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# Fitness-Related Self-Conscious Emotions and Risk for Exercise Addiction: Examining the Mediating Role of Passion

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1

2 **Abstract**

3 Fitness-related self-conscious emotions (SCEs) have been proposed as antecedents of exercise

4 addiction. However, the potential mechanisms underlying such a relationship remain

5 unexplored. The present study examined the relationship between fitness-related SCEs and risk

6 of exercise addiction (EA) by examining the mediating role of passion for exercise. A total of

7 296 male runners (*M*=40.35 years; *SD*=10.69) completed a survey assessing weekly exercise

8 frequency/hours, fitness-related SCEs, passion for exercise, and the risk of EA. The

9 relationships between the study variables were examined utilizing structural equation

10 modeling. After controlling for age and weekly exercise frequency/hours, fitness-related SCEs

11 of shame, guilt, and hubristic pride were positively associated with risk of EA. However, while

12 guilt had direct effects on risk of EA, shame and hubristic pride showed indirect effects via

13 obsessive passion. The results of the study are discussed, and some practical implications and

14 future research directions are presented.

15

16 **Keywords:** body image; guilt; shame; pride; exercise addiction, exercise dependence

**Fitness-Related Self-Conscious Emotions and Risk for Exercise Addiction: Examining the**

**Mediating Role of Passion**

Exercise addiction (EA) is a possible behavioral disorder that involves exercising in a way that is difficult to control or reduce, and presents physiological symptoms (e.g., tolerance, withdrawal) and/or psychological symptoms (e.g., anxiety, depression) (Hausenblas & Symons-Downs, 2002). Although EA is still not a recognized disorder in the main diagnostic classifications (e.g., DSM-5; American Psychiatric Association, 2013; ICD-11; World Health Organization, 2018), interest in its study has been growing because of its association with physical, social, and psychological negative consequences ( Hausenblas & Symons-Downs, 2002; Szabo, Demetrovics, & Griffiths, 2018). Given its potentially harmful consequences, understanding the factors that trigger EA is of interest in both preventing and treating this possible disorder.

Self-conscious emotions (SCEs) have been proposed to have a central role in in explaining individual's behavior in achievement contexts such as exercise (Castonguay, Pila, Wrosch, & Sabiston, 2015; Castonguay, Sabiston, Kowalski, & Wilson, 2016).  When it comes to examining exercise behavior, research on SCEs has focused on self-relevant domains such as body experiences (Castonguay et al., 2015; Castonguay, Sabiston, Crocker, & Mack, 2014; Tracy & Robins, 2007b). Body-related SCEs reflect evaluative experiences concerning how individuals perceive, feel, think, and behave regarding their bodies, and how they can be experienced in reference to appearance (i.e., what the body looks like) and functional aspects of the body (i.e., how the body performs) (Castonguay et al., 2015, 2014; Tagney & Tracy, 2012; Tracy & Robins, 2004). Their elicitation requires stable self-representations and self-evaluations of an individual's own body, relative to internal and external standards (Robins & Schriber, 2009). Through this self-evaluation process, individuals compare their current self-representation (i.e., how individuals see themselves now) with their ideal self-representation (i.e., how they want to see themselves). The result that provokes such emotion depends on how

43    individuals appraise their current self-representation as either congruent or incongruent with

44    their ideal self-representations.

45         Shame and guilt have been considered as negative SCEs insofar they reflect a

46    discrepancy with respect to the (body) ideal with which an individual identifies. In both

47    negative SCEs, individuals attribute the cause of the event to some internal factor, blaming

48    themselves for the situation (Robins & Schriber, 2009; Tagney & Tracy, 2012; Tracy & Robins,

49    2004). However, shame and guilt can be differentiated based on the stability and globality of

50    the causal attributions. Therefore, shame involves negative feelings about individual

51    characteristics that are uncontrollable (e.g., individuals perceiving that they are not

52    attractive/fit), whereas guilt involves negative feelings of individual behavior that are

53    controllable (e.g.,  individuals perceiving that they are not doing enough to improve their own

54    appearance/fitness).

55         Unlike shame and guilt, pride has been considered as a positive SCE because it is elicited

56    by appraisals that are relevant and congruous with the identity's goal (e.g., body ideal) (Tagney

57    & Tracy, 2012). However, as with shame and guilt, pride can also present two different facets

58    according to the stability and globality of the causal attributions (Tracy & Robins, 2007a).

59    Therefore, feelings of authentic pride are based on achievements derived from the individual's

60    own behavior (e.g., looking good or being fit as a result of following a healthy diet and

61    exercising regularly). Conversely, feelings of hubristic pride result from attributing these

62    achievements to internal and stable causes, so that individuals evaluate themselves as better or

63    superior to others (e.g., looking better or being fitter than others).

64         Although previous research has associated negative basic emotions (e.g., anger,

65    anxiety) with risk of EA (Hausenblas & Symons-Downs, 2002),  a study by Ertl et al. (2018)

66    examined the association between body-related SCEs and risk of EA and found that body

67    shame positively predicted risk of EA, both directly and indirectly (mediated via self-esteem).

68    These results suggest that women who are at risk of developing EA may not necessarily

69  experience low self-esteem while using exercise as a means of coping with, or compensating

70  for, the negative evaluation they make of their bodies. Although the results of the Ertl et al.

71  study are of interest, three limitations should be noted. First, this study only comprised a

72  sample of undergraduate women, meaning further studies are necessary to examine the

73  relationship between body-related SCEs and risk of EA in other populations (e.g., males,

74  athletes). Second, the study did not consider positive SCEs although a recent study reported

75  that positive body image encompasses unique features for the study of health-related variables

76  such as exercise (Castonguay et al., 2014). Third, the study assessed an appearance-related

77  SCE (i.e., body shame) and therefore did not consider other facets of body assessment that

78  might explain risk of EA more fully. In fact, recent research has shown that that fitness-related

79  aspects is a subdomain of body-related SCEs that might better explain exercise behavior than

80  the appearance-related subdomain (Castonguay, Gilchrist, Mack, & Sabiston, 2013;

81  Castonguay et al., 2016; Gilchrist, Pila, Castonguay, Sabiston, & Mack, 2018).

82      In addition to addressing the aforementioned limitations of the Ertl et al.'s (2018) study,

83  the present study attempts to further advance our understanding of the relationship between the

84  SCEs and risk of EA by considering the motivational process which might explain how these

85  emotions may be associated with risk of EA. In fact, in the psychological literature, it has been

86  suggested that body-related SCEs may underlie the motivational regulation of exercise

87  behavior. (e.g., Gilchrist, Sabiston, Conroy, & Atkinson, 2018; Mack, Kouali, Gilchrist, &

88  Sabiston, 2015; Sabiston et al., 2010). Similarly, research has shown that individuals who

89  exercise for reasons that are more self-determined or autonomous (i.e., by choice or motives

90  consistent with their identity goals), such as being healthier or learning new techniques, report

91  a more positive body image and greater adherence to exercise than individuals exercising for

92  controlled reasons or less self-determined motivation (i.e., deriving from internal pressure or

93  external forces) such as appearance-related goals (Sabiston et al., 2010). Considering that

94  exercise may be a reparative behavior of the immediate and salient feedback derived from

95   fitness-related SCEs (Castonguay et al., 2016; Mack et al., 2015), there is a possibility that the

96   relationship between such emotions and risk of EA could be affected by the motivational

97   process through which the individual is involved in exercise behavior. A construct that reflects

98   the motivational process in activities that involve intense and persistent participation, and

99   which might help explain the associations between fitness-related SCEs and EA, is the

100  construct of *passion* (Vallerand, 2015).

101      The Dualistic Model of Passion (DMP) proposed by Vallerand and colleagues

102  (Vallerand, 2008, 2012, 2015; Vallerand et al., 2003) has been widely applied to the exercise

103  context (De la Vega, Parastatidou, Ruíz-Barquín, & Szabo, 2016; Kovacsik et al., 2018;

104  Parastatidou, Doganis, Theodorakis, & Vlachopoulos, 2014; Sicilia, Alcaraz-Ibáñez, Lirola,

105  Burgueño, & Maher, 2018; Szabo, Griffiths, et al., 2018; Vallerand, 2012). From the DMP

106  perspective, passion is defined as a strong inclination toward an activity that individuals like,

107  that they find important, invest time in, and which defines part of their identity (Vallerand et

108  al., 2003). The DMP posits that two types of passion can be differentiated according to the

109  specific form in which the activity individuals feel passion for is internalized into their identity

110  (Vallerand, 2008, 2015).

111      In the context of exercise, harmonious passion (HP) reflects an autonomous

112  internalization of exercise which occurs when individuals have freely accepted exercise as

113  important to them without any contingencies attached to it (Vallerand, 2012, 2015). Thus,

114  individuals do not feel compelled or forced to exercise but rather choose to do it freely, being

115  in control of the activity and deciding when to do it, in such a way that they make it

116  harmonious with other life domains. Individuals who manifest HP towards exercise should be

117  in a position to concentrate on the activity and experience positive affect, psychological

118  wellbeing, and task satisfaction ( Curran, Hill, Appleton, Vallerand, & Standage, 2015;

119  Vallerand, 2008). Conversely, obsessive passion (OP) results from a controlled internalization

120  of an activity within the individual's identity (Vallerand, 2012, 2015). Controlled

121  internalization is produced by intrapersonal and/or interpersonal pressure deriving from

122  contingencies attached to the exercise. Individuals who show OP eventually display a rigid

123  persistence towards the exercise so that they experience an internal uncontrollable urge to

124  engage in it, integrating the exercise practice into other life activities in a more rigid and

125  conflicted way. OP has been associated positively with conflict between life activities, negative

126  emotions, and risk of EA (De la Vega et al., 2016; Kovacsik et al., 2018; Marsh et al., 2013;

127  Parastatidou et al., 2014; Sicilia et al., 2018; Vallerand et al., 2003).

128       According to DMP, the interpretation of social context plays a key role in the quality of

129  the internalization process and, consequently, in the type of passion for exercise that

130  individuals develop (Vallerand, 2015). Therefore, there is a possibility that individuals who feel

131  forced to exercise to meet socially expectations in terms of physical fitness could develop a

132  low-quality internalization or a controlled internalization process. Contrary to this, the fact that

133  individuals do not feel forced to meet a given social standard in terms of physical fitness may

134  lead them to act in an autonomous way, so that exercising is internalized autonomously (i.e.,

135  devoid of external contingencies) in the individual's identity. In this regard, the elicitation of

136  fitness-related SCEs may be considered an element rooted in the interpretation that individuals

137  make from their social context which will affect the regulation of exercise behavior. Fitness-

138  related SCEs are elicited through a self-evaluation process where individuals compare their

139  current and ideal self-representations of fitness. However, as Leary (2007) suggests, SCEs are

140  much more strongly associated with what individual thinks other individuals think than what

141  individuals think of themselves, which can result in either an autonomous or controlled

142  interpretation of the social context. Individuals who elicit negative fitness-related SCEs as a

143  consequence of appraising the incongruence between their current self-representation and their

144  ideal self-representation might feel a pressure to exercise as a way to live up to socially

145  sanctioned standards, ideals, and expectations about fitness. These negative fitness-related

146  SCEs reflect a process of internal control which implies a controlled interpretation of the social

147   context that would affect the internalization process of the behavior into the individual's

148   identity.

149        Although research has indicated that the type of passion for exercise helps explain risk

150   of EA (De la Vega et al., 2016; Kovacsik et al., 2018; Sicilia et al., 2018), little previous

151   research has examined the relationship between fitness-related SCEs and risk of EA, via the

152   mediating role of passion for exercise. However, this appears to be endorsed by previous

153   studies that have considered both positive and negative SCEs, and their differentiated results

154   (Castonguay et al., 2016; Ertl et al., 2018; Sabiston et al., 2010).

155        Shame has been shown to have a positive association with risk of EA (Ertl et al., 2018).

156   In turn, this emotion has shown to have a positive correlation with guilt (Castonguay et al.,

157   2016), and both have been associated with maladaptive outcomes (Castonguay et al., 2016;

158   Sabiston et al., 2010). In fact, both shame and guilt involve negative feelings and a specific

159   blaming of the self for the situation or event assessed (Robins & Schriber, 2009; Tagney &

160   Tracy, 2012; Tracy & Robins, 2004). Previous research has demonstrated that individuals

161   experiencing a feeling of blame for not being able to exercise are likely to reflect a controlled

162   internalization of the exercise and a rigid persistence towards this activity (Parastatidou et al.,

163   2014; Sicilia et al., 2018). Therefore, among these individuals, EA may be a way of coping

164   with the stress that these negative fitness-related SCEs (i.e., shame and guilt) would produce

165   (Szabo, Demetrovics, et al., 2018).

166        In the case of fitness-related pride, previous research has shown a positive association

167   between both facets of pride and exercise (Gilchrist, Pila, et al., 2018). However, each facet of

168   pride appears to reflect a different interpretation of the social context that might explain the

169   way in which exercise is internalized into an individual's identity and how exercise can become

170   addictive (De la Vega et al., 2016; Kovacsik et al., 2018; Parastatidou et al., 2014). Hubristic

171   pride reflects positive affect by considering oneself superior to others, and which guides

172   individuals to focus egotistically on goal-seeking at the expense of other individuals involved

173    in that activity (Castonguay et al., 2016; Mack et al., 2015). Consequently, hubristic pride

174    reflects an important need to succeed that derives from high self-worth contingencies, a

175    characteristic that has been described in individuals with higher OP (Mageau, Carpentier, &

176    Vallerand, 2011). Therefore, it is probable that feelings of arrogance and superiority towards

177    others reflect pressure to maintain a social status and, consequently, this controlled

178    interpretation of the social context leads the individual towards OP for exercise (Vallerand,

179    2012), which in turn has been associated with increased risk of developing EA (De la Vega et

180    al., 2016; Kovacsik et al., 2018; Sicilia et al., 2018). Furthermore, hubristic pride has been

181    associated with narcissistic personality traits, perfectionism, and low agreeableness

182    (Castonguay et al., 2013; Tagney & Tracy, 2012), traits that are also observed in obsessive self-

183    centered behaviors leading to risk of EA (Cook, Griffiths, & Pontes, 2018).

184        In contrast, authentic pride has generally been associated with adaptive behaviors

185    (Castonguay et al., 2016; Sabiston et al., 2010) and is therefore more likely to be related to

186    healthy ways of exercising. This might be because feelings of confidence and accomplishment

187    that can be found among individuals who feel authentic pride would reflect an autonomous

188    interpretation of the social context and would promote harmonious exercise internalization.

189    During exercise, harmoniously passionate individuals are likely to feel confident because their

190    sense of achievement is not contingent on successful exercise outcomes (Mageau et al., 2011).

191    They are also more likely to feel accomplished because they tend to reach high exercise

192    proficiency levels. Moreover, authentic pride seeks success mainly by mastering goals (Tagney

193    & Tracy, 2012; Tracy & Robins, 2007b) which does not appear to predict risk of EA

194    (González-Cutre & Sicilia, 2012).

195        Based on the aforementioned empirical and theoretical literature, the objective of the

196    present study was to test an integrated model in which negative SCEs (guilt and shame) and

197    hubristic pride would positively predict OP, which in turn would positively predict EA. It was

198  also expected that authentic pride would positively predict HP, which in turn would not predict

199  EA.

**Method**

201  *Participants*

202       The study utilized a convenience sample initially comprising 310 male and female

203  runners who participated in a half-marathon race event held in a city located in southern Spain.

204  However, given that only 14 females (4.5%) were recruited, they were excluded from the

205  analyzed sample. This meant that the final study sample comprised 296 male runners aged

206  between 18 and 70 years old ($M = 40.35$; $SD = 10.69$). Their Body Mass Index (BMI) ranged

207  from 18.61 to 32.93 kg/m$^2$ ($M = 24.33$; $SD = 2.27$). Educationally, 4.7% of the participants had

208  a middle school diploma, 31.1% had a high school diploma, and 63.9% had a university

209  degree. According to the prevalence cut-off points proposed for the Exercise Dependence

210  Scale-Revised (Symons-Downs, Hausenblas, & Nigg, 2004), 64.5% of participants were

211  classified as asymptomatic, 32.1% as non-dependant-symptomatic, and 3.4% as being at-risk

212  of exercise dependence.

213  *Measures*

214       *Demographic information.* Participants gave information concerning their age, gender,

215  educational attainment, height, and weight.

216       *Fitness-related SCEs.* This was assessed using the Spanish version (authors - reference

217  omitted) of the Body and Appearance Self-conscious Emotions Scale (Castonguay et al., 2016).

218  This instrument comprises four factors: shame (four items, e.g. *"Inadequate when I think about*

219  *my fitness"*), guilt (four items, e.g. *"Guilty that I do not do enough to improve my fitness"*),

220  authentic pride (four items, e.g. *"Proud about my effort to improve my fitness"*), and hubristic

221  pride (three items, e.g. *"Proud of my superior fitness"*). For the responses, a Likert-type scale

222  was used that ranged from 1 (*never*) to 5 (*always*).

223   *Passion for exercise.* This was assessed using the Spanish version (Chamarro et al.,

224 2015) of the revised Passion Scale (Marsh et al., 2013). The instrument comprises two factors:

225 Harmonious Passion (six items, e.g., *"My activity is well integrated into my life"*) and

226 Obsessive Passion (six items, e.g., *"If I could, I would only do my activity"*). For the responses,

227 a Likert-type scale was used, which ranged from 1 (*totally disagree*) to 7 (*totally agree*).

228   *Risk for exercise addiction.* This was assessed using the Spanish version (Sicilia &

229 González-Cutre, 2011) of the Exercise Dependence Scale-Revised (EDS-R; Symons-Downs et

230 al., 2004). This instrument consists of seven factors comprising three items each: withdrawal

231 (e.g., *"I exercise to avoid feeling anxious"*), continuance (e.g., *"I exercise when injured"*),

232 tolerance (e.g., *"I continually increase my exercise frequency to achieve the desired*

233 *effect/benefits"*), lack of control (e.g., *"I am unable to reduce how long I exercise"*), reduction

234 in other activities (e.g., *"I would rather exercise than spend time with family/friends"*), time

235 (e.g., *"I spend most of my free time exercising"*), and intention effects (e.g., *"I exercise longer*

236 *than I intend to"*). For the responses, a Likert-type scale was used, which ranged from 1

237 (*never*) and 6 (*always*).

238   *Frequency and hours of exercise.* Participants reported the number of days and number

239 of hours that they usually exercised in a typical week.

240 ***Procedure***

241   After receiving the approval of the research team's ethics committee, organizers of a

242 half-marathon race event held in southern Spain were contacted to request their collaboration

243 in recruiting participants. Following this, a banner asking for volunteers to enrol in research on

244 exercise habits was posted on the official race event website. By clicking on the banner,

245 participants were redirected to a website where they were informed about (i) the non-

246 remunerated and anonymous nature of their involvement, and (ii) their right to withdraw from

247 the study at any time. After providing their informed consent, participants completed an online

248    survey which included the measures described above. The automated response protocol

249    employed prevented the loss of data.

250    ***Data analysis***

251         First, descriptive statistics, correlations between study variables, and internal

252    consistency for the employed psychometric instruments were obtained using IBM SPSS 25.

253    The relationships of interest were examined using structural equation modelling (SEM);

254    namely, specifying a path analysis regression model employing the Maximum Likelihood

255    (ML) estimation method with 10,000 bootstrap replications in Mplus 7 (Muthén & Muthén,

256    1998-2015). This procedure allowed the present researchers to maintain a reasonable ratio

257    between cases and free parameters (Kline, 2011) as well as dealing with any departures from

258    the normality and homoscedasticity assumptions (Preacher & Hayes, 2008). In order to prevent

259    a spurious overestimation of indirect effects, all direct/indirect effects were computed

260    (Preacher & Hayes, 2008). Usual weekly exercise hours/frequency and age were introduced as

261    covariates into the regression model. In accordance with suggestions by Preacher and Hayes

262    (2008), when specifying regression models that included a multiple mediator, the error terms of

263    the potential mediators (i.e., HP and OP) were allowed to freely correlate. Bias-corrected

264    confidence intervals (95%), not including zero, were considered as indicative of significantly-

265    different-from-zero relationships at the $p<.05$ level (Preacher & Hayes, 2008).

266                                           **Results**

267         The descriptive statistics, correlational analysis, and internal consistency are shown in

268    Table 1. The mean scores for weekly exercise frequency, authentic pride, and HP were above

269    the mid-point of their respective possible scores whereas the mean scores of the remaining

270    variables were below this point. Apart from the negative relationship found between age and

271    risk of EA, the latter was positively correlated with the remaining variables. According to

272    Cohen's criteria (1988), these relationships ranging in magnitude from small (in the case of

273    age, weekly frequency and hours of practice, authentic pride, and HP) to strong (in the case of

274  OP). Internal consistency ranged from .84 (the shame factor of the BSE-FIT) to .93 (the

275  hubristic pride factor of the BSE-FIT and EDS-R).

276       A summary of the direct effects of fitness-related SCEs on HP/OP and risk of EA is

277  shown in Figure 1. A full summary of the direct and indirect effects involved are shown in

278  Tables 2 and 3. Results of the regression model showed: (i) a significant indirect shame effect

279  on risk of EA ($\beta$=.104, $B$=0.142, $SEB$=.069, 95%CI [0.018, 0.291], $p$=.040) via OP; (ii) a

280  significant indirect effect of hubristic pride on risk of EA ($\beta$=.135, $B$=0.092, $SEB$=.022, 95%CI

281  [0.051, 0.140], $p$<.001) via OP; (iii) a significant direct effect of guilt on risk of EA ($\beta$=.164,

282  $B$=0.155, $SEB$=.055, 95%CI [0.043, 0.258], $p$=.005); and (iv) a non-significant indirect/direct

283  effect of  authentic pride on risk of EA. However, a significant direct effect of authentic pride

284  on HP was found ($\beta$=.551, $B$=0.791, $SEB$=.095, 95%CI [0.596, 0.972], $p$<.001). The model

285  explained 57% of the variance for risk of EA.

286                                             **Discussion**

287       The objective of the present study was to analyze the relationship between fitness-

288  related SCEs and risk of EA, and examining the mediating role of passion for exercise. It was

289  hypothesized that guilt, shame, and hubristic pride would be positively associated with risk of

290  EA and that this relationship would be mediated by OP. At the same time, it was hypothesized

291  that authentic pride would positively predict HP, which in turn would not predict risk of EA.

292  The present study represents a significant advancement from previous research that examined

293  the relationship between appearance-related SCEs and risk of EA (Ertl et al., 2018) because the

294  research considered the relationship in the specific domain of fitness, an aspect of body-related

295  SCEs, which has demonstrated a closer relationship to exercise behaviour than to the

296  appearance aspect (Gilchrist, Pila, et al., 2018). Moreover, the study went further than previous

297  research because it simultaneously included negative and positive SCE measures and a

298  mediation analysis that provided a more nuanced insight concerning one of the potential

299    motivational process underlying EA. Although OP mediating effects were not observed in the

300    association between guilt and risk of EA, in general (and as hypothesized), the results

301    demonstrated that not only do negative fitness-related SCEs positively predict risk of EA but

302    also the association between positive fitness-related SCEs (i.e., hubristic pride) and risk of EA

303    remained positive when this relationship was mediated by OP.

304          The results showed that the two forms of negative fitness-related SCEs (i.e., shame and

305    guilt) had moderate positive correlations with (and showed positive effects upon) risk of EA.

306    These findings are in line with previous studies showing that when body appraisal is

307    incongruous with the social standards with which the individual identifies, there are positive

308    associations with maladaptive outcomes (Castonguay et al., 2016; Ertl et al., 2018; Tagney &

309    Tracy, 2012). However, in line with the hypothesis raised, hubristic pride also showed a

310    positive association with risk of EA. This is not particularly surprising given that the hubristic

311    facet of pride has been associated with both adaptive and maladaptive outcomes (Castonguay

312    et al., 2014; Tagney & Tracy, 2012). In this regard, hubristic pride showed (at the same level as

313    negative SCEs) a higher positive correlation with risk of EA than that shown by authentic

314    pride, and was also shown to be a positive predictor of risk of EA. Previous studies have

315    reported a positive association between both facets of fitness-related pride and frequency of

316    moderate-vigorous exercise (Gilchrist, Pila, et al., 2018). Nonetheless, as the results of the

317    present study appear to show, the healthy or unhealthy form of exercise to which each facet of

318    pride appears to relate may be explained by the form of passion that the exercise arouses, and

319    therefore by how individuals integrate exercise as part of their identity.

320          The outcome of the mediation analysis showed that while fitness-related hubristic pride

321    had positive effects on OP for exercise, authentic pride had positive effects on HP.

322    Consequently, the results suggest that the way in which individuals interpret their social

323    context (eliciting different facets of fitness-related pride) may affect risk of EA through a HP or

324    OP for this activity, which could facilitate either the healthy or addictive character of the

325    exercise. In fact, while OP had a positive and statistically significant effect on risk of EA, the

326    effect of HP on risk of EA was weak and not statistically significant. These results are line with

327    previous research (De la Vega et al., 2016; Kovacsik et al., 2018; Sicilia et al., 2018) which

328    have shown that OP has a stronger predictive effect on risk of EA than HP, and support the

329    notion of differentiated consequences for the two types of passion (Vallerand, 2012, 2015).

330           On the one hand, the results suggest that individuals experiencing pride based on what

331    their body is capable of doing and achieving, likely regulate their exercise behavior in a

332    flexible way (Gilchrist, Sabiston, et al., 2018). Therefore, the positive affective experience

333    derived from fitness-related authentic pride is likely to facilitate an autonomous internalization

334    of the exercise behavior, probably because individuals base their positive experiences on

335    having defined success in their own skills and progress (Castonguay et al., 2016; Tagney &

336    Tracy, 2012). On the other hand, the results supporting the mediating role of OP for exercise in

337    the relationship between fitness-related hubristic pride and risk of EA are novel and it may

338    clarify the process by which this SCE may be associated with a potential maladaptive outcome

339    such as risk of EA. Attributing a positive event to global aspects of the self (i.e., hubristic

340    pride) may lead to socially valued exercise behavior but it also appears to result in a potential

341    unhealthy form of exercise due to the narcissistic self-aggrandizing and boastful nature of this

342    facet of pride (Castonguay et al., 2013; Tagney & Tracy, 2012). Indeed, individuals who

343    experience fitness-related hubristic pride tend to define their success on the basis of perceiving

344    themselves of being superior to others (Castonguay et al., 2016). Consequently, it is probable

345    that this constant comparison and desire to dominate others leads them into rigid persistence

346    concerning exercise behavior in order to maintain their perceived social status. This is

347    understandable if it is considered that developing OP for an activity facilitates intrapersonal

348    conflicts (Curran, Hill, Appleton, Vallerand, & Standage, 2015; Marsh et al., 2013), which

349    appears appropriate when (in the exercise context) individuals are constantly comparing

350    themselves with others and defining their fitness based on external references. When this

351    happens, it is often difficult for individuals to find a balance between the time spent exercising

352    and other life activities, which leads to an increased risk of developing EA symptoms

353    (Hausenblas & Symons-Downs, 2002; Symons-Downs et al., 2004; Terry, Szabo, & Griffiths,

354    2004). Therefore, the results suggest that when explaining the relationship between positive

355    fitness-related SCEs and risk of EA, the internalization process of the behavior into the

356    individual's identity should be considered, as it would help explain why experiencing fitness-

357    related SCE may lead to exercise in an addictive way.

358         The analysis of the mediating role of passion also helps to understand how the

359    association between negative fitness-related SCEs and risk of EA is developed via different

360    routes. While guilt showed direct and statistically significant positive effects on risk of EA, the

361    effects of shame on risk of EA were mediated by OP. The findings suggest that experiencing

362    fitness-related shame may result in becoming passionate about exercise in an obsessive way to

363    the point that it would lead developing EA. However, experiencing fitness-related guilt does

364    not imply that exercise is an activity that is desired and loved. Indeed, the individual would not

365    value the exercise behaviour and may find it non-pleasurable, but feel compelled to do it.

366    Consequently, the results here suggest that individuals who feel guilty for not having done

367    enough to stay fit may be at risk of developing EA, without developing any type of passion for

368    exercise, and therefore without this activity becoming an integral part of their goals and values.

369    Future research should seek to identify the conditions underlying the mechanisms that may

370    explain why fitness-related shame and guilt might lead to an increased risk of EA via different

371    pathways.

372         The results of the present study suggest several strategies that could be tried to reduce

373    the risk of developing EA. For example, by reducing self-evaluation processes through which

374    individuals compare their current fitness to ideal standards. However, the effectiveness of these

375    strategies could be limited because the assessment made of an individual's fitness could be

376    evoked implicitly (Tagney & Tracy, 2012), and the SCEs in this domain could be generated

377 even if individuals are trying not to focus attention on them. Therefore, a runner who fails to

378 complete their training plan could apply strategies to avoid thinking explicitly about what this

379 event means for their fitness. However, their goals and self-representation may be activated at

380 an implicit level, eventually creating guilt or shame despite their attempt to protect themselves

381 against these emotions. Therefore, along with strategies that reduce self-evaluation pressure,

382 strategies could be applied that facilitate authentic pride emotions in the individual regarding

383 their fitness. Strategies that aim to create the attribution of success based on effort and

384 competence would help engender perceptions of prestige based on the possession of skills or

385 expertise specific to authentic pride, avoiding prestige perceptions based on superiority over

386 others.

387       Despite the novelty of the present study's results, there were some specific limitations

388 that should be highlighted when interpreting the study's findings. First, the employment of a

389 correlational and cross-sectional design does not allow the determining of causality.

390 Consequently, we were unable to determine the extent to which the observed relationships

391 reflect the effect of one variable on another over time and/or reflect ongoing stable

392 relationships among variables. Therefore, future research with longitudinal and experimental

393 designs are needed to examine the replication of results allowing statistical control for prior

394 measures of variables, and contribute to establish the directionality of the relationships found

395 in the present study. Second, the sample in the present study exclusively comprised male

396 recreational runners, so the associations examined in the present study should be examined

397 among more diverse populations and exercise practices. Finally, although it was expected (and

398 the study assumed) that fitness-related SCEs would better explain exercise behavior than other

399 body-related SCEs (e.g., those related to appearance), it would be of interest to consider the

400 analysis of SCEs in relation to both body domains and their relationship to risk of EA in the

401 same study.

402     In conclusion, the results of the present study replicate previous research by suggesting

403     that OP may be strongly related to risk of EA than HP, and supports the notion that the two

404     types of passion function differently. In addition, the present study furthers the understanding

405     concerning the relationship between fitness-related SCEs and risk of EA, showing that the type

406     of passion may affect this relationship. In this sense, both fitness-related shame and hubristic

407     pride may positively lead to risk of EA, by eliciting an obsessive passion for exercise.

408     Therefore, the results suggest that the type of passion is important with respect to the

409     relationship between the fitness-related SCEs and risk of EA.

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Table 1. *Descriptive Statistics, Internal Consistency and Correlational Analysis of Study Variables (N=296)*

| | Range[a] | M | SD | Skewness | Kurtosis | α | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | 18-70 | 40.35 | 10.69 | -0.16 | -0.38 | - | - | | | | | | | | |
| 2. Weekly Exercise Frequency | 1-7 | 4.51 | 1,48 | -0.13 | -0.55 | - | .00 | - | | | | | | | |
| 3. Weekly Exercise Hours | 1-26 | 7.19 | 4.39 | 0.94 | 1.49 | - | .18** | .56*** | - | | | | | | |
| 4. Shame | 1-5 | 1.44 | 0.63 | 1.76 | 3.09 | .84 | -.19** | -.06 | .01 | - | | | | | |
| 5. Guilt | 1-5 | 1.84 | 0.91 | 1.08 | 0.65 | .89 | -.22*** | -.03 | .01 | .77*** | - | | | | |
| 6. Authentic pride | 1-5 | 3.64 | 0.96 | -0.58 | -0.07 | .90 | -.02 | .36*** | .22*** | -.14* | -.10 | - | | | |
| 7. Hubristic pride | 1-5 | 2.77 | 1.27 | 0.12 | -1.15 | .93 | -.03 | .33*** | .19** | .09 | .15* | .51*** | - | | |
| 8. Harmonious Passion | 1-7 | 5.02 | 1.39 | -0.70 | 0.00 | .91 | -.13* | .23*** | .16** | .00 | .01 | .54*** | .25*** | - | |
| 9. Obsessive Passion | 1-7 | 2.40 | 1.18 | 0.97 | 0.82 | .85 | -.18** | .19** | .13* | .34*** | .36*** | .20** | .37*** | .21*** | - |
| 10. Risk of EA (EDS-R) | 1-6 | 2.36 | 0.86 | 0.53 | -0.20 | .93[b] | -.26*** | .28*** | .17** | .40*** | .44*** | .18** | .35*** | .17** | .69*** |

Note. EA=Exercise Addiction, EDS-R=Exercise Dependence Scale-Revised.
[a] Observed for age and weekly exercise hours, possible for remaining variables.
[b] Internal consistency values (✔) for the EDS-R sub-factors were .86 (Withdrawal), .84 (Continuance), .88 (Tolerance), .83 (Lack of control), .70 (Reduction in other activities), .87 (Time), and .83 (Intention effects).
*$p<.05$, **$p<.01$, ***$p<.001$

Table 2. *Summary of Directs Effects of Fitness-Related Self-Conscious Emotions on Passion and Risk for Exercise Addiction*

| | $\beta$ | B | SEB | 95% BcCI Lower | 95% BcCI Upper | p-value |
|---|---|---|---|---|---|---|
| Shame → HP | .068 | 0.148 | .159 | -0.156 | 0.468 | .350 |
| Guilt → HP | -.010 | -0.016 | .106 | -0.234 | 0.185 | .881 |
| **Authentic Pride → HP** | **.551** | **0.791** | **.095** | **0.596** | **0.972** | **< .001** |
| Hubristic Pride → HP | -.052 | -0.057 | .072 | -0.196 | 0.084 | .430 |
| Weekly Exercise Frequency → HP | .024 | 0.023 | .051 | -0.078 | 0.125 | .659 |
| Weekly Exercise Hours → HP | .056 | 0.018 | .019 | -0.019 | 0.053 | .337 |
| **Age → HP** | **-.124** | **-0.016** | **.006** | **-0.017** | **-0.003** | **.008** |
| **Shame → OP** | **.197** | **0.367** | **.168** | **0.044** | **0.701** | **.029** |
| Guilt → OP | .155 | 0.201 | .124 | -0.038 | 0.450 | .105 |
| Authentic Pride → OP | .072 | 0.088 | .073 | -0.057 | 0.233 | .227 |
| **Hubristic Pride → OP** | **.256** | **0.237** | **.055** | **0.128** | **0.346** | **< .001** |
| Weekly Exercise Frequency → OP | .073 | 0.058 | .061 | -0.062 | 0.176 | .341 |
| Weekly Exercise Hours → OP | .034 | 0.009 | .020 | -0.028 | 0.049 | .640 |
| Age → OP | -.103 | -0.011 | .006 | -0.024 | 0.000 | .064 |
| Shame → EDS-R | .082 | 0.112 | .078 | -0.036 | 0.273 | .150 |
| **Guilt → Risk of EA** | **.164** | **0.155** | **.055** | **0.043** | **0.258** | **.005** |
| Authentic Pride → Risk of EA | .031 | 0.028 | .052 | -0.073 | 0.130 | .596 |
| Hubristic Pride → Risk of EA | .060 | 0.041 | .035 | -0.028 | 0.107 | .238 |
| HP → EDS-R | -.031 | -0.020 | .031 | -0.081 | 0.042 | .534 |
| **OP → Risk of EA** | **.528** | **0.387** | **.038** | **0.313** | **0.462** | **< .001** |
| **Weekly Exercise Frequency → Risk of EA** | **.162** | **0.094** | **.010** | **0.032** | **0.158** | **.004** |
| **Weekly Exercise Hours → Risk of EA** | .018 | 0.004 | .033 | -0.015 | 0.025 | .734 |
| **Age → Risk of EA** | **-.117** | **-0.009** | **.004** | **-0.017** | **-0.003** | **.008** |

*Note. B*=Unstandardized estimates; *SE*=Standard error; ϐ = Standardized estimates; BcCI=Bias corrected Confidence Interval, HP = Harmonious passion, OP = Obsessive passion, EA=Exercise addiction. Results derived from a 10,000 resamples bootstrapping analysis. Bolded estimates indicate statically significant (*p*<.05) indirect effects.

Table 3. *Summary of Indirect Effects of Fitness-Related Self-Conscious Emotions on Risk for Exercise Addiction via Passion*

| Path | $\beta$ | *B* | *SEB* | 95% BcCI Lower | 95% BcCI Upper | *p-value* |
|---|---|---|---|---|---|---|
| Shame → HP → Risk of EA | -.002 | -0.003 | .007 | -0.029 | 0.005 | .687 |
| **Shame → OP → Risk of EA** | **.104** | **0.142** | **.069** | **0.018** | **0.291** | **.040** |
| Guilt → HP → Risk of EA | .000 | 0.000 | .004 | -0.006 | 0.012 | .938 |
| Guilt → OP → Risk of EA | .082 | 0.078 | .048 | -0.013 | 0.176 | .105 |
| Authentic Pride → HP → Risk of EA | -.017 | -0.015 | .025 | -0.064 | 0.034 | .535 |
| Authentic Pride → OP → Risk of EA | .038 | 0.034 | .029 | -0.020 | 0.096 | .242 |
| Hubristic Pride → HP → Risk of EA | .002 | 0.001 | .003 | -0.002 | 0.014 | .724 |
| **Hubristic Pride → OP → Risk of EA** | **.135** | **0.092** | **.022** | **0.051** | **0.140** | **< .001** |

*Note.* *B*=Unstandardized estimates; *SE*=Standard error; ℰ = Standardized estimates; BcCI=Bias corrected Confidence Interval, HP = Harmonious passion, OP = Obsessive passion, EA=Exercise addiction. Results derived from a 10,000 resamples bootstrapping analysis. Bolded estimates indicate statically significant (*p*<.05) indirect effects.
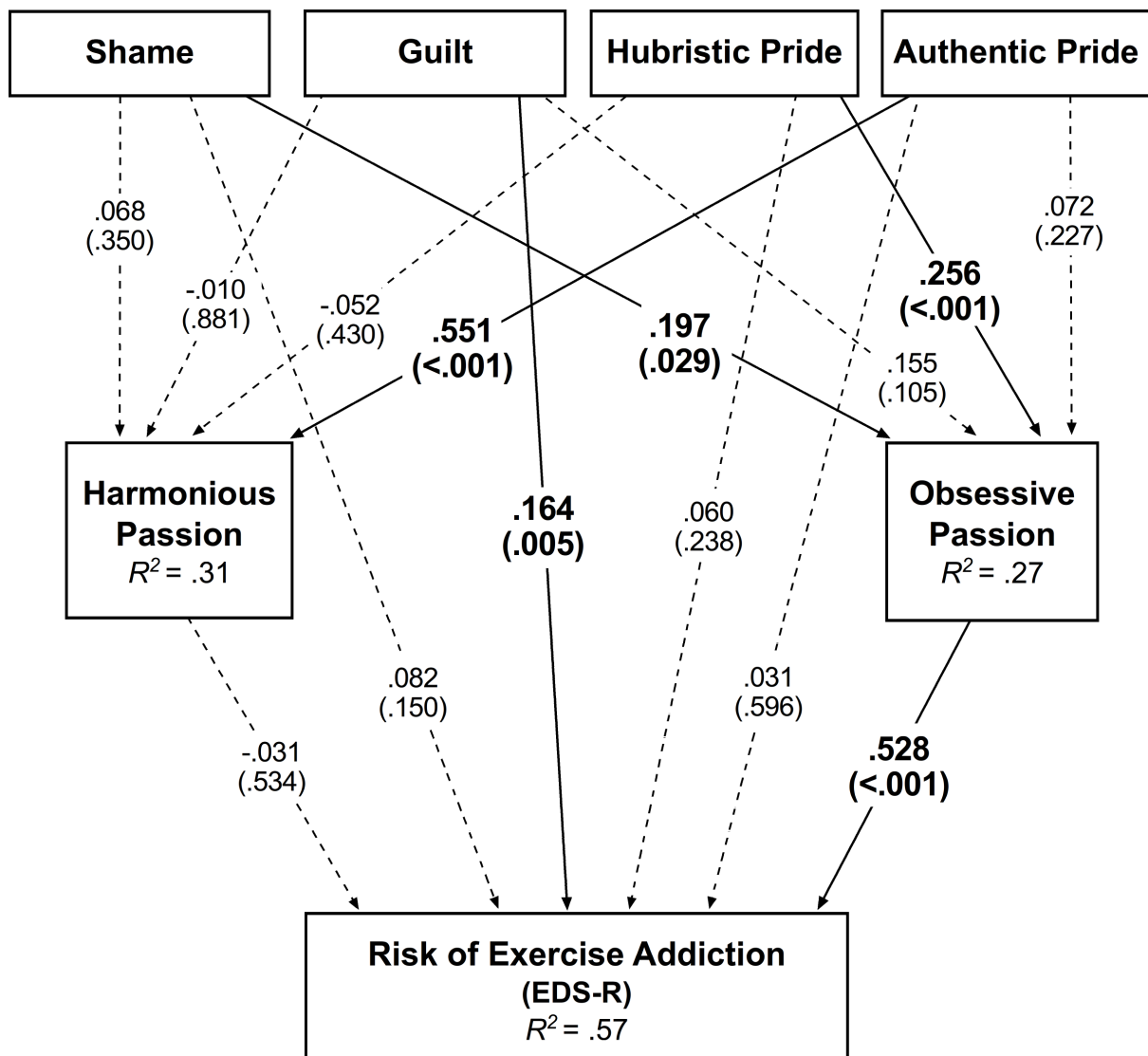
*Figure 1.* Summary of Standardized Directs Effects of Fitness-Related Self-Conscious

Emotions on Passion and Risk for Exercise Addiction. For clarity, the effects of weekly

exercise hours/frequency and age on endogenous variables are not depicted. EDS-R=Exercise

Dependence Scale-Revised. Results derived from a 10,000 resamples bootstrapping analysis.

Continuous lines and bolded estimates indicate statically significant (*p*<.05) effects. Values

inside brackets reflects specific *p*-values.