (Pure Socially Prescribed Perfectionism is the most maladaptive subtype), and Hypothesis 3 (Mixed Perfectionism is more adaptive than Pure Socially Prescribed Perfectionism) of 2 × 2 model. Thus, Mixed Perfectionism, and not Pure Socially Prescribed Perfectionism (Hypothesis 2), obtained the higher levels of psychological distress. Although differences between these two profiles did not reach the statistical significance (Hypothesis 3). However, according to Hypothesis 4, Pure Self-Oriented Perfectionism was most adaptive than the Mixed subtype but more maladaptive than Non-perfectionism, against Hypothesis 1 (see Table 1). Effect sizes associated with these differences were of a small magnitude, in all cases (d = between .20 and .46), with the exception of the contrast between Mixed and Non-perfectionism, whose differences were of a moderate magnitude (d = .61).

It should be noted that not all studies about 2 × 2 model have entirely supported the four hypotheses (e.g. Arana and Furlan, 2016; Crocker et al., 2016; Cumming and Duda, 2012; Hill and Davis, 2014; Inglés et al., 2016; Li et al., 2014; Speirs-Neumeister et al., 2015; Vicent et al., 2017). These studies coincide on employing specific population (e.g. sportiest, dance students, or talented) or originally from non-English-speaking countries, which suggests the presence of contextual factors that alter the way in which perfectionism affects individuals depending on culture (DiBartolo and Rendón, 2012) or the specific domain in which it is manifested (Stoeber and Stoeber, 2009). Along these lines, our results could be explained in the light of sociocultural differences that affect perfectionistic dimensions.

First, the influence that family has on perfectionistic behavior must be taken into account (Yoon and Lau, 2008), specifically in collectivist cultures, such as Latin America, where family is considered a cornerstone, a unit of support, and problem resolution, including strong feelings of loyalty and obligation toward itself (Ortega et al., 2014). In this context, it is possible that fear of disappointing the family group will be higher than in other cultures characterized by higher independence. Nevertheless, in parallel, the negative consequences of these pressures could be compensated by the sense of family’s support and affection. In this sense, this fact could justify the reason why Pure Socially Prescribed Perfectionism did not obtain higher mean scores than the rest, except for the case of Non-perfectionism. Certainty, Ortega et al. (2014) found in Latin undergraduate population that personal perfectionism (i.e. perfectionism tendencies self-reported by participants) obtained a closer relationship with

### Table 1. Means, SDs, effect size, and post hoc contrasts between mean depression, anxiety, and stress obtained by the four clusters.

<table>
<thead>
<tr>
<th>Psychological distress</th>
<th>Non-perfectionism</th>
<th>Mixed Perfectionism</th>
<th>Pure SPP</th>
<th>Pure SOP</th>
<th>Statistical significance</th>
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<tbody>
<tr>
<td></td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
<td>M SD</td>
<td>F(3, 1558) p</td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.15&lt;sup&gt;ab&lt;/sup&gt; 3.48</td>
<td>6.02&lt;sup&gt;cd&lt;/sup&gt; 4.48</td>
<td>5.58&lt;sup&gt;d&lt;/sup&gt; 4.24</td>
<td>5.07&lt;sup&gt;a&lt;/sup&gt;,&lt;sup&gt;d&lt;/sup&gt; 3.96</td>
<td>13.81 &lt; .001</td>
</tr>
<tr>
<td>Depression</td>
<td>5.61&lt;sup&gt;a,b&lt;/sup&gt; 4.04</td>
<td>7.13&lt;sup&gt;cd&lt;/sup&gt; 4.41</td>
<td>6.91&lt;sup&gt;d&lt;/sup&gt; 4.54</td>
<td>6.23&lt;sup&gt;a&lt;/sup&gt; 4.42</td>
<td>9.16 &lt; .001</td>
</tr>
<tr>
<td>Stress</td>
<td>6.62&lt;sup&gt;a,b&lt;/sup&gt;,&lt;sup&gt;c&lt;/sup&gt; 3.95</td>
<td>9.23&lt;sup&gt;cd&lt;/sup&gt; 4.56</td>
<td>8.46&lt;sup&gt;d&lt;/sup&gt; 4.39</td>
<td>7.98&lt;sup&gt;a&lt;/sup&gt;,&lt;sup&gt;d&lt;/sup&gt; 4.25</td>
<td>23.16 &lt; .001</td>
</tr>
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SD: standard deviation; SPP: Socially Prescribed Perfectionism; SOP: Self-Oriented Perfectionism.
<sup>a</sup>Significant post hoc contrasts with Mixed Perfectionism group.
<sup>b</sup>Significant post hoc contrasts with the Pure SPP group.
<sup>c</sup>Significant post hoc contrasts with the Pure SOP group.
<sup>d</sup>Significant post hoc contrasts with Non-perfectionism group.
depression and anxiety than family perfectionism (i.e. perfectionistic demands of family). In Latin population, Chang et al. (2011) also observed that parental criticisms neither significantly predicted depressive nor anxious symptoms, as well as parental expectations only predicted depression.

Second, another main discrepancy between our results and the hypotheses of 2×2 model is that in the light of current results, Self-Oriented Perfectionism cannot be considered an adaptive dimension for Ecuadorian adolescents. In this sense, it should be noted that competitiveness and motivation to succeed, dimensions which are closely linked to Self-Oriented Perfectionism, are not sole of individualistic cultures. In fact, Green et al. (2005) discovered that not only are some Latin American countries (e.g. Peru, Venezuela, or Salvador) characterized by high levels of interdependence, but they also present high levels of competitiveness. Similarly, it is necessary to consider the socioeconomic conditions of developing countries, such as Ecuador, where inequalities are still prevalent. For instance, situations of poverty and extreme poverty affect 25 percent and 10 percent of the population of this country, respectively (Instituto Nacional de Estadística y Censos, 2016). Taking into account these circumstances, it is possible that Self-Oriented Perfectionism possesses more negative consequences for Ecuadorian adolescents, whose expectations and chances of success are often frustrated, in comparison with youths who live in developed countries and have more opportunities. People with high Self-Oriented Perfectionism levels are characterized by setting strict requirements for themselves and being persistent in reaching their goals. Thus, in contexts where chances of success exist, this dimension could have positive consequences, which could enhance the self-efficacy of achieving targets and could offer resilience in isolated events of failure. However, when people’s expectations are too often frustrated, high self-criticism that characterized Self-Oriented Perfectionism could predispose to the development of psychopathology (Stoeber et al., 2014).

Limitations, future research, and conclusion

This study has several limitations. First of all, its cross-sectional design precludes the establishment of causal relationships. This aspect should be solved in future using a longitudinal design. Second, despite 2×2 model can be tested with different scales of perfectionism, it would be interesting to replicate this study employing other scales of child and adolescent perfectionism. However, due to the differences between men and women in the way in which perfectionism is associated with psychopathology (e.g. Ashby et al., 2006), it might be useful that future research analyze these differences in the 2×2 model and discuss the results in light of gender roles in the Ecuadorian culture. Furthermore, it would be interesting to test whether socioeconomic status plays a moderating role in the relationship between Self-Oriented Perfectionism and maladjustment.

This study contributes to the understanding of perfectionism in the case of Ecuadorian culture, because it is, to date, the first work about this variable in Ecuador. Considering the high prevalence of Mixed subtype, a 25.22 percent of Ecuadorian adolescents are in risk of suffering depression, anxiety, and stress. Thus, it is recommended the implementation of preventive programs to develop resilience in these Ecuadorian adolescents with a high profile, either in one or both perfectionistic dimensions. However, this study questions the cross-cultural validity of the hypotheses of the 2×2 model. It is necessary, therefore, to increase its field of study across cultures and ethnic minorities, in order to understand the sociocultural factors involved in psychological problems toward perfectionism predisposes.

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