Perfectionism and eating disorder symptoms in adolescents and young adults: the mediating role of cognitive emotion regulation strategies

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Introduction

Eating disturbances, either clinical or subclinical, are highly prevalent in western countries (Makino, Tsuboi, & Dennerstein, 2004) and their prevalence have been increasing in the last 50 years, especially among adolescents. Full blown eating disorders are severe conditions that are very difficult to treat (Treasure, Cardi, Leppanen, & Turton, 2015). The scientific and clinical understanding of these disorders has been progressing slowly, but we know several risk factors. Individuals with disturbed eating attitudes and behaviours typically report problematic perfectionistic standards and intense evaluative concerns, as well as maladaptive emotional processes. The present dissertation aims to examine the associations between perfectionistic aspects, emotion regulation strategies and disturbed eating in two samples representative of two distinct developmental ages. In the first chapter, the construct of perfectionism and its clinical relevance were described and discussed by summarizing studies in scientific literature focused on the conceptualization, measurement and psychological implications of the construct. In the second chapter, theoretical models assessing the relationship between perfectionistic dimensions and eating symptoms were discussed. In the third chapter, principal theories on emotion regulation strategies were explained and results of a cross-sectional investigation examining the specific relationships among perfectionistic facets, emotion regulation strategies and eating symptoms reported by two samples of adolescents and young adults were observed. In particular, the mediation role of adaptive and maladaptive emotion regulation in explaining the associations between perfectionistic dimensions and eating pathology was examined. Finally, in the fourth chapter, results obtained from the study conducted were discussed.

Chapter I. The construct of perfectionism: conceptual definition, assessment, and clinical implications

1.1. Definition of the construct

Perfectionism has been defined as a personality trait involving the tendency to set unrealistic, excessively high standards despite adverse consequences, combined with critical self-evaluations (Frost, Marten, Lahart & Rosenblate, 1990; Hewitt & Flett, 1991). Its role was discussed as relevant in the onset and maintenance of psychological distress and in the aetiology of various psychiatric conditions (Egan, Wade, & Shafran, 2011). This phenomenon has been addressed in the literature since the early 1960s with various hypotheses on its nature, definition and consequences. Originally, perfectionism was theorized to be a unidimensional dispositional construct (Burns, 1980), predominantly typified by detrimental aspects related to negative mental health outcomes. Early clinical conceptualization of perfectionism operationalized it as the irrational, self-defeating belief that "one should be thoroughly competent, adequate, intelligent, and achieving in all possible respects" (Ellis, 1962). Perfectionism was initially viewed as a pervasive neurotic style characterized by a dichotomous thinking (i.e. rigid, “black and white” cognitive thinking) and substantially a dysfunctional aspect of personality (Beck, 1976) and a sign of psychological maladjustment and disorder (e.g., Burns, 1980). Hamachek (1978) first proposed a two- dimensional model of perfectionism that distinguished the "normal" and the "neurotic" aspect of the construct, emphasizing the high level of satisfaction which accompanies perfectionistic strivings, and the intense need to avoid failure that motivated the pursuit of high standards, respectively. This dichotomic approach highlighted the adaptiveness of certain aspects of perfectionism and suggested its complex multifaceted nature. Empirical research has been focused on establishing which of the perfectionistic aspects should be considered adaptive and which others should be regarded as relevant in the context of psychopathology (Limburg, Watson, Hagger, & Egan, 2017).

The tendency to view perfectionism from a multidimensional perspective started in 1990s, with some theories emerging on the definition of its specific aspects. Frost and colleagues (1990) proposed multifactor model assessing four aspects of perfectionism directed toward the self (i.e. Personal Standards, Doubts about actions, Concern over mistakes, Organization) and two aspects reflecting the perceived parental demands (i.e. Parental criticism, Parental expectations). Historically, studies adopting the approach of Frost's research group considered Doubts about actions, Concern over mistakes, Parental criticism and expectations as the most damaging aspects of perfectionism, as they reflected critical and negative self-evaluations (e.g., Magnusson, Nias, & White, 1996). On the other hand, Personal standards and Organization were generally classified as positive components of perfectionism (e.g., Enns & Cox, 1999) since they showed small to negative correlations with psychopathological outcomes (e.g., depression; Magnusson et al., 1996). Cumulative evidence exists for the validity and reliability of each of these dimensions (e.g. Harvey, Pallant & Harvey, 2004). In this regards, Frost and colleagues (1990) operationalized this six-factor structure model by developing the Multidimensional Perfectionism Scale (F-MPS), one of the most commonly used and well-validated measures. The F-MPS has demonstrated strong psychometric properties over many populations (e.g., adolescents, Gavino, Nogueira, Pérez-Costillas, & Godoy, 2019; adults, Gelabert et al., 2011).

Another approach to defining perfectionism has been developed by Hewitt and Flett (1991) who conceptualized a three-factor model assessing both intra and interpersonal aspects of the trait. According to this approach, three aspects of perfectionism should be differentiated: Self-oriented perfectionism, Socially prescribed perfectionism and Other-oriented perfectionism. The first dimension reflects the tendency to setting excessively high personal standards and is generally considered as an adaptive form of perfectionism (Stoeber & Otto, 2006) since it has been historically associated with positive outcomes (e.g., high achievement stress appraisal; LaRocque, Lee, & Harkness, 2016). Despite this, recent and cumulative evidence exists on its role in psychological maladjustment (e.g., depressive symptoms; Corry et al., 2017), therefore, the adaptive nature of Self-oriented perfectionism is currently object of discussion. On the other hand, the dysfunctional nature of Socially prescribed perfectionism, that involves the belief that others

expect perfection from oneself, has been consistently recognized (e.g., depression, Kim & Lee, 2018; post-traumatic disorder symptoms; Molnar, Flett, & Hewitt, 2020). Third, Other-oriented perfectionism differs from the other two dimensions as it is focused on having excessive standards for significant others (Hewitt & Flett, 1991). This component has been conceptualized as an aspect of "narcissistic perfectionism," a "dark" form of perfectionism associated with antisocial and antagonistic traits (e.g., vindictiveness, hostility; Nealis, Sherry, MacNeil, Stewart, & Sherry, 2013). Nevertheless, evidence on the association with beneficial outcomes (e.g., positive mood; Flett, Blankstein, & Hewitt, 2009) also exists, thus suggesting the ambivalent nature of Other-oriented perfectionism. With the aim of assessing these perfectionistic aspects, Hewitt and Flett (1991) developed their version of MPS (i.e. HF-MPS) that assessed each of the three conceptualized dimensions. The HF-MPS showed internal consistency and test-retest reliability among different samples (e.g., community, clinical; for a review see Hewitt & Flett 2004).

Some authors defined the dysfunctional facet of perfectionism as a form of perceived discrepancy "between the standards one has for oneself and one's actual performance" (Slaney, Rice, Mobley, Trippi, & Ashby, 2001; p. 133). Discrepancy has been considered a core aspect of perfectionism, as high perfectionists often suffer from psychological distress because of their stringent evaluation of themselves and the perception of being distant from their ideal self (Lee & Kelly, 2011). In this theoretical framework, Slaney and colleagues (2001) developed the Almost Perfect Scale Revised (APS-R) that captures three subscales: Discrepancy (i.e. the perception of falling short of one's own ideal self), High standards (i.e. the striving for excellence), and Order (i.e. the preference for orderly). Discrepancy has found to be detrimental for mental health in patients (e.g., anxiety; Levinson et al., 2015) as well as a relevant factor associated with various negative outcomes in non-clinical samples of college-age respondents (e.g., disordered eating; Paulson & Rutledge, 2014) and adolescents (e.g., self-criticism; Öngen, 2015). On the other hand, greater scores of High standards and Order have been generally associated with positive outcomes (e.g., academic achievement; Kurtovic, Vrdoljak, & Idzanovic, 2019). This instrument has been often employed for distinguishing adaptive from maladaptive perfectionists. More specifically, the first profile has been described as characterized by greater scores of High standards but low levels of

Discrepancy (i.e. individuals who strive for perfection and succeed in reaching those high standards), while the maladaptive profile reflects elevated score of High standards and high Discrepancy (i.e. people who continuously set high goals but still perceive failure in accomplishing them) (for a discussion, see Slaney et al., 2002).

1.2. Underlying components of the multidimensional perfectionism scales

Factor analytic studies of the multidimensional instruments discussed above (i.e. F-MPS, HF-MPS, APS-R) were conducted in order to identify the basic factors underlying the positive, adaptive aspects of perfectionism as well as its "dark" facets. Suddarth and Slaney (2001) conducted a principal-component analysis on the perfectionism scales and supported the idea that perfectionism may best be explained as a three-factor construct with dimensions labelled Adaptive perfectionism (F-MPS Personal standards, HF-MPS Self-oriented perfectionism, HF-MPS Other-oriented perfectionism, and APS-R High standards), Maladaptive perfectionism (HF-MPS Socially prescribed perfectionism, F-MPS Doubts about actions, F-MPS Parental criticism, F-MPS Parental expectations, F-MPS Concern over Mistakes, and APS-R Discrepancy) and Order (F-MPS Organization and APS-R Order). These findings were confirmed by other studies conducting factorial analyses on the same measures (e.g., Kim, Chen, MacCann, Karlov, & Kleitman, 2015; Zhang & Cai, 2012) that distinguish the adaptive perfectionism - also referred as Perfectionistic Strivings - from its detrimental side - also labelled as Perfectionistic Concerns. The dimension of Order appears empirically distinct from other main perfectionism facets, since it shows unique associations with other several constructs (e.g., Conscientiousness) that are significantly different from the pattern of associations showed by Perfectionistic Strivings (PS) and Perfectionistic Concerns (PC) (Kim et al., 2015). Of note, some authors claim that Order should not be considered a core aspect of perfectionism, either because it demonstrates lower psychometric properties, and because it does not enhance the identification of functional and dysfunctional aspects of perfectionism (e.g., Lopez, Fons-Scheyd, Bush-King, & McDermott, 2011)

Studies reveal that PC higher-order dimension is more relevant in the context of clinical and subclinical mental symptoms compared to PS (for a review, see Limburg et al., 2017). More

specifically, PC have been associated with depression (Sherry et al., 2013), anxiety (Damian, Negru-Subtirica, Stoeber, & Băban, 2017), and suicidal attempt (Smith et al., 2018) while PS have showed less strong associations with these outcomes. In fact, PS often show positive association with characteristics and processes that are considered “adaptive. For example, high PS perfectionists reported greater subjective happiness and life satisfaction than those with high PC (Suh, Gnilka, & Rice, 2017). Furthermore, some evidence showed that PS suppressed the relationship between PC and negative outcomes (e.g., procrastination; Smith, Sherry, Saklofske, & Mushqaush, 2017), suggesting that PS should be considered as a relevant covariate to include when testing the impact of PC on maladaptive outcomes. Despite this, studies revealed that PS are not completely positive for mental health. Some authors reported significant associations between PS and negative consequences (e.g., depression, anxiety; for a review, see Hewitt, Flett, & Mikail, 2017), suggesting that maladaptive outcomes related to PS are related to the extent to which experiencing failure when goals are not accomplished is accompanied by aspects generally pertains to PC (e.g., self-criticism; Lee, Schoppe-Sullivan, & Dush, 2012). These findings suggest that research on the differentiation between healthy and dysfunctional sides of perfectionism is not decisive and warrants further exploration.

1.3. Perfectionism and contemporary personality theory

Perfectionism has been considered as a distinct personality trait (Stoeber & Childs, 2010), a concept that refers to "one aspect of an individual's cognition, affect, or behaviour that tends to be stable over time and consistent across relevant situations" (Soto, Kronauer, & Liang, 2015, p. 1). One of the most widely used approach to evaluate personality dimensions is the Five-Factor Model (FFM; see McCrae & Costa, 1999), a conceptual framework capturing five relevant personality dimensions (i.e. Neuroticism, Extraversion, Openness to experience, Agreeableness, and Conscientiousness). The question of whether perfectionistic traits “fit” within broader frameworks of personality has been addressed in a recent literature review investigating how perfectionistic dimensions derived from the HF-MPS (Hewitt & Flett, 1991) were related with components of structural models of personality (Stoeber, Corr, Smith, & Saklofske, 2018). Authors

explored the relationship between perfectionistic dimensions and the FFM (McCrae & Costa, 1999) evidencing various patterns of correlation among perfectionistic facets and personality traits hypothesized by the FFM. For instance, Self-oriented perfectionism was observed to be primary characterized by Conscientiousness and Extroversion suggesting that people high in this dimension tend to be responsible, meticulous, and organized. Recent empirical findings corroborate and discuss this evidence assuming that the drive to work hard is consistent with the desire to be the best and to strive for personal success (Walton, Hibbard, Coughlin, & Coyl-Shepherd, 2020). On the other hand, Socially prescribed perfectionism was found to be mostly related to high levels of Neuroticism (Stoeber et al., 2018), a result that may imply an intense propensity of people high in this dimension to be emotionally distressed (Hewitt & Flett, 2004). Low levels of Agreeableness were observed in high Other-oriented perfectionists (Stoeber et al., 2018), consistently with the idea that this dimension represents the socially antagonistic form of perfectionism (Stoeber, 2014).

Some authors conceptualizing perfectionistic aspects through the model of APS (Slaneay et al., 2001) found that trait Neuroticism, regarded as the propensity to experience negative affection and emotions (McCrae and Sutin 2018), predicted a great amount of Discrepancy scores, while dimensions of High standards and Order were associated with Conscientiousness (dos Reis Soares, Neufeld, & Mansur-Alves, 2020). These findings suggest that the perceived disparity between performance and personal standards could be emphasized in individuals experiencing negative emotions such as anxiety, hostility, depression, impulsiveness, and vulnerability, consistently with previous evidence (e.g., Dudkina & Bernane, 2015; Rice, Ashby, & Slaney, 2007).

With regarding to the perfectionistic dimensions assessed by the F-MPS (Frost et al., 1990), empirical evidence suggested that the dimensions generally reflecting the PS component (i.e. Personal standards, Organization), were associated with high Conscientiousness and Extroversion (e.g., Dunkley, Blankstein, & Berg, 2012; Walton et al., 2020). On the other hand, perfectionistic facets typically considered relevant in the conceptualization of PC (i.e. Doubts about actions, Parental criticism, Parental expectations, Concern over mistakes) showed negative

relationship with Extroversion and Agreeableness (e.g., Boysan & Kiral, 2017; Egan, Vinciguerra, & Mazzucchelli, 2015). Consistent with these studies, meta-analytic evidence on the relationships between perfectionism dimensions and FFM traits conclude that those aspects related to PC are characterized by high Neuroticism, low Agreeableness, and low Extraversion, while PS-related aspects show remarkable association with high Conscientiousness (Smith et al., 2019).

1.4. Perfectionism across the lifespan

In recent years, scientific literature has been focused on the question of how perfectionism develops across the lifespan, notwithstanding the number of evidences is weak. Most research has examined early and middle adolescence since these developmental ages are of particular interest as the typical increase in self-consciousness observed in this life period implies an establishing of perfectionistic aspects (Flett & Hewitt, 2002). One of the factors possibly implicated in this process could be the academic demands that tend to intensify during adolescence, as external performance standards affect the level of concern students experience about making mistakes (Rice, Leever, Noggle, & Lapsley, 2007).

Some studies provided evidence that perfectionism increased with age. For instance, Cook and Kearney (2014) examined perfectionism scores among children aged 8–17 years observing that the oldest children reported the highest level of Self-oriented perfectionism, whereas no significant evidence emerged for Socially-prescribed perfectionism. Yang and colleagues (2017) explored levels of perfectionism related to physical appearance among school students 9–18 years of age increases over school years. Similar evidence was observed among adults; for example, Grubi (2018) examined several perfectionism dimensions among 21 to 83 years respondents and disclosed an influence of gender and age characteristics on the level of Other-oriented perfectionism, as older men showed higher scores on this scale.

However, a few studies demonstrated that perfectionism declines with age, as indicated by Landa and Bybee (2007) who showed that older participants reported less perfectionism on four of the six subscales of the F-MPS (i.e. Concern over mistakes, Personal standards, Doubts about actions, Parental expectations) compared to the younger participants. One longitudinal study

conducted on African America students examined the natural progression of perfectionism qualities over a 7-year period of adolescence (Herman, Wang, Trotter, Reinke, & Ialongo, 2013). Authors showed that the majority of students exhibited consistently low scores on both Socially prescribed and Self-oriented perfectionism across each assessment during the time period between 6th and 12th grades. Other authors reported mixed results for each of the perfectionistic aspect analyzed (Margot & Rinn, 2016). Taken together, these findings suggest that perfectionism should be considered as a flexible and malleable construct that changes across age, especially during adolescence.

1.5. Perfectionism from adolescence to young adulthood: what role plays age?

Empirical evidence clearly demonstrated that personality changes not only during adolescence but also across young adulthood. Adolescence and young adulthood have been recognized as times of dramatic changes in life circumstances, and the occurrence of certain life events during these periods (e.g., finishing school, entering the workforce, marriage) have been associated with subsequent changes in personality. For example, increases in openness, conscientiousness, and emotional stability have been observed among adolescents (Borghuis et al., 2017; Branje, Van Lieshout, & Gerris, 2007). Furthermore, an average drop in traits related to negative emotionality (e.g., aggression, alienation) has been observed during the transition to adulthood (Donnellan, Conger, & Burzette, 2007).

Theoretical models explaining how perfectionism develops generally agree that adolescence and young adulthood should be considered key susceptible periods respectively for the development and the enduring of this personality trait (e.g., Flett, Coulter, Hewitt, & Nepon, 2011; Flett, Hewitt, Oliver, & Macdonald, 2002; Stoeber & Childs, 2011). Therefore, a deeper insight into how perfectionism is differently conceptualized in these two life stages will be discussed in the next two sub-paragraphs.

1.5.1. Perfectionism in adolescence: conceptualization and measurement

Adolescence has been defined as the transitional developmental period between childhood and adulthood characterized by profound physical, psychological, and social changes (Spear, 2000). During adolescence a series of evolutive changes occur concerning the increases in cognitive abilities, self- consciousness, and awareness of external and social expectations (Steinberg, 2008). The World Health Organization (WHO, 2015) Expert Committee, defined adolescence as the period between 10 and 19 years, typically associated with the biological changes of puberty and culminating in the maturation of complex cognitive and behavioural abilities. Research has particularly focused on this specific life phase claims it should be considered critical for the development of psychopathology (e.g., depression, Zisook et al., 2007; Patel, Flisher, Hetrick, & McGorry, 2007).

Perfectionism has found to be one of the psychological constructs heavily implicated in various mental health problems across adolescence (e.g., Affrunti & Woodruff-Borden, 2014). Multiple changes in physical appearance accompanied with increased self-awareness may exasperate any perceived sociocultural pressure to appear physically perfect of adolescents (e.g., Ivanović, Milosavljević, & Ivanović, 2017). Furthermore, perfectionism has been considered a key determinant of the identity formation process (Campbell & DiPaula, 2002), one of the more salient psychosocial task adolescents are faced with (Erikson, 1968; Luyckx, Soenens, Goossens, Beckx, & Wouters, 2008). Flett and colleagues (2002) discuss their developmental analysis of perfectionism explaining that this trait emerges as a consequence of contingent success in the school setting; more specifically, authors claim that repeated experiences of academic achievement and progresses may lead children to develop perfectionistic strivings and to believe that perfection is attainable. In addition, this conceptual model emphasizes the importance of general family environment, assuming the essential role played by the performance demands and harshness showed from parents in encouraging the development of perfectionism in their children. This mechanism may be extremely relevant in the context of adolescence, as in this developmental stage individuals are likely to be sensitive to feedback from their social

environments, especially to the school climate (Blakemore & Mills, 2014). In their study, Sironic and Reeve (2015) observed that approximately 50% of 14- to 18-year-olds school students were classified as perfectionists, including 30% displaying maladaptive perfectionism. This latter consisted of adolescents who did not set high standards for themselves, but rather experienced perfectionism prescribed by significant others (i.e., parents, teachers, peers). Authors concluded that this externally motivated perfectionism should be considered as unique in this developmental stage and remarks the attention adolescents pay to significant others (Sironic & Reeve, 2015). The relevance of perceived external expectations and criticism in adolescents was found to be crucial for the longitudinal increasing of Socially prescribed perfectionism in 15 to 19 years-old adolescents (Damian, Stoeber, Negru, & Băban, 2013). Taken together, these findings highlight that maladaptive perfectionism in adolescents may be reflected by the destructive tendency to adopt high standards that they perceive as imposed by others and to not set high standards for themselves (Sironic & Reeve, 2015).

To date, all measures of adolescent perfectionism are directly translated from instruments employed for the adult assessment, although some authors suggest that this particular developmental stage needs more appropriate assessment instruments (Hewitt et al., 2011). One of the most commonly used models in adolescent research is the F-MPS (Frost et al.,1990) since it aligns closely to the complex perfectionistic aspects ascribed to this population. Psychometrics properties of this instruments have been observed through exploratory and confirmatory factor analysis technique and various alternatives have been proposed for adolescent samples. Some authors found a single-factor model describing perfectionism, suggesting the existence of an underlying construct reflecting both maladaptive and adaptive perfectionism as captured by the F-MPS (Taylor, Couper, & Butler, 2017). Authors discussed these results as partially explainable by the Shafran and colleagues' (2002) theory of clinical perfectionism supporting the one-dimensionality and potentially dysfunctional nature of the construct. Otherwise, most findings show that F-MPS dimensions found in adults are applicable to adolescents, as the factor structure results to be consistent with previous theoretical differentiation between adaptive and maladaptive

perfectionism found among clinical and nonclinical adults (e.g., Boone, Soenens, Braet, & Goossens, 2010; Gavino et al., 2019; Shih, 2011).

Another instrument often used for the assessment of perfectionism in adolescents is the Child and Adolescent Perfectionism Scale (CAPS, Flett, Hewitt, Boucher, Davidson, & Munro, 2000), a 22-item questionnaire derived from its adult equivalent, the HF-MPS (Hewitt & Flett, 1991). Differently form the HF-MPS, the CAPS does not assess the Other-oriented perfectionism (i.e. the belief that it is important for others to strive for perfection), due to a lack of empirical research identifying the developmental course and evolutive definition of this specific form of perfectionism (Flett et al., 2016). Psychometric evaluations of the CAPS reveals mixed results. Some evidence supports the two-factor structure described above, suggesting that Self-oriented and Socially prescribed dimension represent the core aspects of adolescent perfectionism (e.g., Bento, Pereira, Saraiva, & Macedo, 2014; Flett et al., 2016). Other works found a three-factor solution obtained by maintaining Socially prescribed perfectionism and differentiating Self-oriented perfectionism in two independent facets, named Striving (i.e. positive goal striving without associated distress) and Critical (i.e. maladaptive evaluative concerns) (Nobel, Manassis, & Wilansky-Traynor, 2012; O'Connor, Dixon, & Rasmussen, 2009; Vincent et al., 2019).

An exploratory factor analysis combining item responses from the F-MPS and the CAPS among 938 high school students has revealed a four-factor solution (Sironic & Reeve, 2015). The first factor included items reflecting the tendency to set high personal standards and was found to be greater among those students identified as adaptive perfectionists. The second factor involved preoccupations over mistakes and overall performance and characterized a group of adolescents defined as externally motivated maladaptive perfectionist. The third factor comprised the perceived social expectations toward perfection, and distinguished mixed maladaptive perfectionists. Finally, the fourth factor indicated the tendency to emphasize order and precision and was higher in non-perfectionists (Sironic & Reeve, 2015). These findings suggest that maladaptive perfectionism in adolescents result as more multifaceted than in adults. Research and clinical implications may include the urge to focus on the role played by perceived external expectations in adolescence and

to promote interventions targeted perfectionism involving not only adolescents, but also significant others.

1.5.2. Perfectionism in young adulthood: conceptualization and measurement

Perfectionism can be especially problematic during young adulthood, the period between 18 and 30 years characterized by multiple developmental transitions and arduous challenges (Arnett, 2007). Empirical research has consistently demonstrated that during this life stage considerable amount of normative changes and maturation in personality traits occurs (e.g., Blonigen et al., 2015; Roberts, O'Donnell, & Robins, 2004). Studies on perfectionism reveal that it has substantially increased over time and observe that recent generations of young adults are demanding higher expectations of themselves and attempting to achieve more perfection than previous generations (Curran and Hill 2019). Young adults with high perfectionist standards and concerns report to experience greater psychological distress, especially during the transition to university setting (Levine, Milyavskaya, & Zuroff, 2020; Mackinnon et al. 2014), when the likelihood to explore career options and to experience career decision-making difficulties is considerable (Lehmann & Konstam, 2011). Previous evidence showed that perfectionism in young adults was associated with low levels of their family cohesion and dysfunctional parenting practices (Segrin, Kauer, & Burke, 2019), suggesting a potential developmental model restricted to this life period. Some authors discuss how young adults who are highly perfectionistic may be at risk in general, especially when considering their experiencing of difficulties in the transition to adulthood (Flett, Besser, & Hewitt, 2014).

Among the measures originally intended to assess perfectionism in young adults the HF-MPS (Hewitt & Flett, 1991) and the F-MPS (Frost et al., 1990), that have been mentioned in the previous sections (see pp. 2), should be included. The HF-MPS dimensions (i.e. Self-oriented, Socially prescribed, Other-oriented perfectionism) have demonstrated acceptable psychometric properties among young adults (e.g., De Cuyper, Claes, Hermans, Pieters, & Smits, 2015) and resulted to be differently associated with psychological outcomes reported by this population.

For example, Flett and colleagues (2014) found that Socially prescribed perfectionism interacted with high rejection sensitivity (i.e. overreacting emotionally to rejection; Downey & Feldman, 1996) to predict higher depressive symptoms. Authors using HF-MPS suggest that high maladaptive perfectionists in this developmental stage may experience difficulties in adapting to challenging life experiences (e.g., university entrance) and establishing a solid personal identity, since they seem to overconcern over the urge to be accepted by others (Flett et al., 2014). These aspects may confer vulnerability to poor psychological outcomes, especially considering that young adults with high Socially prescribed perfectionism result to dysfunctionally response to stressful circumstances (e.g., adopting maladaptive defense styles; Flett, Besser, & Hewitt, 2005) and show lower positive psychological functioning (Chang, 2006). On the other hand, young adults with high Self-oriented perfectionism tend to show higher adaptive outcomes (e.g., self-reported goal progress; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011), although associations with negative aspects are also reported (e.g., predisposition to anxiety; Randles, Flett, Nash, McGregor, & Hewitt, 2010). With respect to Other-oriented perfectionism, evidence from young adult samples suggest that participants with high levels in this dimension are more likely to report narcissistic traits (Trumpeter, Watson, & O'Leary, 2006), and perceived loneliness (Chang, Sanna, Chang, & Bodem, 2008).

As mentioned above, the F-MPS consists of 35 items covering for six dimensions (i.e. Personal standard, Concern over mistakes, Doubting of actions, Organization, Parental criticism, Parental expectations) that have showed good reliability coefficients in the original version of the questionnaires (e.g., Cronbach alpha ranging from .77 to.93; Frost et al., 1990). Nevertheless, Strober (1998) revisited the factor structure by administering the F-MPS to a sample of young adults and found four factors instead of six. More specifically, the original Concern over mistakes and Doubting of actions factors merged as did Parental criticism and Parental expectations (Strober, 1998). This modified four-factors solution was confirmed among young adults by other subsequent evidence (e.g., Hawkins, Watt, & Sinclair, 2006; Lombardo, 2008; Stumpf & Parker, 2000), while other authors reported different results (e.g., Chan, 2009; Harvey et al., 2004). For example, some authors find that a five-factor structure, obtained by excluding the Organization

subscale, is more appropriate (e.g., Burgess, DiBartolo, & Rendón, 2017; Mitchell-Parker et al., 2018; Sotardi & Dubien, 2019). The exclusion of Organization has been explicated with the low correlational patterns that this subscale showed with the other dimensions of the F-MPS (Frost et al., 1990; Sotardi & Dubien, 2019).

Studies on young adults adopting the F-MPS demonstrate that college students with maladaptive perfectionism (i.e. Concern over mistakes, Doubting of actions, Parental Criticism, Parental Expectations) experienced high stress, negative affect, and suicide ideation and low levels of positive affect (e.g., Chang, Watkins, & Banks, 2004). Evidence on dimensions usually perceived as adaptive (i.e. Personal standards, Organization) showed significant associations with internal locus of control and conscientiousness (Boysan & Kiral, 2017),

1.6. Perfectionistic aspects across disorders: state of the art

There is extensive evidence on the elevation of perfectionism levels across a wide range of psychopathologic symptoms. The transdiagnostic nature of perfectionism is claimed by some authors who reviewed evidence demonstrating that individuals with many disorders report high perfectionism compared to healthy controls (Shafran & Mansell, 2001). The term "transdiagnostic" refers to underlying mechanisms that are relevant across several disorders (Egan, Wade, & Shafran, 2012). Scholars are interested to the identification of transdiagnostic processes since targeting underlying mechanisms has been resulted to improve clinical outcomes across comorbid conditions that are maintained by the same core vulnerability factors (as cited in Sauer-Zavala et al., 2017). Egan and colleagues (2011) summarize studies that demonstrate perfectionism is a transdiagnostic process, showing that non only perfectionism is a relevant dispositional factor linked to multiple diseases (e.g., anxiety, bipolar disorder, suicidal ideation, obsessive compulsive personality disorder) but also that it could be a prospective predictor of the development of certain disorders (e.g., depression, eating disorders). Authors suggest that treatment of perfectionism results in reduction of a several non-targeted psychopathologies, contributing to sustain the transdiagnostic hypothesis (Egan et al., 2011), according to previous studies (Shafran & Mansell, 2001).

The clinical significance of perfectionism becomes clearer when the central facets of this construct are taken into account. More specifically, scholars have addressed the different role of each perfectionistic high-order dimension of PS and PC (i.e. the adaptive and maladaptive facets, respectively) in explaining mental health impairments. For example, Hewitt and Flett's (2002) stress generation model claims that certain perfectionistic aspects could be associated to mental health symptoms through an active mechanism of creation of stress. According to this model, the tendency to striving for unrealistic high standards can lead individuals with a high level of PS to distort a successful experience in a stressful occasion of failure for being dissatisfied with the level of performance achieved. This perceived disappointment may result in a deterioration of psychopathological states. Similarly, the particularly high susceptibleness to criticism that characterizes persons with high PC, may lead them to experience interpersonal stress that has been recognized as a key vulnerability factor for mental illness (e.g., depression; Hewitt & Flett, 2002; Owens et al., 2019). The assumptions of this conceptual model are particularly useful when considering the well-known associations between perfectionistic aspects and depression (e.g., Gnilka et al., 2019; Graham et al., 2010; Harris, Pepper, & Maack, 2008). Smith and colleagues' (2016) meta-analysis revealed that both PS and PC significantly predicted follow-up depressive symptoms even after controlling for negative affect. It was suggested that, consistent with the perfectionism stress model (Hewitt & Flett, 2002), perfectionistic aspects can predispose people to perceive interpersonal stressors, thus promoting depressive symptoms. According to this finding, some authors showed that self-critical perfectionism (i.e. an aspect of PC) was related to increased stress sensitivity that, in turn, explained increased levels of depression (e.g., Luyten et al., 2011). A recent meta-analysis focused on the mediating role of stress in the perfectionism–depression link revealed PC prospectively predicted increased depression through stress, whereas PS did not (Smith, Sherry, Vidovic, Hewitt, & Flett, 2020). Of note, authors found that PS explained the increase in depressive symptoms through the mediation of social disconnection (i.e. personal difficulty to benefit from and participate in close relationships; Smith et al., 2020).

Another form of psychological distress closely related to perfectionism is suicidality, a construct conceived as suicidal ideation or suicidal behaviour. O'Connor (2007) conducted a

nonempirical literature review focused on this issue, observing that PC were positively related to suicidality, whereas none concrete conclusions regarding PS link with suicidality were reached, consistently with findings reported by previous (Hewitt, Flett, Sherry, & Caelian, 2006) and later authors (Flett, Hewitt, & Heisel, 2014). More recently, Smith and colleagues (2018) published meta-analytic results on the perfectionism–suicidality relationship remarking that the most pernicious form of perfectionism involves perceived external pressure to be perfect (i.e. an aspect of PC). Aspects of PC have also been widely related to anxiety symptoms, among university students (e.g., Smith, Saklofske, Yan, & Sherry, 2017), community (e.g., Newby et al., 2017) and psychiatric samples (e.g., Drieberg, McEvoy, Hoiles, Shu, & Egan, 2019). A meta-analysis addressing questions of which specific dimensions of perfectionism confers risk for anxiety, suggested that Concern over mistakes and Doubts about actions (i.e. aspects of PC) are the perfectionistic dimensions that mostly confer risk for anxiety over time. Of note, aspects reflecting PS contribute to a less extent (Smith et al., 2018). These results are similar to the conclusions of a narrative literature review focused on studies examining the potential role of perfectionism in the obsessive-compulsive disorder (OCD; Pinto et al., 2017). More specifically, evidence supports the involvement of Doubt about actions and Concern over mistake domains of perfectionism in explaining OCD and OCD-related diseases.

The clinical significance of PS and PC across disorders was simultaneously examined by Limburg and colleagues (2017) using meta-analytic techniques. Authors were interested in conducting a quantitative synthesis of differences in the magnitude of association between the two main perfectionism factors and psychopathology outcomes (i.e. depression, anxiety, OCD, eating disorders, and symptoms associated with these diseases, e.g. suicidal ideation). Despite both PC and PS resulted to be significantly relevant in psychological disorders and related outcomes within clinical and community samples, tests of the unique effects showed a significant larger effect of PC on most outcomes. Notably, the only exception was for symptoms related to eating disorders (EDs), with PC and PS approximately equally contributed to explaining variance, as indicated by weighted averaged correlation coefficients and unique effects (Limburg et al., 2017).

Chapter II. Perfectionism and disordered eating

2.1. The relationship between perfectionistic dimensions and eating symptoms: theoretical models

Theoretical research (e.g., Fairburn, Cooper, & Shafran, 2003) and empirical evidence (e.g., Levinson et al., 2017) supports the view of perfectionism as a particularly strong risk and maintaining factor of disordered eating. The term “disordered eating” refers to a range of various dysfunctional eating attitudes and irregular eating behaviours that “may or may not warrant a diagnosis of a specific disorder” (Anderson, 2018). Distinctive eating-related difficulties are included in the definition of disordered eating, such as overeating, frequent dieting or preoccupation with food, weight and body image, a feeling of loss of control around food, purging and bulimic behaviours (Fox, 2020). Researchers have developed many conceptual models explaining how perfectionism may interact with other risk factors to cause and maintain disordered eating over the past 30 years. For example, the interactive three-way model (Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999) theorizes that perfectionism interacts with perceived weight status and self-esteem to predict bulimic symptoms development. Authors testing this model found that only women with low levels of self-esteem and high levels of perfectionism were more likely to report bulimic symptoms (Vohs et al., 1999). This conceptual model was revised in some ways, for example, by operationalizing perceived weight status as body dissatisfaction (Vohs, Heatherton, & Herrin, 2001). Moreover, some authors suggest that self-efficacy, rather than self-esteem, is the better fit in interaction with perfectionism in predicting bulimic symptoms (Bardone et al., 2000). Empirical evidence demonstrates that self-efficacy conceived as a component of self-esteem predicts increases in bulimic symptoms (Bardone, Perez, Abramson, & Joiner, 2003). On these bases, previous studies proposed that the more robust interactive model may include self-efficacy rather than self-esteem as a key construct (Bardone- Cone et al., 2008). However, this theoretical model has not been largely supported in recent evidence (e.g., Lin, 2015).

Fairburn (1997) conceptualizes the transdiagnostic theory of eating disorders (EDs) postulating “clinical perfectionism” (i.e. pathological achievement orientation despite adverse consequences; Shafran, Cooper, & Fairburn, 2002) as s dysfunctional scheme for self-evaluation that maintains EDs psychopathology. The theory suggests that clinical perfectionism should be targeted in the context of EDs treatment in order to discourage determined strivings to meet valued goals related to eating (e.g., behavioural strategies to lose weight).

Goldner, Cockell, and Srikameswaran (2002) describe in their chapter an integrative biopsychosocial model of EDs that conceptualizes a potential necessary role for perfectionism. They acknowledged that perfectionism may predispose a person to EDs by moderating the effects of a concerted attempt at self-improvement and a need for diminution of self-awareness on eating symptoms. This implicates that highly perfectionistic people tend to approach self-improvement in an unrealistic manner on one hand, and to intensify their need for diminution of self-awareness when experience shame on the other hand. When these two mechanisms are applicated to body image domains, perfectionistic person may increase the frequency or intensity of disturbed eating behaviours, by experiencing his/her shape and weight as a substantial contributor to self-esteem (Goldner et al., 2002).

Consistently, the Integrated Cognitive-Behavioural Theory of Eating Disorders, individuals with EDs develop a firmly organized cognitive schema concerning body and weight-related information (Williamson, White, York-Crowe, & Stewart, 2004). In this view, perfectionism is regarded as one of the premorbid characteristics that activate cognitive biases in individuals with rigid body self-schema (Williamson et al., 2004). Cognitive biases include body size overestimation as well as extreme drive for thinness, which may predispose people to dysfunctional behaviors such as restrictive eating, compulsive exercise and body checking (Williamson et al., 2004).

Recently, some authors have postulated a predictive EDs risk model examining the role of perceived parental bonding, self-esteem, body mass index, perfectionism, and shame and their interactions in EDs in high school students. Results showed that, contrary to the authors’ hypotheses, none perfectionistic aspect (i.e. adaptive vs maladaptive) was significantly associated

with EDs severity. Notwithstanding, a significant link between maladaptive perfectionism and self-esteem was observed, suggesting that perfectionism should be considered a proximal factor typically related to EDs, rather than a risk factor for EDs, and encouraging further studies exploring potential psychological characteristic that could interact with perfectionism in predicting EDs symptoms.

2.2. Perfectionism and disordered eating: evidence among adolescents and young adults

Research on the association between perfectionism and disordered eating across different ages and populations, including youngest, transition to adolescence, and transition to adulthood, evidenced heterogenic results. It was suggested that different models explaining the way in which perfectionism increases risk for disordered eating are required for these different groups (as cited in Wade, O'Shea, & Shafran, 2016). Consistently, the role of perfectionism in predicting maladjustment has found to be significantly different according to the life stage (e.g., Cella, Iannaccone, Cipriano, & Cotrufo, 2020), and it is possible to hypothesize that specific etiological or maintaining model explaining the role of perfectionism in EDs may work in certain age population rather than in others. Since the age of onset for EDs is typically during adolescence, with increased risk occurring from middle adolescence into young adulthood (Bulik, 2002; Hudson, Hiripi, Pope Kessler, 2007), a particular attention should be given to these two specific developmental periods. In order to offer a theoretical view on this issue, a brief literature review on the most relevant evidence on the relationship between perfectionistic aspects and disordered eating across adolescence and young adulthood will be discussed in the next paragraphs.

2.2.1. Perfectionism in adolescents: associations with eating disturbance

Epidemiological studies have suggested that the prevalence of EDs among youngers has increased significantly in the last decades (Madden, Morris, Zurynski, Kohn, & Elliot, 2009; Rosen, 2010). The incidence of eating disturbances was found to be 10–14 years for food restriction (Micali et al., 2013), and 6-13 years for overeating (Nicholls & Bryant-Waugh, 2009). In their

attempt to classify early onset EDs through a latent class analysis, Pinhas and colleagues (2017) distinguish two patient groups, both reporting food avoidance and significant weight loss, with the first cluster presenting classic features of anorexia nervosa, and the second cluster showing symptoms congruent with the diagnosis of ARFID (i.e. Avoidant/restrictive food intake disorder; Pinhas et al., 2017). Researchers consider essential to shed light into the psychological factors that play a role in the occurrence of EDs among early developmental stage, suggesting that perfectionism should be considered (e.g., Keery et al., 2019). Studies on the association between perfectionistic aspects and EDs pathology among children is few, although some evidence exists. A recent systematic review (Vacca & Lombardo, 2019) summarized the empirical findings with children under the age of 14. Results showed that most studies provided evidence supporting the significantly positive relationship between perfectionism and EDs outcomes in children, with the majority of them supporting the involvement of Self-oriented perfectionism, a marker of PS. This dimension resulted to be implicated in overall disordered eating symptoms among non-clinical samples (McVey et al., 2002), in EDs diagnoses (Kirsh et al., 2007), and in compulsive exercise (Goodwin et al. 2014). Evidence for PC components resulted to be numerically fewer (e.g., Wade et al., 2015). Authors explained these results by considering the complex and maladaptive nature of childhood Self-oriented perfectionism. More specifically, they discussed previous findings claiming that PS in children reflects components of self-criticism mainly derived from the internalized perceived pressures to be perfect from significant others (Muuss, 2006). These findings are relevant insofar research on prodromal eating pathology remarks that the early detection of disordered eating frequently precedes the development of a clinical ED (Slane, Klump, McGue, & Iacono, 2014). Diagnoses of EDs are clearly present in adolescence and have been recognized as one of the most important public health problems in the world (Lask & Bryant-Waugh, 2013). An extensively reported data of the literature supporting the association between perfectionism and eating pathology in adolescents in both cross-sectional (e.g., Dour & Theran, 2011; Drieberg, McEvoy, Hoiles, Shu, & Egan, 2019) and longitudinal researches (e.g. Boone, Vansteenkiste, Soenens, der Kaap-Deeder, & Verstuyf, 2014; Wade & O'shea, 2015). High PC resulted to be involved in high importance of shape and weight (Wilksch & Wade, 2010), great

levels of body dissatisfaction (Lyman & Luthar, 2014) as well as increased overall EDs symptoms (Dour & Theran, 2011). On the other hand, adolescents who showed high PS also reported high dietary restraint (Ferrand, Magnan, Rouveix, & Filaire, 2007) and greater maladaptive eating attitudes (Teixeira, Pereira, Marques, Saraiva, & Macedo, 2016). A recent systematic review of the literature on the association between perfectionistic aspects and disturbed eating in adolescents suggests that the majority of studies supports the involvement of PC in EDs symptoms, while evidence for PS are fewer (Vacca, Ballesio, & Lombardo, 2020). It seems that PS in adolescence may be less detrimental compared to PC in the context of EDs symptoms. Authors speculate that since during adolescence aspects related to PC (i.e. the perception of excessively high external expectations) result to be particularly overwhelming (Muuss, 2006), this dimension of perfectionism may play a remarkable role in explaining psychological symptoms, especially EDs-related outcomes. Adolescents often experience weight/shape concerns and structure the identity and self-conceptualization on their subjective body image (Smolak, 2004). Therefore, the tendency to stringent self-evaluations (i.e. PC) may maintain body and weight preoccupations in adolescents and exacerbate disturbed eating attitudes. From a clinical perspective, it is recommended that intervention programs for adolescents suffering from EDs should mainly target aspects of PC (i.e., externally motivated perfectionism) reducing the tendency to engage in critical self-evaluations and enhancing adaptive strategies to deal with failure (Boone et al., 2010). On the other hand, PS may be conceived as functional during adolescence, as striving towards high personal standards may contribute to enhance adolescents' self-worth, since positive relationship between PS and self-esteem among adolescents has been observed (Petisco-Rodríguez et al., 2020).

2.2.2. Perfectionism in young adults: associations with eating disturbance

Although the incidence of EDs peaks in late adolescence (Lask & Bryant-Waugh, 2013), results from empirical researches have suggested that young adulthood should be considered a critical period for the development and maintenance of disordered eating, since stressors linked to life transitions (e.g., college entrance, the need to be financially independent) increase vulnerability for EDs symptoms (Nagata, Garber, Tabler, Murray, & Bibbins-Domingo, 2018). During this life

stage individuals typically show deleterious habits such as unhealthy food choices, skipping meals, low fruit and vegetable consumption and restrictive behaviours to lose weight (Chang, Nie, Kang, He, Jin, & Yao, 2015). Typically, prevalence is considerably higher in females than in males (Potterton, Richards, Allen, & Schmidt, 2019), with median estimates around 54% for females and 19% for males (Harrer et al., 2020). It has been estimated that a quarter of emerging adults (i.e., individuals which can be assimilated to young adults) engage in unhealthy weight control behaviours, and between 11 and 20% report a probable ED (for a review, see Potterton et al., 2019). Empirical evidence highlights the relevance of perfectionism to eating symptoms in both clinical and non-clinical young adults (e.g., Bardone-Cone, Weishuhn, & Boyd, 2009; Barnett & Sharp, 2016; Walker et al., 2015). Some authors showed that perfectionism directly explained variance in disordered eating among college students and demonstrated its unique role in predicting EDs symptoms (Walker et al., 2015). Perfectionistic aspects related to PC consistently appear as crucial in disordered eating across the findings available in literature. For example, PC were found to interacted with perceived weight status to predict high bulimic symptoms exhibited by young female adults (Bardone-Cone et al., 2009). More specifically, women who experienced self-criticism (i.e. those with high Concern over mistakes) and high expectations of others (i.e. those with high Socially prescribed perfectionism) and who felt overweight reported the highest levels of bulimic symptoms. Research including symptomatic young adults reveals that the aspects of perfectionism involving the discrepancy between self-prescribed high standards and perceived actual performance (i.e. a key aspect of PC) is closely associated with EDs severity (e.g., Patterson, Wang, & Slaney, 2012). These findings suggest that the comprehension of internalized culturally defined perfect body and the subsequent perceived perfectionistic discrepancy may be crucial to understand the development of EDs especially during young adulthood. PC were found to predict disturbed eating attitudes among college students both cross-sectionally (Reilly, Stey, & Lapsley, 2016) and longitudinally (Smith et al., 2017). Remarkably, Smith and colleagues (2017) examined undergraduate women using a 4-week longitudinal design and revealed not only that PC were vulnerability factors for binge eating symptoms, as demonstrated by other studies (e.g., Brosof & Levinson, 2017), but also that PC predicted increased binge eating, and not vice versa.

Authors discussed this result in terms of the intense perceived social pressures of college students who may react to subjective failure with binge episodes as a strategy of escaping painful self-awareness (Smith et al., 2017). The directionality of PC-disturbed eating relationship has been confirmed by other authors who observed that PC played a unique role in prospectively predicting EDs symptoms whereas PS may be nonthreatening with respect to EDs vulnerability (Dickie, Wilson, McDowall, & Surgenor, 2012). Since PC consist of persistent negative self-evaluation, it has been generally viewed as a perfectionistic aspect more damaging in EDs than PS, which simply involve exceedingly high-performance standards (Boone et al., 2010).

Nevertheless, some evidence suggested the involvement of PS in disturbed eating among young adults, even when controlling for the effects of PC. For instance, it was observed that PS was positively correlated with general disordered eating attitudes (Petisco-Rodríguez et al., 2020) and dietary restraint (Dalley, Toffanin, & Pollet, 2012), suggesting that individuals may feel motivated in practicing eating and weight control efforts when unrealistic standards are applied to weight/shape and physical attractiveness domains (Castro-Fornieles et al., 2007). These findings contribute to the literature on the debate concerning the (mala)adaptiveness of PS, especially in the context of EDs symptoms. Some authors observed that among universities students the impact of PS on EDs symptoms was conditional on the level of PC (Sherry, Hewitt, Besser, McGee, & Flett, 2004). More specifically, Self-oriented perfectionism was found to be associated with disturbed eating attitudes in women reporting high levels of Socially prescribed perfectionism. It seems that individuals with elevated score on both perfectionistic dimensions may be especially vulnerable to EDs symptoms, as suggested by more recent evidence on the general population (e.g., Esposito, Stoeber, Damian, Alessandri, & Lombardo, 2019). A possible explanation of this mechanism may be that the tendency to setting elevated standards (i.e. PS) is strictly linked to self-evaluative concerns (i.e. PC), especially when personal standards are applied to weight and shape domains (Boone et al., 2012). It is possible that since young adulthood is a transactional and challenging period of multiple life changes, individuals may cope with continuous social pressures and environmental demands by pursuing elevated personal standards as a way to being in control through a continuous critical self-scrutiny. Therefore, particularly in this developmental

age, PS may be detrimental as maintaining the critical self-evaluation process of PC, as demonstrated by evidence on other mental health problems (e.g., negative emotionality, Smith, Saklofske, Yan, & Sherry, 2015). Clinical practices should contemplate the inclusion of psychological techniques simultaneously targeting both PC and PS in young adults suffering for EDs. The majority of prevention and treatment protocols for eating symptomology mainly focused on the reduction of PC aspects (Egan et al., 2013), however it could be useful to re-addressed PS in individuals with EDs symptoms to serve recovery (Wagner & Vitousek, 2019).

2.3. The relationship between perfectionism and disturbed eating: some intervening psychological constructs

Theoretical and empirical research reveal that each perfectionistic dimension appears to play different role in explaining EDs symptoms when potential moderators and mediators are taken into account in multivariate interactional models (Downey & Chang, 2007). This approach is commonly used to gain insight into the specific mechanisms underlying the perfectionism-disturbed eating relationship and evidences the complexity of the role of perfectionism within multivariate models. Evidence on several psychological constructs that have been included in theoretical models as intervening variables in the association between perfectionism and EDs symptoms will be discussed in the next subparagraphs.

2.3.1. Body dissatisfaction

Body dissatisfaction has been defined as the level of discordance between perceptive and internal/socially prescribed perfect body image (Ivanović et al., 2017) and has been regarded as a crucial factor in EDs symptoms (Downey et al., 2007). Empirical evidence shows that individuals with high perfectionistic tendencies also report greater dissatisfaction with their body weight and shape (e.g., Boone, Soenens, & Luyten, 2014). Some studies tested the hypothesis that body dissatisfaction may moderate the association between perfectionism and eating disturbance. For example, Downey and Chang (2007) demonstrated that as women reported increased dissatisfaction with their bodies, their perceptions of excessive external pressures (i.e. PC)

resulted to be strictly associated to bulimic and anorexic symptoms. Consistently, Boone and colleagues (2014) confirmed these findings using a 3-wave longitudinal study with 6-month intervals focused on the roles of PC and PS in predicting EDs symptoms among non-clinical participants. Results revealed that the prospective impacts of both PS and PC on EDs outcomes were moderated by body dissatisfaction, as the combination of high body dissatisfaction and high perfectionistic aspects was associated with the strongest likelihood of presenting EDs symptoms (Boone et al., 2014). Authors explained this result with the urge of perfectionistic individuals who are dissatisfied with their body to pursue high standards for weight and shape by engaging in rigid dieting and food restriction. When people fail in meeting the desired standards, they experience immediate self-criticism that perpetuates the vitious cycle of maladaptive perfectionism (Shafran et al., 2002).

2.3.2. Neuroticism

Research suggests that one potential mechanism by which perfectionism influences EDs behaviours is neuroticism, a personality inclination towards negative emotional reactivity, worry, and high experiencing of difficulties when coping with stress (Smith et al., 2017). Neuroticism has resulted to be strongly positively associated with perfectionism (Newby et al., 2017) as well as with eating symptoms (Claes et al., 2006). For example, Bardone-Cone (2007) found that Socially prescribed perfectionism predicted high bulimic symptoms through its incremental influence on negative affect. Moreover, authors found a non-significant mediation involving Self-oriented perfectionism, suggesting that it accounted for unique variance in predicting bulimic symptoms. These findings are consistent with other evidence showing that negative affect fully mediated the relationship between Socially prescribed perfectionism and bulimic symptoms (Downey & Chang, 2007). In this study, both Self-oriented and Socially prescribed perfectionism showed significant associations with EDs symptoms, despite the relationship with the first dimension was statistically greater (Downey & Chang, 2007). Subsequent evidence examining whether neuroticism mediated or moderated associations between EDs symptoms and perfectionism dimensions (Luo, Forbush, Williamson, Markon, & Pollack, 2013) showed that neuroticism partially mediated the association

between specific EDs sympotms (i.e. binge eating, restraint, and body dissatisfaction) and aspects related to PC. Overall, these findings contributed to literature on the interactive model of binge eating symptoms development which explains that negative affect attributable to failure in reaching perfectionistic standards increases body dissatisfaction, which in turn interacted with low self-esteem, and causes binge eating episodes (Vohs et al., 1999).

2.3.3. Self-esteem

The relationship between perfectionism, self-esteem and EDs symptoms has been conceptualized through various conceptual models in the last two decades (Bardone-Cone et al., 2007; Ferrand et al., 2007; Vohs et al., 1999). Low levels of self-esteem result to be implicated in the maintenance of EDs (e.g., Naeimi, Haghighian, Gargari, Alizadeh, & Rouzitalab, 2016) and some authors suggested its potential role as transdiagnostic factor of eating disturbances (Fairburn, Cooper, & Shafran, 2003). One of the theoretical implications of the three-factor interactive model mentioned in the previous paragraphs (Vohs et al., 1999) states that self-esteem moderates the predictive power of perfectionism on EDs outcomes, as perfectionistic individuals with low levels of self-esteem also are prone to report high eating disturbance. This model has been tested by several authors and results highlighted mixed results (as cited in Puttevils, Vanderhasselt, & Vervaet, 2019). Sassaroli, Gallucci & Ruggiero (2008) found that low self-esteem exacerbated the relationship between Concern over mistakes and drive for thinness and body dissatisfaction. As individuals with high PC who report problematic eating attitudes tend to interpret body/weight defects as catastrophic failures, having low self-esteem may be a powerful reinforce of this detrimental self-worth mechanism. Some evidence failed to replicate these results (e.g., Watson, Steele, Bergin, Fursland, & Wade, 2011), while other studies partially corroborated them (e.g., Puttevils et al., 2019). For example, Puttevils and colleagues (2019) observed that for EDs patients reporting low self-esteem, the association between perfectionism and drive for thinness became stronger. More precisely, the lower the levels of self-esteem, the higher the level of perfectionism, the stronger the desire of patients to be thin. It is possible that low self-esteem functions as a barrier for perfectionistic individuals preventing them from prompting adaptive goals-

directed behaviours and instead triggering counterproductive responses and less effective coping skills (e.g., binge episodes; Vohs et al., 1999).

Chapter III. Perfectionism and disordered eating: the mediating role of cognitive emotion regulation strategies

3.1. Cognitive emotion regulation strategies: conceptualization and relationship with psychological outcomes

Emotion regulation (ER) has been defined as the process involving the use of strategies for decreasing, maintaining, or increasing intensity of emotions or for changing their quality (Gross, 2007). Within the framework of clinical psychology, attention has been devoted to emotion dysregulation, i.e. the difficulties in regulating emotions, conceived as a transdiagnostic risk factor implicated in many mental health difficulties (e.g., substance use; Aldao, Nolen-Hoeksema, & Schweizer, 2010). Historical conceptualizations of ER emphasize that it embraces multifaceted regulatory strategies that could reflect an "engagement" component (i.e. whether an emotional state is faced or avoided) and a "modality" component (i.e. whether an emotional state is regulated through cognitive/behavioural methods) (Parkinson & Totterdell, 1999). ER involves change in the quality, the endurance and the intensity of emotions and these changes can be observed through the individual behavioural, affective and cognitive responses (Gross, 2007). The objective of ER is to achieve adaptive levels of emotional dynamics and to facilitate appropriate responding to the challenging environmental demands, especially when people experience psychological distress (Aldao, 2013).

One of the most widely influential conceptualizations of ER is the theoretical model proposed by Gross (1998) that differentiates regulation strategies on the basis of their roles in the emotion-generative process. According to this model (Figure 1), ER can be attempted at any of the phase along the timeline of the emotion process and ER strategies are differentiated according to "when" they have their impact on the emotion-generative process. More specifically, antecedent-focused ER consists of modifying the situation before the emotion response is elicited; on the other hand, response-focused ER attempts to alter emotional response after it is activated, consequently inhibiting the behavioural manifestation of the elicited negative emotions. The first category of ER

consisted of situation selection, situation modification, attentional deployment, and cognitive change. ER of "situation selection" refers to limit one's exposure to situations potentially generating negative emotions (e.g., avoidance). At the next step, ER strategies of "situation modification" act to decrease levels of negative emotions (e.g., self-assertion), while those attributable to the category of "attentional deployment" reflect the re-focusing on distracting elements (e.g., distraction). Lastly, "cognitive change" ER strategies consist of selecting the personal meaning that is assigned to the situation (e.g., Reappraisal). On the other hand, response-focused ER refers to strategies aimed to influence emotion-response once it has already emerged and involves mechanism of response modulation (e.g., suppression) (Gross, 1998).

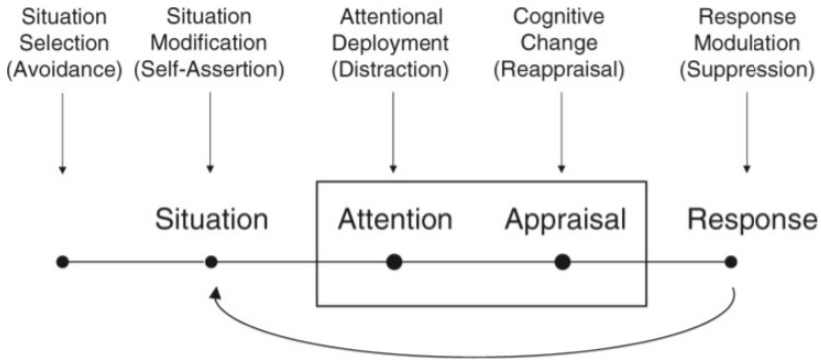

Figure 1. The temporal process model of emotion regulation. *Naragon-Gainey, K., McMahon, T. P., & Chacko, T. P. (2017). Individual differences in emotion regulation.*

Research suggests that response-focused strategies are often more damaging for psychological health and lead to more dysfunctional emotional experiences compared to antecedent-focused strategies (Gross, 2015), although it is difficult to infer any definitive conclusion about the relative effectiveness of these strategies (Naragon-Gainey, McMahon, & Chacko, 2017). In the attempt of examine affective, cognitive, and social consequences of ER, Gross (2002) reviewed literature focused on two commonly used strategies exponents of the initial and the delayed phases of the ER process, respectively named cognitive reappraisal and expressive suppression. The first one consists of modifying the interpretation of an event before the emotional response has been triggered, while suppression involves the effort to inhibit

expressive behaviour (Gross, 1998). Studies show that reappraisal should be considered more effective than suppression in decreasing negative emotion experience and behavioural expression. Differently, suppression results to solely reduce behavioural expression (Gross, 2002).

Empirical evidence sustains the general differentiation between adaptive and maladaptive ER strategies (Gross & John, 2003). For instance, the antecedent-focused strategies of cognitive reappraisal and acceptance (i.e. accepting feelings without trying to control or judge them) show positive associations with beneficial psychological health outcomes (e.g., decreased negative affect, increases in positive emotions; see Troy, Shallcross, Brunner, Friedman, Jones, 2018). On the other hand, maladaptive strategies (e.g., rumination, suppression) that are more response-focused, were more strongly associated with psychopathology (e.g., depression, anxiety; Aldao & Nolen-Hoeksema, 2010). Nevertheless, some authors argued that the adaptiveness of certain ER strategies may depend on situational contexts and, therefore, may be complex to report (Webb, Miles, & Sheeran, 2012). Some authors suggest that while maladaptive ER strategies (e.g., suppression, rumination), generally appear problematic for mental health and associated with psychological difficulties, adaptive ER strategies (e.g., reappraisal, positive refocusing) result to be more contextual-dependent (Aldao & Nolen-Hoeksema, 2010). For example, in the context of uncontrollable stress, cognitive reappraisal was associated with low levels of depression, however, when stress was relatively controllable, higher cognitive reappraisal predicted decreased psychological health (Troy et al., 2013). Further experimental investigations are needed to estimate when ER strategies typically associated with positive outcomes may be maladaptive during specific situations.

One of the most widely used instrument to assess ER strategies is the CERQ (i.e. Cognitive Emotion Regulation uestionnaire; Garnefski, Kraaij, & Spinhoven, 2001). The term "cognitive emotion regulation" (CER) refers to the cognitive way of managing the intake of emotionally arousing informations (Thompson, 1991). The CERQ was developed to separately measure cognitive coping strategies, proposing a clear classification of nine different emotion-focused strategies. All the aspects assessed refer to individual effort in responding to experience

of threatening or stressful life events. *Self-blame* and *Blaming others* respectively consist of blaming oneself for what one has experience ascribing the cause of particular events to the self, and of putting the blame of what one has experienced on others (Garnefski et al., 2001). These strategies has showed positive relationship with depressive symptoms and stress (Oftadehal, Mahmoodi, & Torabi, 2012; Rudolph, Flett & Hewitt, 2007). *Rumination* reflects the tendency to overthink about the feelings associated with the negative event and has been related to high perceived distress (Xie, Kong, Yang, & Chen, 2019). *Catastrophizing* involves the explicit emphasizing of terrific experiences, "assuming the worst", and has resulted to be relevant in predicting high levels of anxiety, depression, and stress (Martin & Dahlen, 2005). On the other hand, *acceptance* consists of endorsing the consequences of the situation experienced, and has been generally related to beneficial psychological aspects, such as decreased negative affect (Shallcross, Troy, Boland, & Mauss, 2010). The process of thinking about how to menage with negative events refers to *refocusing on planning*. This CER strategy has showed high positive associations with psychological wellbeing (Balzarotti, Biassoni, Villani, Prunas, & Velotti, 2016). *Positive refocusing* is considered a form on "mental disengagement" since refers to thinking about positive and pleasant aspects and distracting from the negative event experienced. This strategy was found to be one of the most strongly associated with higher levels of both subjective and psychological well-being (Balzarotti et al., 2016). *Reappraisal* refers to think about alternative meaning that can be attributed to the situation and has resulted to be associated with psychological health (for a meta-analysis, see Aldao et al., 2010). Finally, the use of *putting into perspective* reflects the emphasizing the positive aspects of a regrettable event (Garnefski et al., 2001). Although this latter strategy is often conceptualized as adaptive, some evidence suggest its association with psychological difficulties (e.g., anxiety; Miklósi et al., 2014).

3.2. The relationship between ER strategies and eating disturbances

Research on the relationship between ER and eating symptoms suggests that individuals with EDs display deficits in effectively coping with negative affective states. A growing body of evidence shows that disturbed eating is related to difficulties in emotional processing and

functioning and to lack of adaptive ER strategies in both clinical and non-clinical samples (e.g., Aldao et al., 2010; Lavender et al., 2015). Studies examining participants with EDs diagnoses reveal that participants with anorexia nervosa (AN) and bulimia nervosa (BN) report higher negative affect and greater use of dysfunctional ER strategies compared to healthy participants (Brockmeyer et al., 2014; Meule et al., 2019). Some authors examining the prevalence of ER strategies among EDs discuss that AN could be conceived as a disorder-specific rumination, since individuals with anorexic symptoms prevalently tend to overthink about the maintenance of control eating behaviours and weight/shape checking (Cowdrey & Park, 2012). In addition, rethinking rumination seems to be relevant in the context of bulimic symptoms as a maladaptive strategy used to escape from experiencing intense negative emotions (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). In regard to patients with binge eating disorder (BED), when compared to healthy controls they showed higher suppression of their emotions and lower levels of reappraisal (Svaldi, Caffier, & Tuschen-Caffier). It has been observed that suppression could lead to greater physiological arousal and promote binge eating episodes (for a review, see Dingemans, Danner, & Parks, 2017). Meta analytic evidence examining the associations between specific ER strategies and eating pathology suggests that maladaptive ER shows a significant positive relation with overall eating pathology, in the medium-to-large range of the effect sizes (Prefit, Cândea, & Szentagotai-Tătar, 2019). Results evidence different correlational patterns for specific ER strategies. More specifically, rumination was found to be strongly associated with AN and BN, while suppression was found to be strongly related to AN and BN, and moderately to BED. Moreover, the relation between EDs and suppression emerged as stronger for studies including AN participants compared to those including BN and BED participants (Prefit et al., 2019). Regarding the adoption of adaptive strategies, results revealed a non-significant difference across the EDs diagnoses, evidencing similar effect of acceptance and reappraisal for AN, BN and BED. These findings substantiate previous research in the literature supporting the trans-diagnostic nature of adaptive ER strategies across the spectrum of EDs (Prefit et al., 2019).

3.3. ER and perfectionism: which relationship?

Research on perfectionism and ER is relatively scarce. In order to examine the evidence related to this relationship MEDLINE/PubMed was searched for articles published until 2020, using the search terms “perfectionism” and “emotion regulation” and a total of 24 articles was found. Of these, 13 presented a cross-sectional design, whereas the remaining were experimental studies (N = 5), review of the literature (N = 3), randomized controlled trials (N = 2) and one prospective research. Among the empirical studies (N = 20), the majority (N = 16) employed mixed gender samples. Nine and eight studies involved young adults and adults respectively, and three other studies engaged adolescents. The most employed measure for ER strategies was DERS (N = 6; Gratz & Roemer, 2004) followed by ERQ (N = 3; Gross & John, 2003) CERQ (N = 2; (Garnefski et al., 2001) and the Emotional Competence Inventory (N = 1; Boyatzis & Sala, 2004). Eight did not provide a valid assessment of ER strategies. As regarding perfectionism, 13 studies employed multidimensional measures (F-MPS: N = 5; APS: N = 4; CAPS: N = 2) and seven studies utilized unidimensional instruments, such as EDI-P (N = 5), the Dysfunctional Attitude Scale (DAS, N = 1; Weissman & Beck, 1978) and the Perfectionism Cognitions Inventory (PCI, N = 1; Flett, Hewitt, Whelan, & Martin, 2007). One study assessed both unidimensional and multidimensional aspects of perfectionism with DAS and Perfectionistic Self-belief Scales (Campbell & DiPaula, 2002) respectively. Twelve studies showed significant association between perfectionism and ER strategies. Results reveal that aspects related to PS (e.g., Self-oriented perfectionism) show positive relationship with higher use of reappraisal, lower use of suppression, and low overall emotional dysregulation, whereas PC-related dimensions (e.g., Socially prescribed perfectionism) are positively associated with maladaptive ER strategies (e.g., Aldea & Rice, 2006; Richardson, Rice & Devine, 2014; Rudolph et al., 2007). Scholars suggest that perfectionism, as a personality characteristic, may influence the use of certain cognitive ER strategies by triggering emotion regulatory process (Rice, Suh & Davis, 2018). For example, perfectionistic individuals often have maladaptive schema domains that contribute to problematic emotional experiences. The strive for perfection can be an attempt to fulfil one´s own needs of social approval and to maintain self-esteem (Blatt, 1995), but when these objectives are not achieved, perfectionistic individuals are

likely to experiencing negative affect and, in the long term, may engage in poor self-regulation (Hewitt, Flett, Mikail, Kealy, & Zhang, 2017). This mechanism has been descripted in a recent conceptual model that states that maladaptive perfectionists may engage in maladaptive ER strategies when perfectionistic standards are threatened (Malivoire, Kuo, & Antony, 2019). More specifically, the experience of failure in the preservation of unrealistic high self- intense negative affect, exposes individuals with maladaptive perfectionism to the increase of negative affect. Unhelpful ER strategies may occur in response to the heightened negative affect, resulting in emotion dysregulation, which, in turn, contribute to enhance negative affect observed in maladaptive perfectionism (Malivoire et al., 2019). This theoretical model implies that since maladaptive perfectionists may be at a greater risk of developing psychological distress due to emotion dysregulation, therapeutic interventions focused on increasing access to adaptive ER in individuals with high perfectionism should be recommended.

The distinct contribution of each perfectionistic aspect in explaining ER difficulties emerged in cross-sectional evidence. For example, aspects of PC are found to be consistently associated with high dysfunctional ER strategies, such as self-blame, rumination and catastrophizing, and negatively associated with adaptive ER strategies, such as positive reappraisal and putting into perspective (Castro, Soares, Pereira, & Macedo, 2017; Rudolph et al., 2007). Aldea and Rice (2006) observed that Socially prescribed perfectionism was positively related to emotion dysregulation, highlighting that the believe that others have excessively high standards for oneself may be particularly damaging for emotional distress. This finding corroborates accumulating evidence suggesting that PC are unequivocally maladaptive (for a review, see Limburg et al., 2017). It may be that certain ER strategies comply with the core personality characteristics of maladaptive perfectionistic individuals and contribute to emotional distress. For example, specific ER strategies may be attempted to preserve the typical perfectionistic need for control and, for this reason, are conceived as functional for individuals with high perfectionism (Rudolph et al., 2007).

On the other hand, evidence on PS-related aspects are more heterogeneous. For example, PS were found to be related with adaptive ER in some studies (Aldea & Rice, 2006; Rukmini,

Sudhir, & Math, 2014). Adaptive perfectionists showed high positive reappraisal (Rukmini et al., 2014), low levels of suppression (Richardson et al., 2014) and lower general emotion dysregulation (Aldea & Rice, 2006). Conversely, some other studies found positive associations between PS and maladaptive ER. For example, individuals with high Self-oriented perfectionism also showed high levels of self-blame, catastrophizing (Castro, Soares, Pereira, & Macedo, 2017; Rudolph et al., 2007) and rumination (Ogai, 2004). This evidence highlighted the ambiguous nature of PS in the associations with psychopathology, as they resulted to be correlated with negative processes and behaviours, but also positive processes (Limburg et al., 2017). Some authors speculate that although individuals with high PS show unrealistic high standards of performance, they conceive the idea of failure and success in a more flexible way compared to those with high PC (Aldea & Rice, 2006). This flexibility may allow to the engagement in adaptive ER strategies when the self-scrutiny derived from the self-imposing of high standards is temporally suspended (Aldea & Rice, 2006).

A recent study investigates the longitudinal relationship between perfectionism and ER among nonclinical adolescents over a period of one month, in order to explore whether perfectionism would be a developmental antecedent of ER or a mere concurrent aspect (Vois & Damian, 2020). Consistently with previous cross-sectional evidence (e.g., Rudolph, Flett, & Hewitt, 2007), authors hypothesized that Self-oriented perfectionism would predict adaptive ER, while Socially prescribed perfectionism would be associated with increase in maladaptive ER and decrease in adaptive ER. As expected, it was observed that Self-oriented perfectionism incrementally predicted reappraisal and was negatively associated with the difficult to acceptance of negative emotional responses. On the other hand, Socially prescribed perfectionism was found to longitudinally limit access to effective ER strategies, suggesting that, for adolescents, maladaptive perfectionistic facets may be considered risk factors for the development of emotional dysregulation. These findings implicated that the perception of excessive external expectations may confer vulnerability to difficult ER, whereas Self-oriented perfectionism seemed to be relevant for the development of a healthy emotion regulation.

3.4. Examination of a key pathway: the role of ER strategies in the perfectionism-disturbed eating link

Overall, evidence suggests that high maladaptive perfectionist individuals who reported considerable difficulties with regulating their emotions may be at elevated risk for various negative psychosocial outcomes (e.g., stress response; Aldea & Rice, 2006; Richardson et al., 2014). However, whether the interaction between perfectionism and ER strategies may lead to eating disturbance is still debated as few researches have examined these relationships. To our knowledge, to date, only three studies have concurrently explored links between ER, perfectionism, and ED-related constructs, leading to different results. One study examined the impact of perfectionism, emotion dysregulation, and affective disturbances on clinical impairment caused by eating pathology among 18-25 years EDs female patients (Byrne, Eichen, Fitzsimmons-Craft, Taylor, & Wilfley, 2016). Authors assessed a general measure of perfectionism and emotion dysregulation using the total scores of the Perfectionism scale of the Eating Disorder Inventory (EDI-P; Garner, Olmsted, & Polivy, 1983) and the Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004), respectively. Results showed that patients who were categorized as high in both perfectionism and emotion dysregulation reported the highest levels of clinical impairment. Authors inferred that the combination of perfectionism and emotion dysregulation may be particularly critical for the psychological functions of individuals with EDs. This presumption was supported by the further evidence that, despite perfectionism alone was related to clinical impairment, it did not explain the variance of the outcome when accounting for the other constructs (e.g., anxiety, overall eating pathology) in the regression model. This result suggests that perfectionism may be detrimental for psychological health when in conjunction with other constructs. Previous studies have demonstrated that the role of perfectionism in predicting the increase of EDs risk may be not captured by the analysis of direct effects (Wade, Wilksch, Paxton, Byrne, & Austin, 2015). Direct effects may not detect the complex association between perfectionistic dimensions and the risk for EDs, therefore it should be recommended to conceptualize models that allowing for intervening variables. Alternatively, the lack of a significant direct association between perfectionism and clinical impairment observed in this study (when

controlling for the effects of other constructs) may be due to the one-dimensionality of the perfectionism measure employed (i.e. EDI-P). Consistently, authors admitted this limit of the study and recommended the future assessment of perfectionistic dimensions (Byrne et al., 2016).

This limit has been addressed in a more recent study examining the role of perfectionistic facets and dysmorphic appearance concerns in a male sample (i.e. preoccupations with perceived appearance defects) accounting for the levels of ER (Cunningham, Griffiths, Baillie, & Murray, 2018). Authors assessed perfectionistic aspects through the HF-MPS (Hewitt & Flett, 1991) and facets of emotion dysregulation difficulties using the total score of the DERS (Gratz & Roemer, 2004). Two interactions terms were found to be significant, indicating that moderation between perfectionistic dimensions and emotion dysregulation had occurred, and simple effects analysis was computed. First, men with high DERS and high levels of Socially prescribed perfectionism reported the highest score of dysmorphic appearance concerns. This result suggested that men highly preoccupied with their perceived appearance defects may tend to overfocus on a perceived failure to fulfil the external expectations on the ideal appearance. This self-evaluation concerns may confer vulnerability for the engagement in maladaptive ER strategies to attenuate the perceived distress (Cunningham et al., 2018). Secondly, the significant moderation of DERS strategies in the relationship between Self-oriented perfectionism and the outcome, indicated that the difference in dysmorphic appearance concerns between those with high and low DERS was more evident for participants lower on Self-oriented perfectionism, compared to participants higher. This finding may imply the possibility that Self-oriented perfectionism had a protective buffering role against the influence of emotion dysregulation on dysmorphic appearance concerns. Some authors suggest that PS are adaptive traits that protect against mental health symptoms (e.g., suicidality, Stoeber & Otto, 2006). It is possible that having high standards of performance may reduce the impact of emotional difficulties on appearance preoccupations.

Findings from Byrne and colleagues (2016) and from Cunningham and colleagues (2018) evidence that ER difficulties may be one of the potential underlying mechanism explaining the well-researched relationship between perfectionism and EDs-related outcomes. Recent authors

extended these findings evaluating ER strategies and eating pathology in mixed gender sample of undergraduate students (Donahue, Reilly, Anderson, Scharmer, & Anderson, 2018). Similar to the previous two studies descripted above, Donahue and colleagues (2018) adopted the DERS (Gratz & Roemer, 2004) to assess emotion dysregulation and, consistently with Cunningham and colleagues (2018), employed the multidimensional conceptualization of perfectionism, using the HF-MPS (Hewitt & Flett, 1991). However, they decided to solely measure Socially prescribed perfectionism. Socially prescribed perfectionism was hypothesized to account for significant eating disorder pathology among individuals who also reported limited access to functional ER strategies. Results confirmed this hypothesis: the interaction between Socially prescribed perfectionism and ER strategies accounted for significant variance in EDs symptoms among participants with high DERS. Authors discussed that individuals with high difficulty with regulating emotions may have poorer skills in menage the distress driven by maladaptive perfectionism, resulting in eating symptoms. Furthermore, these findings suggested the potential protective role of adaptive ER strategies in the context of EDs pathology, highlighting that future EDs prevention protocols may include increased focus on ER skills (Donahue & colleagues, 2018).

3.5. The present study: an introduction

Altogether, the studies described in the previous paragraphs expand existent etiological models including perfectionism as a key factor in eating pathology (e.g., Fairburn et al., 2003), suggesting ER to be a potential underlying mechanism in the relationship between perfectionism and EDs symptoms (e.g., Bardone-Cone et al., 2007). Since evidence on this complex relationship is few and heterogeneous, it is difficult to come to a definite conclusion about the role of perfectionism in EDs-related outcomes accounting for ER strategies. Based on this, in the attempt to shed light on the complex relations between these variables, the present study aimed to examine the relationship between perfectionism dimensions and EDs-related symptoms, accounting for the role of ER strategies. Specifically, a theoretical model was tested in order to explore whether the associations of aspects related to PS and aspects related to PC with EDs symptomatology would be mediated by adaptive and maladaptive ER strategies.

Previous studies, described above, suggested that ER aspects may moderate the relationship between perfectionism and EDs outcomes. However, since several studies found that ER mediates the relationship between perfectionism and various mental health symptoms (e.g., perceived distress, Aldea & Rice, 2006; depressive symptoms, Harris et al., 2008; anxiety, Moretz & McKay, 2009) and since it is well-demonstrated that perfectionism affects ER (e.g., Vois & Damian, 2020), a mediation model should be preferred over the moderation approach (Baron & Kenny, 1986).

Exploring the mediation role of ER strategies can be useful especially when considering the complex relationship between perfectionistic facets (i.e., PS and PC) and EDs symptoms. Meta-analytic evidence suggests that while PS are less related to psychopathology than PC, in the case of EDs both dimensions are strongly related to symptoms among adults (see Limburg et al., 2017). Some authors argued that PS are damaging for EDs when the standards are accompanied by critical evaluations (Stoeber, Stoll, Salmi, & Tiikkaja, 2009). The fact that PS is strongly related to EDs has raised some debates concerning the adaptiveness of PS and suggests that an underling process may occur. Therefore, it could be interesting to explore whether ER could explain the relationships between each perfectionism aspect and EDs outcomes.

In this regards, one study examined whether brooding (i.e. a construct comparable to rumination) related to eating, shape and weight would be a potential mediator of the link between perfectionism and EDs symptoms among young adults (Rivière & Douilliez, 2017). More specifically, authors examined whether the impact of aspects related to PS and PC on eating symptoms would be mediated by EDs-related brooding. Significant indirect effects were observed for both PS and PC, suggesting that perfectionism can lead to EDs symptoms through its influence of EDs-related ruminative concerns. Basing on these findings, it may be hypothesized that ER maladaptive strategies can positively mediate the association between perfectionism and EDs symptoms. On the other hand, the role of adaptive ER strategies in explaining this association could be also examined, in order to explore not only whether perfectionism (and which perfectionistic aspect) is related to "functional" ER strategies (i.e., reappraisal, positive refocusing)

but also their potential indirect effect on EDs symptoms. As discussed above, literature on these topics is few and evidence are mixed. Therefore, the present study aims to investigate the role of perfectionistic aspects (i.e. PS, PC) in predicting disturbed eating, considering the mediation of adaptive and maladaptive ER strategies.

As discussed in the previous paragraphs (see chapters 1-2), the relationship between perfectionistic aspects and disturbed eating tend to be influenced by the developmental stage, and this is particularly true when considering the periods of adolescence and young adulthood. Therefore, it may be interesting to explore whether ER strategies would influence this complex association in these vulnerable life stages. During adolescence the transformative alterations in neurocognitive and social domains have been associated to increases in emotional reactivity and maturation of ER repertoire, that promote the development of stable preferences in the use of specific ER strategies (Zimmermann & Iwanski, 2018). On the other hand, young adulthood has been regarded as a key period developmental changes in ER characterized by challenging developmental tasks that may affect emotional reactivity (John & Gross, 2004). Research on ER in adolescence and young adulthood has increased markedly over recent years. Studies on this topic reveal that young adults show more adaptive ER compared to adolescents and more emotional stability (e.g., Zimmermann & Iwanski, 2014). How these age-related changes in ER could be associated to perfectionistic tendencies and problematic EDs outcomes in this populations has not been still explored.

The current study extends the previous evidence in several substantial ways. First, two different developmental samples (i.e. adolescents, young adults) will be examined and compared in their levels of perfectionism, CER strategies and EDs symptoms in order to assess potential group differences in these variables. This point is particularly relevant since studies focusing on age-related differences in perfectionism, CER strategies and eating symptoms are few and more evidence is needed. Second, the relationship between all the variables mentioned above will be examined across the two groups, in order to detect whether significant associations would emerge. Third, a theoretical model will be tested examining the relationship between maladaptive (i.e. PC)

and adaptive (i.e. PS) perfectionistic dimensions and EDs symptoms and the mediation role of ER strategies in explaining this link. The effect of body mass index (BMI) on mediators and outcome will be statistically controlled for as previous studies suggest that BMI is related to difficulties in CER as well as to EDs symptoms (Lafrance Robinson, Kosmerly, Mansfield-Green & Lafrance, 2014). Moreover, the influence of gender on EDs symptoms will be also examined, as research consistently sustains the strict positive association between eating disturbances and values of BMI (Bardone-Cone et al., 2007).

In summary, the purpose of the present investigation is twofold:

1) To examine perfectionistic aspects, ER strategies and eating-related symptoms in adolescents and young adults.

2) To test a mediated model examining the association between PS, PC and EDs symptoms through adaptive and maladaptive ER strategies, examining whether the specific developmental stage (i.e. adolescence, young adulthood) would moderate this relationship.

3.5.1. Literature-based hypotheses

Based on the theory and evidence described above, several hypotheses will be tested concerning age differences in the levels of psychological variables included in the present study (1a - 1b), as well as the specific relationships among the constructs (2a – 5b). The following hypotheses were proposed: (1a) the use of CER strategies would be lower in adolescents than in adults, as it is generally assumed that adolescence is the period in which the more advanced cognitive abilities are being mastered (Garnefski & Kraaij, 2006). (1b) No differences in perfectionistic levels would be observed among adolescents and young adults, as previous findings showed that this construct substantially remained fixed in these ages (Pishghadam & Akhondpoor, 2011). (2a) PC will be positively associated with EDs symptoms. (2b) PS will be positively associated with EDs symptoms. (3a) PC would be positively associated with maladaptive CER strategies and (3b) negatively associated with adaptive CER strategies, consistently with literature (e.g., Aldea & Rice). (4a) PS would be positively associated with adaptive CER strategies

and (4b) negatively associated with maladaptive CER strategies, as suggested by past research (e.g., Richardson, Rice & Devine, 2014). (5a) Maladaptive CER strategies would be positively associated with EDs symptoms (Kelly et al., 2012). (5b) Adaptive CER strategies would be negatively associated with EDs symptoms (Lavender et al., 2015).

The other hypotheses of this investigation regard the mediation role of maladaptive and adaptive CER in explaining the relationship between perfectionistic dimensions and EDs symptoms. First, based on the previous studies, it was hypothesized that maladaptive CER would have a positive indirect effect in explaining the PC – EDs symptoms link (6a). More specifically, PC was hypothesized to predict high maladaptive CER, which, in turn would result in high EDs symptoms. Second, the hypothesized negative effect of PC on adaptive CER would lead to greater EDs pathology (6b). As regards to the indirect effect of PS, it was hypothesized that PS would be associated to high levels of adaptive CER, which in turn would predict low eating disturbances (7a). On the other hand, the low use of maladaptive CER strategies related to PS would be resulted in low eating symptoms (7b). Of note, since the direct effects of PS and PC on EDs symptoms were posited to be significant, these indirect effects would be regarded as partial mediations.

3.6. Methods

3.6.1. Participants and Procedure

This study involved two samples of adolescent and young adult participants recruited from November 2019 to February 2020. All protocols and procedures were approved by the Department of Psychology ‘s institutional review board. The estimation of the minimum sample size required for adequate power in testing the significance of the hypothesized effects was computed through software packages, namely G*Power ((Erdfelder, Faul, & Buchner, 1996). Results showed a total sample size of N = 68 will be necessary to detect a moderate to large effect. The sample of adolescent high school students included 271 participants (55.4% males) with a mean age of 14.80 (SD = .592). The sample of young adult undergraduates consisted of 392 participants

(70.9% females) with a mean age of 20,67 (SD = 3.390). The mean age of the total sample (N = 663; 60.2% females) was 18.15 (SD = 3.406). At the beginning of the study, we planned to have three time points: at the beginning, in the middle and at the end of the academic year. For this reason and since both sample sizes were bigger than the minimum estimated, we stopped the sampling procedure in February. Unfortunately, the second and the third assessments were not conducted due to the COVID-19 pandemic.

Adolescents were recruited on a voluntary basis from two public high schools in the urban area of Rome (Italy) through a 'convenience' sampling method. Two schools were contacted by telephone and the details of the study were explained in an informative talk. An appointment was sought with the head teachers to obtain permission to conduct the study. After a detailed explanation of the study was outlined at the first appointment, principals at the two high schools acquired for permission to conduct the study and a date was arranged with each head teachers for official study presentation. This was followed by distribution of a parental consent form and a student assent form by the principal investigator of this study to students two weeks prior to data collection. All students were invited to participate in the study without any restriction. Data collection was scheduled with the individual teachers and after permissions from both parents and students were granted, the paper-and-pencil administration of the questionnaires was carried out in 12 classes (grades 9-11). As regards to college students, they were enrolled from university community of the Faculty of Medicine and Psychology of Sapienza University of Rome. To guarantee subject privacy, an alphanumeric code was used for individual identification. Participants received no compensation to participate in the study and completed an informed consent prior to the paper-and-pencil administration. All the participants completed the questionnaires within 40 minutes.

3.6.2. Instruments

Multidimensional Perfectionism Scale. The Italian version of F-MPS (Frost et al., 1990; Italian version by Lombardo, 2008) was used to assess perfectionistic aspects. It was a 35-item questionnaire assessing Concerns over mistakes and Doubts about actions (CMD, “It takes me a

long time to do something right"), Parental expectation and criticism (PEPC, "My parents have always had higher expectations for my future than I have"), Personal standards (PS, "I have extremely high goals") and Organization (O, "I am a neat person"). Participants marked their responses on a 5- point scale (1-5) ranging from "strongly disagree" to "strongly agree". Higher subscale scores reflect more perfectionistic tendencies. For the purpose of this study, CMD was used as an indicator of maladaptive perfectionism (i.e. PC) and PS as an indicator of adaptive perfectionism (i.e. PS), consistently with previous research (Frost et al., 1990; Soenens et al., 2008). All the subscales have demonstrated good reliability, with Cronbach's alphas (α) from .76 to .96 (Lombardo, 2008). In the present study, the reliability of these subscales based on McDonald's omega coefficient (ωt; McDonald, 1999) was high for each dimension (ranging from .847 to .893) as well as α coefficients (ranging from .840 to .911).

Cognitive Emotion Regulation Questionnaire. The Italian version of CERQ (Garnefski et al., 2001; Italian version by Presaghi & Ercolani, 2005) was used as the self-report measure of CER style. The instrument includes 36 items assessing nine subscales: self-blame, acceptance, rumination, catastrophizing, blaming others, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective. Each item scored on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). Higher subscale scores reflect more frequent use of a specific cognitive strategy. For the aims of the present study, the total score adaptive (aCERQ) and maladaptive CERQ (mCERQ) was computed by summing the items from the relevant adaptive and maladaptive subscales. The CERQ has demonstrated acceptable reliability and validity (Garnefski and Kraaij, 2006). The internal consistency of the CERQ was acceptable in the present study, with α of the subscales ranging from .701 to .882 and ωt coefficients ranged from .701 to .881. The aCERQ and mCERQ subscales also showed good reliability (α = .781 and ωt = .774 for mCERQ; α = .878 and ωt = .879 for aCERQ).

Disordered Eating Questionnaire. The Italian version of DEQ (Lombardo, Russo, Lucidi, Iani, & Violani, 2004) was employed to assess problematic EDs difficulties. It consists of three sections: section A includes 18 items focused on dysfunctional eating behaviours (e. g., reducing calorie intake, sneaking food) and of 4 items concerning purging behaviours, rated on a 6-points

frequency scale (0 = never; 6 = several times a day). Section B focuses on shape and weight concerns, rated on a 7-points likert scale (0 = not at all; 7 = completely) and the last section (C) ask for age, height and weight of participant. Additional questions about menstrual period and use of oral contraceptives are included only in the female version. All questions are presented in relation to the period of last 3 months. High score reflects greater eating symptoms. The questionnaire has been demonstrated good reliability both in the validation sample (α =.90; Lombardo et al., 2004) as well as in the current sample (α =.928; ωt = .941).

3.6.3. Statistical Analyses

3.6.3.1. Confirmative Factor Analysis (CFA)

A Confirmatory Factor Analysis (CFA) was performed in order to evaluate the measurement model (i.e. the model reflecting the correspondence among observed variables and the latent constructs; Kline, 2005) in adolescents and young adults separately. Analyses were performed using MPLUs software version 7 (Muthén & Muthén, 2012) and the model parameters were estimated with the maximum likelihood (ML) estimation method. The adequacy of the CFA models was estimated by using recommended incremental goodness-of-fit indexes: CFI (Comparative Fit Index) close to 0.90 (Hu and Bentler, 1999), RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardised Root Mean Squared Residuals) values below .08 (Marsh et al., 2004); a chi-square/df ratio below or equal to 3 (Kline, 1998). In order to calculate the measurement indicators for the latent variables of the model, the adaptive CER strategies (i.e. Reappraisal, Acceptance, Positive Refocusing, Refocusing on planning, Putting into perspective) were used as measurement indicators of the latent variable Adaptive CER, while the maladaptive cognitive CER strategies (Self-balme, Catastrophizing, Blaming others, Rumination) were used as measurement indicators of the latent variable Maladaptive CER. Furthermore, an item parcelling procedure (Kim and Hagtevt, 2003) was used for the latent variables. More specifically, the item parcels for each latent variable were created by combining items into small groups of items within scales or subscales according to the magnitude of correlations among the items (Orcan, 2013).

3.6.3.2. Discriminant analysis

Discriminant analyses were carried out through the SPSS software (Statistical Package for the Social Sciences - IBM, 2017) version 25. More specifically, discriminant analyses were performed in order to estimate the relative contribution of included discriminating variables - perfectionistic facets, CER strategies, eating symptoms, and BMI- between adolescents and young adults.

3.6.3.3. Path Analysis

A theoretical model was tested across adolescents (n = 271) and young adults (n= 392) hypothesizing that perfectionism dimensions (i.e. PS, PC) have direct and indirect effects on eating symptoms through its impacts on adaptive and maladaptive ER strategies, controlling for the potential effect of participants' BMI on the mediators and outcome and for the effect of gender on outcome (Figure 2). The hypothesized model was tested using a multigroup analyses performed using Mplus software version 7 (Muthén & Muthén, 2012), and the model parameters were estimated using the maximum likelihood (ML) estimation method. More specifically, the multi-group analysis was carried out in order to test the invariances between the groups in the effects hypothesized in the path model. For the multigroup analysis, the models introducing the metric invariances across the two groups were compared using the chi-square-difference test and the Δ CFI (Yuan & Chan, 2016). Finally, the indirect effects of the model were examined using bootstrapped confidence interval estimates (95% confidence interval with 1000 bootstrap resamples).

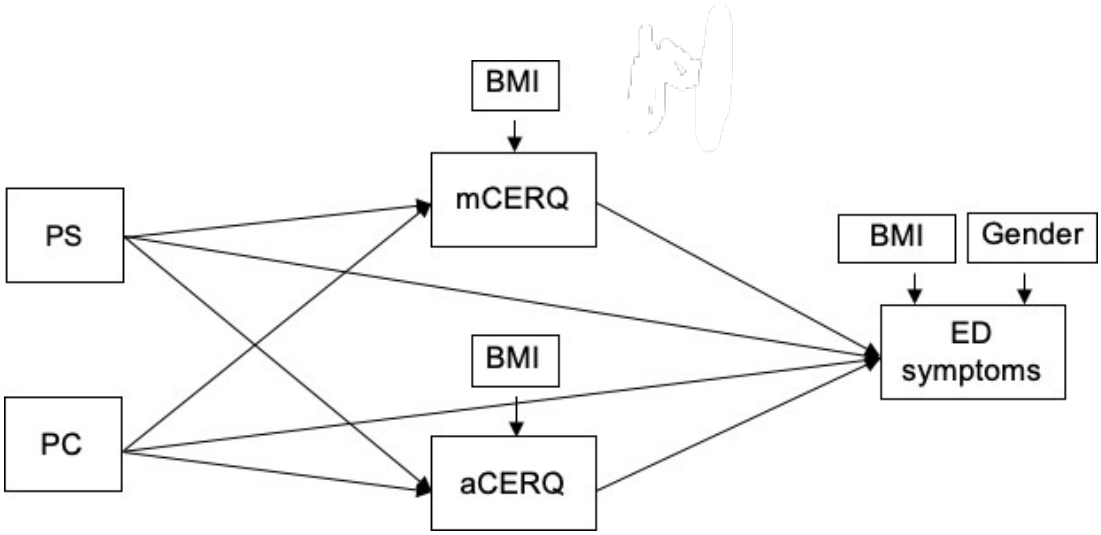

Figure 2. Hypothesized model. *Note:* PS, Perfectionistic Strivings; PC, Perfectionistic Concerns; aCERQ, Adaptive Cognitive Emotion Regulation; mCERQ, Maladaptive Emotion Regulation; EDs Eating Disorders.

3.7. Results

3.7.1. Confirmative Factor Analysis (CFA) and measurement invariance

The CFA conducted for each group separately showed a good fit of the measurement model for the adolescents ($\chi2_{(160)} = 297.071$; $p \leq .001$; RMSEA = .056; SRMR = .059; CFI = .934) and young adults ($\chi2_{(160)} = 419.996$; $p \leq .001$; RMSEA = .065; SRMR = .052; CFI = .927). At the measurement level, following the suggestions of Steenkamp and Baumgartner (1998), configural invariance and partial metric invariance were established. Metric invariance, at least partially, is considered as a prerequisite for any quantitative comparison, that is, comparison of latent means, covariances, correlations, and regression effects (Steenkamp & Baumgartner, 1998). The configural invariance model (M1) was firstly examined to test for equality in the number of factors across groups. The configural invariance model was supported as indicated by the moderately good model fit ($\chi2_{(320)} = 795.892$; $p \leq .001$; RMSEA = .067; SRMR = .056; CFI = .926). Subsequently, the metric invariance model (M2) was tested, by constraining the factor loadings of items equal across the two groups. However, the chi-square difference test indicated a statistically significant difference between the full metric invariance model (M2) and M1, thus implying no support for full metric invariance. When full metric invariance is not established, the factor loadings

with the highest modification index are freely estimated until a final partial metric invariance model is obtained. Therefore, the covariance between the first two items from the CMD scale was freely estimated, as this parameter showed the highest modification index (M.I. = 28.044) across the two age groups. When this covariance was freely estimated across the groups (M3), this model did not differ from M1. Thus, there was support for partial metric invariance (see Byrne, Shavelson, & Muthen, 1989), and the final model performed well on various fit indices (see Table 1).

Table 1. Multi-group SEM. Models comparisons.

Model	Chi-square	Df	CFI	RMSEA	SRMR	Comparison	Chi-square differences *(p)*	Δ CFI
M1	795.892	320	.926	.067	.056			
M2	839.148	335	.922	.068	.62	M2 Vs M1	*p < .001*	-.004
M3	813.027	334	.926	.066	.063	M3 Vs M1	*p = .249*	.004

3.7.2. Discriminant analysis

First, all variables were checked for the normality assumption. The key variables of the study (i.e. perfectionistic facets, ER strategies, eating symptoms) were normally distributed as values for asymmetry and kurtosis ranged between -2 and +2 (George & Mallery, 2010). A discriminant function analysis was used to determine whether the two groups (i.e. adolescents, young adults) could be discriminated on the basis of questionnaires scores. In the discriminant analysis, Box's M resulted to be significant [Box's M = 215.73, $p < 0.001$]. This indicates the null hypothesis of equality of covariance matrices across groups has to be rejected. However, Box's M is a conservative test, and a significant result is not regarded as problematic with large samples (Burns & Burns, 2008). Discriminant analyses procedures are fairly robust against departures from equality of covariance matrices across groups (Duarte Silva & Stam, 1995). The overall Wilks' lambda was significant ($\Lambda = .782$; $\chi2 = 117.026$; $p < .000$) thus indicating an overall significant difference between groups. Table 2 displays mean scores of each group in all the tested variables, as well as the Wilks' lambda computed for each independent variable

Table 2. Tests of Equality of Group Means

Variables	**Adolescents**		**Young adults**		
	M	*SD*	*M*	*SD*	*Wilks' Lambda*
Perfectionism					
PS	19.162	6.133	20.031	6.198	.996
CMD	35.474	12.900	35.575	11.798	1.000
PEPC	16.746	7.565	16.325	7.044	.999
O	20.026	6.039	19.439	5.598	.998
Eating-related outcomes					
BMI***	20.687	3.085	22.011	3.524	.968
Disturbed eating	23.759	21.106	23.647	19.793	.965
Cognitive ER Strategies					
Self-balme	10.331	3.862	10.780	2.957	.996
Catastrophizing***	9.480	3.502	7.952	2.972	.951
Blaming others	8.3442	3.077	8.424	3.168	1.000
Rumination*	12.201	4.003	14.018	4.296	.961
Acceptance*	11.506	3.766	12.153	3.025	.992
Positive Refocusing***	11.110	4.477	9.274	3.579	.954
Refocusing on planning***	14.032	4.073	15.292	3.180	.972
Reappraisal*	13.454	4.018	14.413	3.758	.987
Putting into perspective	12.785	4.106	12.400	4.025	.998
mCERQ	39.987	10.132	41.169	8.701	.998
aCERQ	62.951	14.456	64.023	11.278	.999

Note. Abbreviation: PS, Personal Standard; CMD, Concern over Mistakes and Doubts about Actions; PEPC, Parental Expectations and Parental Criticism; O, Organization; mCERQ, maladaptive CERQ; aCERQ, adaptive CERQ; BMI, Body Mass Index. *$p \leq .05$ **; $p \leq .01$ ***; $p \leq$

Results showed that young adults reporting greater BMI compared to adolescents, while non-significant differences were observed for perfectionistic dimensions and eating symptoms (all *ps* > .05). Markedly, significant differences emerged for the preference for use of specific CER strategies. More specifically, young adults reported higher acceptance than adolescents ($p \leq .05$) as well as higher refocusing on planning ($p \leq .001$), higher positive reappraisal ($p \leq .05$) and higher

rumination ($p \leq .001$). On the other hand, adolescents showed higher positive refocusing ($p \leq .001$) and higher catastrophizing ($p \leq .001$) compared to young adults (see Table 2). In order to estimate the relative importance of each predictor in distinguishing the two groups, the structure matrix (Table 3), that shows the correlations of each variable with the discriminant function, was observed. Generally, the cut-off between relevant and less relevant variables is 0.30 (Burns & Burns, 2008). Results indicated that Catastrophizing, Positive Refocusing, Rumination, BMI and Refocusing on planning have the greatest discriminating power (Table 3), while Acceptance and Reappraisal were poor predictors. The cross validated classification showed that overall 73.5% were correctly classified.

Table 3. Discriminant function analysis

Variables	Function (structure coefficient)
Catastrophizing	.429
Positive Refocusing	.418
Rumination	-.382
BMI	-.345
Refocusing on planning	-.319
Reappraisal	-.220
Acceptance	-.174
PS	-.124
Self-balme	-.121
O	.090
Putting into perspective	.084
mCERQ	-.081

Table 3 (*Continued).* Discriminant function analysis

Variables	Function (structure coefficient)
PEPC	.052
aCERQ	-.046
Blaming others	-.023
CMD	-.007
Disturbed eating	.005

Note. The loadings in the structure matrix are weak predictors unless they are 0.30 are higher. *$p \leq .05$ **; $p \leq .01$ ***; $p \leq .001$. Values >.30 indicate

3.7.3 The relationships between perfectionistic aspects, CER strategies and eating symptoms across adolescents and young adults

A baseline model was tested, including effects of PS and PC on both the CER strategies (adaptive and maladaptive) and on eating symptoms, as well as the effects of adaptive and maladaptive CER strategies on eating symptoms. Effects of BMI as well as of gender were also specified as control variables. This baseline model showed good fit indices ($\chi2_{(12)} = 27.404$; p = .007; RMSEA = .064; SRMR = .041; CFI = .970). Subsequently, a second model was estimated wherein all the paths were constrained to be equal across the two groups. Following previous authors (Bentler & Mooijaart, 1989), when a nonsignificant chi-square difference is found, the model with more degrees of freedom (i.e., the constrained model) is deemed superior. Results suggested that the chi-square comparison between the final model and the baseline model was significant ($\Delta\chi2_{(26)} = 23,889$, $p = 0,047$) indicating to proceed with the estimation of free parameters in the constrained model. Therefore, the modification indexes (M.I.) were inspected in order to select and freeing the parameter with the highest value in both groups. The parameter which presented the highest M.I. was the effect of BMI on overall EDs symptomatology (M.I. = 5.45), thus this parameter was freely estimated in the constrained model. This partially constrained model was compared with the baseline model through the chi-square difference test and nonsignificant difference emerged. Therefore, this final model was deemed as superior (Table 4). The model

showed a good fit ($\chi2_{(25)} = 45.768$; $p = .006$; RMSEA = .052; SRMR = .055; CFI = .960) and was used to observe effects among the variables. First, path coefficients indicated that in both the adolescent (ß = .460, $p \leq .001$) and the young adult samples (ß = .417, $p \leq .001$) PC positively and significantly predicted eating symptomatology. Markedly, PS was negatively associated with eating symptoms in both the samples, despite the beta weigh was lower than that observed for PC (adolescents: ß = -.129, $p \leq .001$; young adults: ß = -.129, $p \leq .001$). Moreover, PC resulted to be positively associated with maladaptive CER strategies and negatively associated with adaptive CER strategies in adolescents (ß = .519, $p \leq .001$ and ß = -.291, $p \leq .001$, respectively) as well as in young adults (ß = .562, $p \leq .001$ and ß = -.348, $p \leq .05$, respectively). On the other hand, PS showed opposite pattern of associations with adaptive and maladaptive strategies, both in adolescents (ß = .194, $p \leq .001$ and ß = -.109, $p \leq .01$) and in young adults (ß = .254, $p \leq .001$ and ß = -.129, $p \leq .05$). With regarding to the relationship between CER strategies and EDs symptomatology, in both the samples adaptive strategies negatively predicted the outcomes (adolescents: ß = -.135, $p \leq .01$; young adults: ß = -.103, $p \leq .01$), while maladaptive strategies being positively related to disturbed eating (adolescents: ß = .168, $p \leq .001$; young adults: ß = .141, $p \leq .001$). The effect of BMI across the two group was nonsignificant for CER strategies ($p > .05$), while the effect on eating pathology was positive and significant for both adolescents (ß = .224, $p \leq .001$) and young adults (ß = .327, $p \leq .001$), suggesting that high EDs pathology was associated with high BMI. Of note, no significant relationship was identified for the BMI-CER strategies (either adaptive or maladaptive) link (see Table 5 for a resume).

Table 4. Path analysis. Models comparisons

Model	Chi-square	df	CFI	RMSEA	SRMR	Comparison	Chi-square differences *(p)*	Δ CFI
(1) Baseline Model	27.404	12	.970	.064	.041			
(2) Constrained Model	51.293	26	.951	.056	.056	(2) Vs (1)	*p < .05*	.001
(3) Constrained Model (M.I.)	45.768	25	.960	.052	.055	(3) Vs (1)	*p = .1442*	.003

3.7.4. Indirect effects

Results of the structural modelling provided similar results across the two groups, with only one indirect effect differentially estimated (see Figure 2). First, the mediating role of maladaptive CER strategies on the effect of PC was significant and positive for both adolescents (αß = .087, 95% CI [.043, .132]) and young adults (αß = .079, 95% CI [.039, .120]), suggesting that high PC was related to high dysfunctional CER, which, in turn predicted high eating symptomatology. Secondly, significant mediation effects were observed for adaptive CER as well. Adaptive CER was found to mediate the effect of PC for adolescents (αß = .039, 95% CI [.013, .065]), as well as for young adults (αß = .036, 95% CI [.012, .059]). More specifically, path coefficients showed that PC predicted low access to adaptive CER, which lead to greater EDa pathology in both the samples. With regard to PS, significant mediation effects were observed, notwithstanding they were weaker as compared to those observed for PC. However, whereas the mediation through maladaptive CER occurred among young adults (αß = -.018, 95% CI [.036, .001]), confidence intervals evidenced that this mediation effect was non significantly different from zero (αß = -.018, 95% CI [-.036, .000]) among adolescents. Finally, PS resulted to positively predict EDs symptoms via adaptive CER in both populations (adolescent: αß = .026, 95% CI [-.046, -.006]; young adults: αß = .026, 95% CI [-.046, -.005]). Al these mediations were partial, as indicated by the significant direct effect of PS and PC on EDs, as mentioned in the previous paragraph (for a resume, see Table 5).

Table 5. Multigroup analysis. Path coefficients between variables

Parameter	Path coefficient–constrained model			
Direct effects	**Adolescents** **n = 271**		**Young adults** **n = 393**	
	ß	CI [95%]	ß	CI [95%]
PS → ED symptoms	-.129**	[-.214, -.045]	-.129**	[-.213, -.045]
PS → mCERQ	-.109**	[-.194, -.023]	-.129**	[-.227, -.031]
PS → aCERQ	.194***	[.099, .289]	.254***	[.136, .372]
PC → ED symptoms	.460***	[.360, .559]	417***	[.329, .506]

Table 5 *(Continued).* Multigroup analysis. Path coefficients between variables

Parameter	Path coefficient–constrained model			
Direct effects	**Adolescents** **n = 271**		**Young adults** **n = 393**	
	ß	CI [95%]	ß	CI [95%]
PC → mCERQ	.519***	[.437, .601]	.562***	[.479, .646]
PC → aCERQ	-.291***	[-.385, -.197]	-.348***	[-.454, -.243]
aCERQ → ED symptoms	-.135**	[-.211, -.060]	-.103**	[-.161, -.044]
mCERQ → ED symptoms	.168***	[.085. .252]	.141***	[.071, .212]
Effects of covariates				
BMI → ED symptoms	.224***	[.077. .372]	.327***	[.237, .416]
BMI → mCERQ	-.051	[-.116, .014]	-.051	[-.127, .024]
BMI → aCERQ	-.043	[-.121, .106]	.048	[-.127, .024]
Gender → ED symptoms	.319***	[.259, .380]	.281***	[.223, .338]
Indirect effects	αß	CI [95%]	αß	CI [95%]
PS → aCERQ → ED symptoms	-.026*	[-.046, -.006]	-.026*	[-.046, -.005]
PS → mCERQ → ED symptoms	-.018	[-.036, .000]	-.019*	[-.036, -.001]
PC → aCERQ → ED symptoms	.039**	[.013, .065]	.036**	[.012, .059]
PC → mCERQ → ED symptoms	.087***	[.043, .132]	.079***	[.039, .120]

Note. Standardized beta coefficients are displayed. Abbreviation: PS, Perfectionistic Concerns; PC, Perfectionistic Concerns; PS, Perfectionistic Strivings; BMI, Body Mass Index; aCERQ, adaptive cognitive ER strategies; mCERQ, maladaptive cognitive ER strategies; ED, eating disorder. *$p \leq .05$ **; $p \leq .01$ ***; $p \leq .001$.

Chapter IV. Discussions

4.1. Introduction

The present study focused on two different evolutive life periods remarkably relevant for the development of perfectionism, ER processes and disturbed eating attitudes:adolescence and young adulthood, two periods of the life span that are particularly salient for establishing lifestyle and health-related behaviours. These transition periods are characterized by important changes in personality, changes toward a more stable identity, and the establishment of substantial cognitive and emotional functions (Arnett, 2007). The entrance into adolescence and young adulthood involves several social and personal challenging that highlight the individuals' difficulties in meeting typical expectations of these pivotal stages (Richardson, 2012). Perfectionism may be peculiarly relevant during these ages as individuals experience growing environmental demands and are unusually sensitive to being socially accepted and integrated in peer groups (Hewitt, Newton, Flett, & Callander, 1997). Similarly, emotions are more intensively experienced as interpersonal relationships can be particularly challenging in these developmental periods (Grenyer, Gray, & Townsend, 2016). For this reason, the examination of how ER develops across adolescence and young adulthood has been regarded as a critical interesting topic. In these developmental periods, psychosocial and physiological changes increase susceptibility to negative affective states (Macklem 2007) and predict difficulty managing negative emotions (Henry, Castellini, Moses, & Scott, 2016; Rodriguez, Tucker, & Palmer, 2016). Mirroring the findings from studies with adolescents and young adults, it can be argued that certain perfectionistic aspects as well as ER patterns are key factors to deeply understand difficulties in psychological functioning during these ages (Rodriguez et al., 2016; Stoeber & Childs, 2011). This is especially true when considering that adolescence and young adulthood are periods of heightened risk for the development of EDs (Striegel-Moore & Bulik, 2007). Research shows with remarkable consistency that adolescence and young adulthood are the period of greatest EDs risk (Striegel-Moore & Bulik, 2007), with some authors suggesting that among the major factors implicated in this age-specific EDs-vulnerability,

the exposure to weight-related teasing by peers and to unattainable thinness ideals must be mentioned (e.g., López-Guimerà, Levine, Sánchez-Carracedo, & Fauquet, 2010). The examination of key pathways explaining how these problematic EDs attitudes and behaviours occur is essential, especially considering the importance of early detection and appropriate intervention of eating disturbances. Based on this, in the attempt to shed light to these complex mechanisms, the present study aimed to examine the relationship between perfectionism dimensions and EDs-related symptoms, controlling for the intervening role of CER strategies. The inclusion of differently aged samples provided further evidence on how these intricate associations operate across two separated but commonly challenging developmental stages. Of note, achieving partial metric invariance indicated that the correlations between the constructs in the model are comparable across the two samples, thus the structural equations were comparable as well. Results were detailly discussed in the subsequent sections.

4.2. Age differences in the levels of psychological constructs examined

4.2.1. Perfectionistic dimensions

Results of the present investigation showed no significant differences in the levels of perfectionistic aspects across adolescents and young adults. Although not based on a prospective examination of the construct, this finding may be relevant in the context of literature on the developmental trajectory of perfectionism. Research on this latter topic is scarse and heterogenic, thus any definitive conclusion may be questionable (Damian, Stoeber, Negru, & Băban, 2013; Stoeber, Otto, & Dalbert, 2009). So far, studies exploring the temporal stability of perfectionism longitudinally examined perfectionism changes across adolescence, as it has been considered a sensitive period in the development of the trait (e.g., Gilman & Ashby, 2006). In some cases, it is found that perfectionistic aspects are not necessarily stable. For example, Portešová and Urbánek (2013) examined typologies of perfectionism across a 10- year period using three cohorts of gifted adolescents. They found a considerable variation in perfectionistic profiles showed by participants

across the different time points, highlighting the low stability of the trait. Some authors observed significant longitudinal changes in adolescents' Socially prescribed perfectionism and not in the Self-oriented aspect, suggesting that PC-related dimensions may be more malleable and more influenced by external factors (e.g., parental expectations) than those reflecting PS (Damian et al., 2013). Instead, other studies found high interindividual stability of perfectionism over time (e.g., Cox, Clara, & Enns, 2009; Madigan, Stoeber, & Passfield, 2015). Consistently, in the present study, the two age groups did not differ in their levels of perfectionistic dimensions, suggesting that the construct remains fixed across adolescents and young adults. The substantially similar distribution of perfectionistic aspects across the two groups may be regarded as an evidence of the developmental stability of perfectionism sustained in many studies (e.g., Madigan et al., 2015; Sherry et al., 2013). Some authors observed a notably strong inter-individual autoregressive paths for perfectionism across time, suggesting it remains stable at different ages (Smith et al., 2017). A possible explanation of this finding may be that both adolescence and young adulthood are crucial for the development of perfectionism, as the typical life challenges of these periods (e.g., changes in self-definition, university entrance) may equally imply the experience of unrealistic expectations and self-critical tendencies. Of note, whereas perfectionism levels detected in the young adult group substantially reflected the standardized score ranges (see Lombardo, 2008), mean levels of perfectionism for adolescents in the present study resulted to be relatively higher than those observed in previous research conducted on comparable – aged samples (e.g., de Jonge-Heesen et al., 2020). This evidence suggested that the absence of a significant difference in perfectionism dimensions between adolescents and young adults of the current study may be due to the notably high perfectionistic levels observed in the first group. Further studies are needed to determine the appropriateness and usefulness of identifying distinct perfectionism norms for different age groups.

4.2.2. CER strategies

One of the main hypotheses of the present study was that the use of CER strategies would be lower in adolescents than in young adults, as it has been generally assumed that during

adolescence the more advanced cognitive and emotional abilities are being mastered (Garnefski & Kraaij, 2006). This hypothesis was partially confirmed. First, six of the nine CER strategies were found to distinguish the two groups. Four of these six CER strategies (i.e. acceptance, reappraisal, refocusing on planning, and rumination) resulted to be significantly highly reported among young adults as compared to adolescents. This result is consistent with previous studies evidencing that adults reported higher use of adaptive CER strategies than adolescents (Garnefski & Kraaij, 2006).

This might be explained by the fact that the refinement of CER strategies depends on the number of emotion-eliciting stressful occasions which usually grows as the individual grows older (Garnefski & Kraaij, 2006). The experience of new challenging stressors may contribute to the mastering of increasingly multifaceted CER strategies as is assumed in general coping processes (Lazarus, 1999). In the present examination, young adults reported more levels of positive reappraisal than adolescents, suggesting that adolescents are less likely to create a positive meaning to a negative life event in terms of personal growth, as evidencing in a previous study (Garnefski & Kraaij, 2006). The lower score of adolescents in refocusing on planning (i.e. think about the steps to follow for facing a stressful event) may be explained by the fact that young people often are especially unprepared to cope effectively with the new developmental challenges (Mc Doniel, 2020). Moreover, the higher use of acceptance (i.e. experience the emotional situation and associated thoughts and emotions without trying to avoid or change anything), detected among young adults may reflect the complex nature of this CER strategies, as it often involves mindfulness components which become effective and stable with advancing age (Mahlo, & Windsor, 2020). On the other hand, results showed that adolescents reported greater engagement in positive refocusing (i.e. focusing on other, pleasant things instead of the negative event) as compared to young adults. This result is consistent with previous evidence demonstrating that the use of this CER strategy was significantly higher in late adolescents than in adult population (Garnefski & Kraaij, 2006). One may argue that, since adolescents often experience difficulties in coping with their emotions (de Wilde, Kienhorst, & Diekstra, 2001) they could engage in acceptance as an attempt to escape from the awareness of negative internal states.

Among the maladaptive CER strategies, rumination and catastrophizing were found to be highly significantly prevalent among young adults and adolescents, respectively. Previous findings indicated that dysfunctional rumination was more often reported during middle and late adolescence compared to early emerging adulthood (Zimmermann & Iwanski, 2014), which is inconsistent with the present results. However, research states that individuals engage in more rumination when they experience stress (Zawadzki, Graham, & Gerin, 2013), suggesting that young adults included in the current study may be a particularly stressful even more than adolescents. Further studies on these topics should contemplate the assessment of perceived stress in order to explore its potential influence on the preference use of specific CER strategies. Finally, the use of catastrophizing was more pronounced in adolescents. Previous studies indicated that the tendency to explicitly emphasizing the terror of an event may be related to the juvenile experiencing of strong impulses, frequently under conditions of negative affect (d'Acremont, & Van der Linden, 2007). It is recommended to include the measurement of impulsivity in future studies as it could be useful to detect whether impulsive people who report poor ER strategies when facing negative events, are more prone to catastrophizing (as suggested by Dussault, Brendgen, Vitaro, Wanner, & Tremblay, 2011).

4.3. Multigroup mediation model: associations between perfectionistic dimensions and EDs symptoms through CER strategies

4.3.1. The relationship between PC and EDs symptoms

Results of the present study suggested a substantial different contribution of each perfectionistic aspect in explaining severity of eating pathology. A positive relationship between PC and EDs symptoms was observed (hypothesis 2a) suggesting that perceived negative evaluation from others as well as concerns with failure were associated with greater likelihood to report eating disturbances. This result is consistent with previous evidence indicating that perceived failure to reach the expectations of others or self-imposed standards (i.e. PC) are detrimental, especially

when personal standards were applied to weight and shape domains (Boone et al., 2012). Some authors describe the mechanism which connects PC to eating pathology as a complex process wherein people with high PC proactively generate conditions in their everyday lives in the form of interpersonal discrepancies (i.e. sense of disconnection with other people's expectations) that are conducive to eating symptoms (e.g., restricting caloric intake) (Sherry & Hall, 2009). Previous research has reiterated the importance of capturing the directionality of PC relationship with disturbed eating in so far as assessing whether perfectionism represented an antecedent or a consequence of EDs symptomatology. The damaging nature of PC in the context of eating disturbances has been corroborated by longitudinal studies stating that PC prospectively confer vulnerability for EDs symptoms (e.g., bulimic symptoms; Short, Mushquash, & Sherry, 2013; Smith et al., 2017), confirming its potential antecedent effect. These studies support the idea that PC may confer vulnerability to eating disturbances, and not merely be a concurrent factor. In this view, the analysis of conditional processes is useful to understand the mechanisms by which PC is connected to eating symptoms (and not viceversa) and to test contingent effects (Hayes, 2013). In explaining the PC – EDs symptoms relationship, multiple risk pathways have been conceptualized. For example, some scholars have hypothesized that people who are high in PC may experience a subjective sense of disconnection with others' perceived demanding (Sherry & Hall, 2009), which in turn predisposes eating symptoms as a means of escaping unsatisfactory self-awareness derived from comparing the self with relevant standards (Heatherton & Baumeister, 1991). The role of PC in promoting unhealthy eating patterns (e.g., dietary restraint) may be also emerges as the result of the perceived failure in comply with sociocultural pressure to be thin (Boone, Soenens, & Braet, 2011).

Results of the present study provided evidence for a significant positive association between PC and EDs symptoms in both adolescents and young adults, as suggested by systematic evidence (Limburg et al., 2017; Vacca et al., 2020). This finding suggests that PC operates as a concomitant variable explaining EDs symptomatology in differently aged populations, highlighting the unequivocal maladaptive role of PC in EDs-related domains (Smith et al., 2017). The perception of high significant other's expectations (i.e., PC) could be stressed

especially during developmental life periods (Muuss, 2006), as the focus on external demanding and approval may be related to the emerging urge of young people to develop a sense of identity (Bellami, 1990; Sutton, 2019). Adolescents as well as young adults may be particularly susceptible to experience intense sense of inadequacy and discrepancy (e.g., an aspect of PC) in facing with the typical developmental challenges (e.g., establishment of an identity, transition to university) (Salmela-Aro, 2012). When this discrepancy is applied to the domain of eating, individuals may be at risk of developing maladaptive eating patterns.

4.3.2. The relationship between PS and EDs symptoms

Notwithstanding the well-known evidence on the positive relationship between bot PS and PC and eating disturbances (see Bardone-Cone et al., 2007), the current examination indicated that while PC predicted greater EDs symptoms, PS was negatively associated with these outcomes. Therefore, hypothesis (2b) was not confirmed. This finding apparently contradicted past research and suggested that PS was related to low EDs pathology. Evidence suggesting a negative role of PS in predicting eating disturbances are few but available in literature. For example, some authors found significant positive relationship between aspects of perfectionism related to PS (e.g., high personal standards) and adaptive EDs-related outcomes (e.g., high body esteem; Davis, 1997). In some cases, perfectionism resulted to be related to less severe bulimic behaviors (Calam & Waller, 1998) and to low body dissatisfaction (Shahyad, Pakdaman, Shokri, & Saadat, 2018). One study showed that patients with EDs scored significantly higher than non-eating disordered individuals on PC components (e.g., Concern over mistakes, Doubts about actions, Discrepancy) but not on PS aspects (e.g., Personal standards, Organization, Order) (Ashby, Kottman, & Schoen, 1998). Authors of this study concluded that EDs patients may be characterized by high levels of PC and low levels of PS. These findings run contrary to popular theories of perfectionism - eating symptoms link, as imply the potential beneficial nature of PS in accounting for variance of disturbed eating. The fact that PS may show negative relations with indicators of psychological maladjustment has been discussed as an evidence of its intrinsic

adaptiveness (e.g., Stoeber & Otto, 2006). Studies supporting the functional nature of PS found significant positive associations with achievement (Stoeber & Rambow, 2007), positive affect (Bieling et al., 2004), self-esteem, agreeableness, psychological functioning (Stoeber & Otto, 2006), and goal progresses (Powers et al., 2011). However, because PS and PC overlap, PS' adaptiveness is often suppressed by the relations that PC show with maladaptive outcomes (Stoeber & Gaudreau, 2017). More specifically, the fact that PS and PC are frequently highly correlated (e.g., r = 0.60) highlights the interesting possibility that a portion of what is captured by PS (e.g., high achievement striving) can be distinguished from the self- evaluative processes captured by PC (DiBartolo, Li, & Frost, 2008). Some authors argued that relationships of PS with desirable outcomes occasionally could be suppressed by PC (e.g., Hill, Huelsman, & Araujo, 2010; Stoeber & Gaudreau, 2017). Remarkably, when the overlap between PS and PC is partialled out, PS show stronger negative relations with indicators of psychological maladjustment (Stoeber & Gaudreau, 2017). In their paper, Stoeber and Gaudreau (2017) yielded important insights into the "suppressor effect" of PC, stating that "because PS showed positive relations with PC, the overlap with PC often *masks* the adaptive relations of PS—particularly as the adaptive relations that PS show are usually weaker than the maladaptive relations that PC" (Stoeber, J., & Gaudreau, 2017, pp. 383). These processes may be particularly relevant in the context of the results of the present study. Based on the findings concerning the effects of partialling, one may argue that the significant negative relationship between PS and eating symptoms actually reflects implications of the suppressor effect of PC. In fact, in the present study, the statistical model testing the relationship between perfectionistic dimensions and eating symptoms was computed controlling for the covariance between PS and PC (r = .60 for adolescents; r = .62 for young adults). For this scenario, the negative effect of PS on eating symptoms may be the consequence of controlling for the common variance shared by PS and PC. Previous studies demonstrate that when the covariance between the two perfectionism factors was taken into account, PS show negative associations with maladaptive outcomes (e.g., anxiety; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007). This mechanism may be valuable also in the case of eating symptoms, as one past study demonstrated (Minarik & Ahrens, 1996). In confirming of this, in the present study, wherein

bivariate correlation of PS with EDs symptoms was positive in each sample (r = .173 for adolescents; r = .130 for young adults) as well as correlation of PC (r = .570 for adolescents; r = .439 for young adults), partialling for the common variance between the perfectionism dimensions resulted in PS showing a negative (and even greater) partial correlation with EDs pathology (r = -.208 for adolescents; r = -.196 for young adults). On the other hand, partial correlations between PC and EDs symptoms remained significantly positive. These findings evidenced that parceling may help scholars to better understand the dual nature of perfectionism as well as its associations with psychological outcomes. Further research should shed light on these processes by employing more sophisticated statistical methods to more deeply explore the simultaneous effects of PS and PC on mental adjustment and maladjustment.

Implications of these findings suggested that programs of intervention for adolescents and young adults suffering from EDs should primary address aspects of PC (e.g., concern over mistakes) rather than components of PS (e.g., high personal standards). Preventive intervention protocols primarily aimed to reduce components of self-critical perfectionism are recommended, especially when individuals report difficulties in facing with stressful developmental transitions and stage-relevant tasks. On the other hand, the tendency to high achievement related to PS should be re-addressed to reinforce motivation for change in EDs treatment (Wagner & Vitousek, 2019).

4.3.3. PC and CER strategies

First, the present study demonstrated that PC was positively associated with maladaptive CER strategies (hypothesis 3a). This finding is consistent with previous works supporting the link between components of PC (e.g., discrepancy, concern over mistakes) and dysfunctional strategies in coping with emotions (e.g., Aldea & Rice). Participants with evaluative concerns are prone to engaging in unhelpful ER strategies, maybe as a response to the heightened negative affect elicited by self-criticalness about performance and fear of making mistakes (Malivoire et al., 2019). Second, a negative and significant relationship was observed between PC and adaptive CER strategies (hypothesis 3b), in line with past evidence (e.g., Rice & Aldea). Maladaptive

perfectionists may be less inclined to manage distressing feelings by cognitively adopting functional CER strategies. This result is compatible with longitudinal evidence establishing that component of PC (e.g. Socially prescribed perfectionism) prospectively predict the limited access to effective ER (e.g. reappraisal; Vois & Damian, 2020). One may argue that when experiencing a distressful event, individuals with high PC are prone to have negative thoughts or beliefs about the self, such as "*if I fail at my work, then I am a failure as a person*" (F-MPS; Frost et al., 1990). They may be in trouble in regulate these emotionally arousing thoughts by using adaptive CER. Previous evidence concurs that the use of adaptive ER depended on the levels of individuals cognitive flexibly in order to use the appropriate strategy within the given context (e.g., Gratz & Roemer, 2004). This difficulty in adopting effective ER may be accentuated in maladaptive perfectionists as they often engage in rigid thinking style (e.g., "all-or-nothing" thinking; Shafran et al., 2002). This cognitive inflexibility related to PC may amplify the experiencing of negative affect and limit the engagement in more adaptive management of emotions (Rudolph et al., 2007). Moreover, following a perceived failure, individuals with PC may invest energy in emphasizing potential future implications and consequences of this failure instead of using more adaptive ER strategies (Malivoire et al., 2019).

4.3.4. PS and CER strategies

Consistently with hypothesis (4a), PS resulted to be positively associated with adaptive CER strategies. Previous evidence highlighted the positive role of PS in predicting the likelihood to attempt functional ER (e.g., Richardson et al., 2014; Vois & Damian, 2020), suggesting that adaptive perfectionists tend to endorse better approaches to ER. It is possible that, since PS has found to be related with high positive affect and psychological wellbeing (e.g., Stoeber & Otto, 2006), people with high PS more frequently use adaptive CER strategies in order to reinforce and maintain these positive states. Some authors speculated that although individuals with high PS show excessive high standards of performance, they usually adopt a more flexible conceptualization of the idea of failure and success than to those with high PC (Aldea & Rice).

They may be more prone to engage in adaptive CER strategies since occasionally suspend the self-criticism and scrutiny processes derived from high self-achievement. Alternatively, the positive association between PS and effective CER may be explained by previous studies suggesting adaptive perfectionists (i.e. those with high PS) report high emotional intelligence aspects (i.e. emotion self-regulation, appraisal of self-emotions; Gong, Fletcher, & Paulson, 2017). In line with these results, it is possible to infer that high PS individuals are more prone to regulate and express their own emotions through adaptive strategies. These conclusions are useful to interpretate the confirmation of the hypothesis (4b) in the present study. It was found that PS negatively explained the increment of engagement in maladaptive CER strategies. This result is consistent with past research highlighting that PS is implicated in lower general emotion dysregulation, both cross-sectionally (Aldea & Rice) and longitudinally (Vois & Damian, 2020). Overall, findings seem to support the adaptiveness of PS in ER context and disconfirmed previous evidence suggesting the ambiguous or even dangerous role of this perfectionism dimension in explaining negative emotional processes (Castro et al., 2017; Rudolph et al., 2007).

4.3.5. CER strategies and EDs symptoms

The importance of emotional experience and expression has long been recognized in the literature on EDs (Overton, Selway, Strongman, & Houston, 2005). Individuals with EDs often suffer from both maladaptive ER and a lack of adaptive ER strategies (Danner, Sternheim, & Evers, 2014). Consistently, hypotheses (5a) and (5b) posited in the current study were corroborated. First, maladaptive CER was found to be positively related to the frequency and intensity of eating symptoms (5a). This result confirmed the well-known evidence suggesting that individuals with EDs display deficits in effectively coping with negative affective states (e.g., Aldao et al., 2010). A growing body of studies demonstrates that difficulties in emotional processing are related to disturbed eating in both clinical and non-clinical samples (e.g., Aldao et al., 2010; Brockmeyer et al., 2014; Lavender et al., 2015; Meule et al., 2019). This evidence has been confirmed by meta analytic results showing medium-to-large range of effect sizes in the correlations between maladaptive ER and overall eating pathology (Prefit, Cândea, & Szentagotai-

Tătar, 2019). Second, the use of adaptive CER resulted to be negatively related to EDs symptomatology in the present study. This result is aligned with previous studies proposing that disordered eating was associated with less use of adaptive strategies and skills (e.g., Goossens, Malderen, Durme, & Braet, 2016). A possible explanation of these findings may implicate the dysfunctional metacognition (i.e. the ability in controlling, modifying and interpreting thoughts). More specifically, the low capacity of modulating internal states reported by EDs patients may be the result of their poor metacognition functions often observed in eating disturbances (Wells & Carter, 2001). Future research is needed to confirm this hypothesis, in order to shed light on factors related to the defective ER of individuals with eating symptoms. Some authors suggest that the impaired ability of EDs suffers to effectively regulate their emotions may be due to a deficient use and awareness of range of emotions to moderate emotional experience (Overton et al., 2005). In this view, the limited capacity to tolerate emotions and regulate them may be related to the diminished emotional awareness observed in EDs patients (Gilboa-Schechtman, Avnon, Zubery, & Jeczimien, 2006). Some authors even suggest that the low attention to emotional responses and lack of emotional awareness found in individuals presenting EDs reflect a defence mechanism aimed to escape emotional painful and overwhelming (see Overton et al., 2005). This ego-syntonic defence mechanism may hinder the recovery and maintain eating symptoms on a long-term. Overall, this evidence clearly suggests that adequate treatment of EDs patients should target CER patterns by increasing their ability to experience, differentiate, and regulate different emotions (Wonderlich et al., 2015). Clinicians should improve patients' flexible thinking and adaptive responses to emotional challenges, as well as their emotion self-efficacy. It has been observed that the perceived confidence on one's own ER strategies is related to beneficial treatment outcomes (MacDonald, Trottier, & Olmsted, 2017).

4.3.6. The mediation role of CER strategies

Results of the present study suggested that CER may be one of the potential underlying mechanism partially explaining the well-researched relationship between perfectionism and EDs related outcomes. The ability to regulate emotions, especially when facing with challenging situations, is fundamental for individual psychological adjustment and has a pervasive influence

across the lifespan (Zeman, Cassano, Perry-Parrish, & Stegall, 2006). For this reason, is essential to examine the psychological correlates of CER and its association with mental adjustment. This is especially true when considering that adolescence and young adulthood are key developmental periods for the development of ER as the transition into adulthood raises numerous challenges in intra/interpersonal contexts, resulting in solidifying lifelong ER strategies (Rawana, Flett, McPhie, Nguyen, & Norwood, 2014).

First, adaptive as well as maladaptive CER strategies partially explained the incremental effect of PC on eating symptoms in both adolescents and young adults. This result pointed that unhelpful CER strategies may occur in response to the heightened negative affect elicited by the experience of failure in the preservation of unrealistic high standards (i.e. PC). This mechanism may result in emotion dysregulation (i.e. high maladaptive ER strategies; low adaptive ER strategies), which, in turn, contribute to promote dysfunctional eating attitudes and behaviours as strategies used to escape from experiencing intense negative emotions (Nolen-Hoeksema et al., 2008). These findings were consistent with other previous cross-sectional studies testing the interaction between perfectionism and ER in predicting EDs-related outcomes (Cunningham et al., 2018; Donahue et al., 2018). Similarly to these studies, in the present work it may be speculated that individuals with maladaptive CER and diminished access to positive CER strategies may have poorer skills in menage the distress derived from maladaptive perfectionism, resulting in eating symptoms.

Another result remarked the role of adaptive CER in explaining the negative effect of PS on eating symptoms in both adolescents and young adults. More specifically, PS resulted to be associated with high access to adaptive CER strategies, which, in turn, predicted lower ED symptoms. These findings highlight the potential positive nature of PS in accounting for EDs symptoms. In fact, differently from previous results (Limburg et al., 2017) PS was negatively associated with eating symptoms in both the developmental ages. These findings corroborated evidence of a research tradition sustaining that individuals with EDs show high PC and low PS (Ashby et al., 1998).

As regarding the mediation role of maladaptive CER strategies in explaining the association between PS and EDs symptoms, different results emerged for adolescent and young adult samples. It was found that wherein maladaptive CER partially mediated the negative effect of PS on symptoms among young adults, as low dysfunctional CER strategies associated with PS predicted low EDs symptoms, the same hypothesized indirect effect was not statistically significant among adolescents. These results may be explained by considering the meaning role of PS from a developmental prospective. The significant indirect effect observed among young adults, may imply the possibility that PS has a protective buffering role against the influence of emotion dysregulation on EDs -related outcomes. This interpretation is consistent with suggestions of previous authors who found that the interaction between Self-oriented perfectionism (i.e., a key aspect of PS) and difficulties in ER predicted low dysmorphic appearance concerns in undergraduate men (Cunningham et al., 2018). Since PS have been recognized as adaptive traits that protected against mental health symptoms (e.g., suicidality, Stoeber & Otto, 2006), it can be further hypothesized that having high standards of performance may reduce the impact of emotion difficulties on eating disturbances. On the other hand, this mechanism may not occur among adolescents. It seemed that the significant negative association between PS and ED symptoms was not due to the adolescents' diminished engagement in maladaptive CER strategies. This result indicated that, in the adolescent sample, maladaptive CER explained only the effect of PC on EDs symptoms. It may be argued that the less engagement in maladaptive CER - which was related to PS- was not enough meaningful to predict decrement in ED symptoms. In other words, the protective buffering role of PS against the negative consequences of maladaptive CER on eating symptoms was not supported in adolescents. A reasonable explanation of this finding may be that the components of PS that are relevant for emotional and cognitive processes may not be sufficiently structured in adolescence. For example, past research suggested that externally motivated perfectionism (i.e. PC) may be more relevant that internally motivated perfectionism (i.e. PS) in this specific phase (Sironic & Reeve, 2015), as adolescent show high susceptibility to parental and significant others' criticism and pressures (Rice, Lopez, & Vergara, 2005). Since internal motivation has been recognized as a relevant factor for emotional processes, in so far

people use ER strategies to achieve desired emotional states (Tamir & Millgram, 2017), it can be hypothesized that the adolescents of the present study with high PS may be not able to manage the effects of dysfunctional emotional experience and expression on EDs symptomatology. These conclusions should be interpreted with caution, considering the relatively weak indirect effect and the small difference between confidence intervals across adolescents and young adults. Further studies are needed to test this hypothesis by including the assessment of motivation dimensions as well as the perceived confidence in dealing with negative emotions.

The present study clearly presented some limitations. First, its cross-sectional nature did not allow for directional relationships among the variables included in the mediation model. Future longitudinal studies on the current topic are therefore required in order to replicate the proposed theoretical model in order to establish causal effects. Second, the mere use of self-report questionnaires did not permit the exclusion of social desirability in the responses given by participants, thus future research should also focus on behavioral measurement. Third, the current study was based on a sample exclusively composed of students, indeed preventing general recommendations for other types of populations. Fourth, as recommended in previous sections, the further assessment of other psychological construct related to ER (i.e., impulsivity; perceived stress; motivation) is recommended in order to examine their potential effects on variables included in the tested model. Moreover, future investigations should include the individual level of emotionality as a covariate in order to detect age-specific emotion regulation differences that are not caused by age-specific differences in emotional intensity.

Otherwise, the strengths of the present investigations are notable. Research on the relationship between perfectionistic dimensions, ER processes and disturbed eating patterns are few and heterogeneous (*see paragraph 3.4*) and presents some limitations (e.g., unidimensional assessment of perfectionism and ER strategies; non-mixed-gender samples; lack of assessment of core EDs symptoms). The present study has attempted to overcome these limitations by assessing multiple facets of perfectionism (i.e. PS, PC), conceptualizing and measuring ER from a multidimensional prospective, and by focusing on dysfunctional eating attitudes and behaviours.

Furthermore, the inclusion of adolescents and young adults permitted to examine the distribution of all the relevant variables across two samples representing distinguished developmental life stages. The associations between perfectionistic dimensions, CER strategies and eating symptoms were examined through a multigroup prospective, and a “good-fit” theoretical model was found to be consistent across the groups. The establishment of statistical metric invariance indicated that the correlations between the constructs in the model are comparable across the two samples, thus supporting the structural equations were comparable as well. These results concur to propose an etiological mediation model for the development of eating symptoms suitable to be longitudinally tested and explored among both adolescents and young adults.

4.4. Conclusions and clinical implications

Perfectionism has been recognized as a core psychological construct remarkably relevant in the context of eating attitudes and behaviours, as well as in emotion regulation (ER) patterns. While multiple studies found that ER explains the relationship between perfectionism and various mental health symptoms (e.g., perceived distress, Aldea & Rice, 2006; depressive symptoms, Harris et al., 2008; anxiety, Moretz & McKay, 2009), little is known about eating disorder symptoms. Therefore, the present study aimed to examine the relationship between perfectionistic aspects (perfectionistic strivings, PS; perfectionistic concerns, PC) and disturbed eating, considering the mediation role of cognitive ER strategies in explaining this link. First, two different developmental samples (i.e. adolescents, young adults) were examined and compared in their levels of perfectionism, ER strategies and EDs symptoms in order to assess potential group differences in these variables. Second, the simultaneous effects of maladaptive (i.e. PC) and adaptive (i.e. PS) perfectionistic dimensions on EDs symptoms via ER strategies was tested across the two sample through a multigroup mediation model.

Results showed significant differences between the two samples in the use of specific CER strategies, with young adults reporting higher engagement in the majority of them, consistently with previous evidence (Garnefski & Kraaij, 2006). Moreover, evidence from the multigroup mediation model showed that maladaptive and adaptive CER significantly mediated the positive effect of PC

on eating symptoms in both groups. Moreover, the mediation of adaptive CER also explained the negative associations between PS and eating disturbances. On the other hand, the negative indirect effect of maladaptive CER strategies was found to be significant among young adults, otherwise nonsignificant among adolescents. It seemed that having high standards of performance may reduce the impact of emotion difficulties on eating disturbances. Of note, this effect was not observed in adolescents, indicating that maladaptive CER explained only the effect of PC on adolescent EDs symptoms. It may be argued that the less engagement in maladaptive CER -which was related to PS- was not enough meaningful to predict decrement in adolescent symptomatology. In other words, the protective buffering role of PS against the negative consequences of maladaptive CER on eating symptoms was supported in young adults but not in adolescents.

These findings have clinical implications for the treatment of individuals with EDs. It should be emphasized that implementing ER strategies could be effective in treating eating symptoms by enhancing ER capacities and reducing dysfunctional behaviors. Specifically, in individuals who are at risk for EDs in clinical practice, identifying ER profile and which maladaptive strategies are used can be useful in intervention for eating symptoms (Goossens et al., 2016). Moreover, the focus on the role of adaptive ER strategies may help to prevent the development of eating problems (Goossens et al., 2016). Many studies found that interventions focusing on ER are beneficial to the treatment of patients with EDs (Bankoff, Karpel, Forbes, & Pantalone, 2012; Clyne, Latner, Gleaves, & Blampied, 2010; Storch, Keller, Weber, Spindler, & Milos, 2011). Moreover, previous evidence suggests that improvements in ER strategies such as the ability to differentiate emotions predict improvements in EDs psychopathology from pre-treatment to post-treatment of eating symptoms (Rowsell, MacDonald, & Carter, 2016). Although it cannot be determined from the present study whether difficulties in ER predicts ED psychopathology or vice versa, future longitudinal studies should investigate the directionality of this association. Additionally, future interventions of eating pathology should target maladaptive perfectionism by reducing components of PC such as self-criticism and concerns over external expectations through the use of specific strategies (e.g., self- compassion techniques) (Wagner & Vitousek, 2019). On the other hand,

perfectionistic standards could be re-addressed to enhancing motivation for change in EDs patients (Wagner & Vitousek, 2019) following suggestions of existing standardized treatment protocols (e.g., Egan, Wade, Shafran, & Antony, 2014). Moreover, in line with results of the present investigations, it can be suggested that therapeutic interventions for eating pathology focused on perfectionism may benefit from including techniques aimed to improve patients' ER skills in order to prevent and/or treat the worsening of symptoms. Further research is needed to understand how perfectionistic aspects interact with components of ER in their prediction of disturbed eating.

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