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Reciprocal Relations Between Emotional Self-Efficacy Beliefs and Ego-Resiliency across Time

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Abstract

Objective—The present study examined the longitudinal relations of adolescents' self-reported ego-resiliency to their emotional self-efficacy beliefs in expressing positive emotions and in managing negative emotions as they moved into early adulthood.

Method—Participants were 239 females and 211 males with a mean age of 17 years ($SD = .80$) at T1, 19 years ($SD = .80$) at T2, 21 years ($SD = .82$) at T3, and 25 years ($SD = .80$) at T4. A four-wave cross-lagged regression model and mediational analyses were used.

Results—In a panel structural equation model controlling for the stability of the constructs, reciprocal relationships across time were found between ego-resiliency and emotional self-efficacy beliefs related to the expression of positive emotions and to the management of negative emotions. Moreover, the relation between ego-resiliency assessed at T1 and T3, and ego-resiliency assessed at T2 and T4 was mediated through emotional self-efficacy beliefs (at T2 and T3, respectively), and vice versa.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

Conclusions—The posited conceptual model accounted for a significant portion of variance in ego-resiliency and has implications for understanding the development of ego-resiliency.

Keywords

emotional self-efficacy; ego-resiliency; early adulthood; emotion regulation; longitudinal mediation

Ego-resiliency is a personality trait that refers to the ability to dynamically and appropriately self-regulate, allowing high resilient people to adapt more quickly to changing circumstances (Block, & Kremen, 1996). As such, it represents a protective factor against negative outcomes in major domains of life (Block & Block, 2006). Although the role of ego-resiliency for individuals' adaptation has been widely documented across different developmental phases (Block, Block, & Keyes, 1988; Block & Gjerde, 1990; Denissen, Asendorpf, & van Aken, 2008; Eisenberg, Chang, Ma, & Haung, 2008; Huey & Weisz, 1997), few investigators have directly addressed factors that might foster or promote the development of ego-resiliency from late adolescence to emerging adulthood (see Hofer, Eisenberg, & Reiser, 2010, for findings in late high school). This represents a transitional life period that requires adjustment to many psychological and environmental changes (e.g., Arnett, 2000; Graber, Brooks-Gunn, & Petersen, 1996), such as going away to college or starting a job, living independently or outside of the parental home, or moving in with a romantic partner. As has been argued (Breunlin, 1988), these experiences might disrupt the previous equilibrium of the adolescent's social environment. Indeed, young adults are expected to become more independent and to start to search for their place in society (Arnett, 2000).

Whereas the benefits of ego-resiliency have been highlighted by several empirical studies (Block & Block, 2006), considerably less attention has been paid to the identification of reliable predictors of ego-resilient development. We sought to fill this gap in literature by using data on a large sample of late adolescents.

Ego-Resiliency

Individual differences in ego-resiliency can be observed early in life, mostly with respect to the way infants respond to environmental changes, equilibrate physiological responses, and modify sleep-wake states (Block & Block, 1980) and these individual differences are somewhat stable over time (Vecchione, Alessandri, Barbarannelli, & Gerbino, 2010). Across all life stages, ego-resiliency has been associated with high intellectual capacities (Block & Kremen, 1996) and social competences (Spinrad et al., 2007), high levels of culturally desirable traits (Block, 1971; Ozer & Gjerde, 1989), and low levels of undesirable traits such as neuroticism, hostility, internalizing and externalizing problems (Causadias, Salvatore, & Sroufe, 2012; Chuang, et al., 2006; Eisenberg et al., 2004, 2008; Hofer et al., 2010; Letzring, Block, & Funder, 2005). Accordingly, ego-resilient individuals (i.e., individuals high in ego-resiliency) are likely to exhibit better adjustment and higher attainment than do individuals low in ego-resiliency (see, Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996), and they are likely to assume adult responsibilities (e.g., leaving the parental home, finding a part-time job, and committing to a romantic relationship) at a younger age than

overcontrolled and undercontrolled individuals (Denissen, et al., 2008). It seems probable that ego-resilient individuals continue to do well during the transition from late adolescence to early adulthood, whereas individuals low in ego-resiliency might be required to revise the way they confront life, which in turn might impinge on their level of ego-resiliency (Arnett, 2000).

Emotional Self-efficacy Beliefs

Social cognitive theorists view personality as a cognitive affective system resulting from the concerted action of functionally distinct structures that gradually take form over the course of development (Bandura, 1986). Social cognitive approaches, in particular, have addressed the psychological mechanisms that enable people to interact effectively with the environment, to assign personal meaning to their actions, and to plan and execute the course of actions in accordance with their personal goals and standards (Bandura, 1986). This emphasis has led to a focus on the unique properties of human agency such as self-reflection and self-regulation that enable people to capitalize upon their own and others' experience, to select and change the environments in which they live, and to contribute to charting the course of their lives (Bandura, 2001).

Among psychological structures attesting to individuals' agentic power, none has proved to exert a more pervasive influence over thought, motivation, and action than self-efficacy beliefs, namely, judgments people hold about their capacity to cope effectively with specific challenges and to face demanding situations. The self-assurance with which people approach and manage difficult tasks determines whether they make good or poor use of their competencies (Bandura, 2001). Although empirical findings have largely supported the substantial influence of self-efficacy beliefs on individual functioning in diverse domains (see Bandura, 1997, for a review), in the present study, we focused on perceived emotional self-efficacy in the domain of affect regulation. Following the common distinction between positive and negative affect (Russell & Carroll, 1999; Watson & Tellegen, 1985), Caprara et al. (2008) argued for the importance of emotional self-efficacy beliefs in both managing or modulating the expression of negative affect and to appropriately experience and express positive affect, especially in difficult situations (see Alessandri, Vecchione, & Caprara, 2014, for a review).

The concept of emotional self-efficacy shares shallow similarities with that of emotion regulation (Derryberry & Rothbart, 1997), it is important to recognize the conceptual distinction between actually being able to self-regulate and feeling competent to do so. Emotion-related self-regulation refers to a person's ability to understand and manage internal feelings and emotions by engaging in appropriate cognitive and behavioral strategies (Eisenberg & Spinrad, 2004). Emotional self-efficacy instead reflects a person's perceived abilities to self-regulate, which may not always reflect entirely their true level of self-regulation.

From a theoretical point of view, self-efficacy beliefs in managing negative emotion refer to beliefs regarding one's capability to ameliorate negative emotional states once they are aroused in response to adversity or frustrating events and to avoid being overcome by

emotions such as anger, irritation, despondency, and discouragement. Self-efficacy beliefs in expressing positive emotions refer to beliefs in one's capability to experience or to allow oneself to express positive emotions, such as joy, enthusiasm, and pride, in response to success or pleasant events.

It is unlikely that people flexibly adapt to novel and unknown situations, avoid rigid responses under stress, and approach reality with curiosity and enthusiasm if they do not believe they are able to master both the emotions associated with the repeated experiences of multiple daily hassles and serious difficulties of life. Consistent with the view that emotional self-efficacy beliefs contribute to development, such beliefs predict change in very stable and solid personality traits, such as emotional stability (Caprara, Vecchione, Barbaranelli, & Alessandri, 2012) and positive orientation (Caprara, Alessandri, & Barbaranelli, 2010).

In a previous longitudinal study, Alessandri, Caprara, Eisenberg and Steca (2009) investigated the relations between the two different kinds of emotional self-efficacy beliefs (i.e., managing negative emotions and expressing positive emotions). Self-efficacy beliefs in managing negative emotions were predicted by self-efficacy beliefs in expressing positive emotions only during the late adolescence (from 18 to 22 years). The opposite direct relation (i.e., from self-efficacy beliefs in managing negative emotions to self-efficacy beliefs in expressing positive emotions) was not significant (both from 16 to 20 years and from 18 to 22 years).

Relations between Ego-Resiliency and Emotional Self-Efficacy Beliefs

From a theoretical point of view, ego-resiliency and self-efficacy beliefs are different constructs that draw upon different scientific traditions and address different aspects of personality. In principle, they can be mutually informative. The construct of ego-resiliency refers to an individual characteristic "reflecting general resourcefulness, sturdiness of character, and flexibility of functioning in response to varying environmental circumstances" (Luthar, Cicchetti, & Becker, 2000, p. 546). It is often viewed as closely associated with self-regulation and reflects the ability of flexibly modulate the level of control in contexts and, hence, to deal well with stress and challenges (see Derryberry & Rothbart, 1997; Eisenberg, 2002). In contrast, self-efficacy beliefs point to self-regulatory processes and mechanisms that allow people to reflect upon themselves and to learn from their own and others' experiences (Caprara et al, 2012). Also, in contrast to ego-resiliency, self-efficacy beliefs reflect highly contextualized knowledge structures that affect appraisal processes, which, in turn, guide actions (Bandura, 1997). However, self-efficacy beliefs do not operate in isolation from one another and may generalize, at least to some degree, across activities and situations, to specific domains of individual functioning. Along this line of reasoning, the theory has been extended to address self-efficacy beliefs associated with the domain of emotional regulation (Alessandri, et al, 2014), including the constructs of self-efficacy in expressing positive emotions and in managing negative emotions (Caprara et al., 2008).

Aim of the Present Study

The present study was designed to investigate the relation between ego-resiliency and emotional self-efficacy beliefs using a longitudinal panel design in which the stability of constructs was taken into account to better assess potential the association. As previously noted, we consider ego-resiliency and emotional self-efficacy beliefs to be constructs occupying different layers in the architecture of personality. Ego-resiliency is a relatively unconditional and broad disposition referring to an individual basic potential, or, simply what a person “has” (see Asendorpf & Denissen, 2006). Emotional self-efficacy is a knowledge structure (i.e., a set of self-related beliefs) operating at an intermediate level between broad dispositions and specific behaviors, and mostly represents an individual’s characteristic adaptation (McAdams, 1999). This reasoning embraces the view that individual differences in personality should be addressed at different levels, as well as the belief that a comprehensive view of personality should account for both traits and self-processes.

We reasoned that ego-resiliency might predict emotional self-efficacy beliefs. This is because experiencing oneself as an individual able to adapt resourcefully to changing and demanding circumstances and flexibly use problem-solving strategies might provide the conditions for formulating, practicing, and further strengthening the abilities that are at the basis of emotional self-efficacy beliefs. In brief, because ego-resiliency is a fundamental and early-appearing aspect of temperament and personality (Block & Block, 1980; Caspi & Shiner, 2006; Taylor et al., 2013), it is reasonable that it would operate as a significant predictor of beliefs about the self.

Second, we reasoned that emotional self-efficacy beliefs may, in turn, predict individuals’ overall ability to appropriately self-regulate and, thus, to be ego-resilient (Block & Block, 1980) across different situations and across time. Indeed, distinct emotional self-efficacy beliefs play a crucial role in overruling or modulating the expression of negative affect versus the ability to appropriately experience and express positive affect (Alessandri et al, 2014).

Third, we hypothesized that ego-resiliency may act as a mediator of the development of self-efficacy beliefs from one point in time to a subsequent point in time. Perceiving oneself as a ego-resilient individual may affect self-perceptions of how capable one is in dealing with positive and negative emotions. Because being optimally regulated helps in meeting the social standards of behaviors approved by significant others, it is likely that ego-resilient individuals progressively gain confidence in their capability to regulate emotions.

In summary, the above reasoning led us to examine the reciprocity of relations between ego-resiliency and emotional self-efficacy beliefs. Perceiving the self as able to successfully manage negative emotions and appropriately express positive emotions may strengthen people’s report of their own ego-resiliency. Self-perception theory (Bem, 1972) would suggest that at least part of one’s stable tendency to successfully deal with emotions might derive from seeing oneself as able to behave in that way. However, we expected the prediction of emotional self-efficacy beliefs from ego-resiliency to be stronger than vice

versa because core traits are expected to be more stable than characteristic adaptations (Roberts & DelVecchio, 2000; McCrae & Costa, 2008). Finally, because only one study has examined the reciprocal relations between the two kinds of emotional self-efficacy from 16 to 22 years (Alessandri et al., 2009), we investigated the longitudinal relations between different emotional self-efficacy beliefs in an exploratory manner.

Method

Participants

The participants were 450 older adolescents, 239 females and 211 males, ranging in age from 16 to 18 at Time 1 (henceforth labelled T1; *mean* age = 17, *SD* = .80), from 18 to 20 years at Time 2 (T2; *mean* age = 19, *SD* = .80), from 20 to 22 years at Time 3 (T3; *mean* age = 21, *SD* = .82), and from 24 to 26 years at Time 4 (T4; *mean* age = 25, *SD* = .80). Most participants attended high school at T1 and T2 (from 18 to 19 years). At T3 and T4, approximately half (54.7% at T3 and 49% at T4) were college students.

Participants were all Italians (with no other racial/ethnic groups) from Genzano, a residential community near Rome. They were from families involved in an ongoing longitudinal study that began in 1989 to investigate the main determinants and pathways of successful development and adjustment from late childhood to early adulthood. The families of this community represented a socioeconomic microcosm of the larger Italian society. Specifically, regarding to fathers' occupation, 14% were in professional or managerial ranks, 15% were merchants or operators of other businesses, 33% were skilled workers, 24.4% were unskilled workers, and 9.6% were retired.

The socioeconomic heterogeneity of the sample adds to the generalizability of the findings. At the beginning of the present study (mean age: 17 years), the occupational socioeconomic distribution also matched the national profile (ISTAT, 2002). In addition, at the beginning of the study, the composition of the families matched national data with regard to type of families and number of children. Most adolescents were from intact families (92.9%), and on average, from one-child families (about 65.6% of total sample).

Attrition and Missing Data Analyses

At the final assessment, 55.3% of the sample returned data to the study after eight years. In particular, all participants (i.e., 100%) were assessed at T2, seventeen percent of participants (13% females and 22.3% males) were not assessed at T3, and 44.7% of participants (37.2% females and 53.1% males) were not assessed at T4. The attrition was mainly due to the unavailability of individuals to take part in this phase of the study or, in some cases, to the inability to contact the participant. Analyses of variance suggested that the attrited participants, in the later assessment, did not significantly differ from their counterparts on the means and the covariances of the examined variables (demographics variables, ego-resiliency, both emotional self-efficacy beliefs), as tested by a multivariate analysis of variance and *Box-M* test for homogeneity of covariance matrices. In sum, the attrition did not seem to be systematic.

The lack of selective attrition in our data is supported by Little's test (Little & Rubin, 2002) for data missing completely at random (MCAR) as implemented in SPSS 14. This test, indeed, resulted in a nonsignificant value (i.e., $\chi^2(82) = 67.413$; $p = .88$), indicating that missingness was related to the observed values of the variables in the data set, but unrelated to unobserved missing values (Enders, 2010). The assumption of MCAR allowed unbiased full information maximum-likelihood (FIML) estimates of missing data in the following structural equation models (Enders, 2010). Thus, the analysis was conducted on the final sample composed by 211 males and 239 females.

Procedures

The young adults enrolled in this study were invited to participate in the study by phone and received a small payment for participation (25 euros or an equivalent dinner token). Questionnaires were sent to participants by mail. Consent was obtained and returned by each participant with the questionnaires. All the envelopes were returned by participants directly to a team of two or three researchers during specifically scheduled meetings in a school.

Measures

The measures were all self-report scales and included measures of self-efficacy beliefs in managing negative emotions, self-efficacy beliefs in expressing positive emotions, and ego-resiliency administered at each time point.

Emotional self-efficacy—Emotional self-efficacy beliefs were measured with two scales assessing the perceived capability to manage negative affect and to express positive affect (Caprara, et al., 2008). Six items measured one's perceived capability to regulate negative affect in the face of anxiety-arousing threats, anger provocation, rejection, and disrespect, and the ability to control worrying or anxiety when things go wrong (e.g., "How well can you keep from getting discouraged by strong criticism?" and "How well can you get over irritation quickly for wrongs you have experienced?"; α s = .81, .79, .85 and .81 at T1, T2, T3 and T4, respectively). Three items assessed participants' perceived capability to express positive affect such as liking and affection toward others, enthusiasm and enjoyment, and satisfaction after personal accomplishments (e.g., "How well can you express joy when good things happen to you?"; alphas at T1, T2, T3 and T4 = .72, .82, .79 and .81, respectively). For each set of items assessing emotional self-efficacy, participants rated the strength of their self-efficacy beliefs on a scale ranging from 1 (not well at all) to 5 (very well).

Ego-resiliency—The ER89-R (Alessandri et al., 2008; Vecchione, et al. 2010) is a brief inventory composed of 10 items. Participants were asked to indicate the degree to which they agreed with each statement on a scale ranging from 1 (does not apply at all) to 4 (applies very strongly). High correlations with the original measure devised by Block and Kremen (1996) have confirmed the construct validity of the scale (Alessandri et al., 2008; Vecchione, et al. 2010). The psychometric properties of the instrument have been documented in a large sample of Italian respondents (Alessandri et al., 2008) and confirmed in both cross-cultural and longitudinal research (Alessandri, Vecchione, Letziring, & Caprara, 2012; Vecchione et al., 2010). Sample items include "I enjoy trying new food I

have never tasted before” and “I usually think carefully about something before acting” (alphas = .83, .84, .85, and .83, from T1 to T4, respectively).

Results

Preliminary Analyses

To investigate the dimensionality of the measures, as well as their discriminant validity, a principal factor analysis with a Promax rotation was performed at each assessment point. The scree-plot and the pattern of loadings indicated that a structure with three factors corresponding to the hypothesized constructs (i.e., two factors corresponding to the two domains of self-efficacy and one factor corresponding to ego-resiliency) could be obtained at each time point. The loadings on the intended factors ranged from .36 to .84 ($M = .60$; $SD = .34$) across the four assessment points. The secondary loadings varied from $-.28$ to $.20$ ($M = .15$; $SD = .10$). Factor correlations ranged from .33 to .42 across the four assessments. These results support the factorial validity of the measures and the empirical distinctiveness of the three constructs.

Descriptive Statistics

Table 1 presents the means and standard deviations for emotional self-efficacy beliefs and ego-resiliency at T1, T2, T3 and T4. One-way analyses of variance indicated that there were significant gender differences for all assessed variables except for ego-resiliency at T3 and T4 (see Table 1). Males reported a stronger sense of efficacy in managing negative emotion than females, whereas females felt more efficacious in expressing positive emotion. With respect to ego-resiliency, females reported higher level of ego-resiliency than males at T1 and T2 (i.e., at 16 and at 21 years).

Table 2 contains the zero-order correlations between emotional self-efficacy beliefs and ego-resiliency. High correlations across time indicate that there was high stability for both self-efficacy beliefs and ego-resiliency. As expected, at each assessment self-efficacy beliefs in managing negative emotions, self-efficacy beliefs in expressing positive emotions, and ego-resiliency were positively and highly related to each other for both sexes.

Modeling Strategies

We tested our theoretical model using a four-wave mediational design, following the suggestions of Cole and Maxwell (2003; Maxwell and Cole, 2007). In particular, we estimated a model that included (a) all the autoregressive paths (i.e., the paths predicting a variable from its prior level), as well as the across-time paths from (b) ego-resiliency at a given time point to both types of self-efficacy beliefs at the subsequent time point; (c) self-efficacy beliefs in expressing positive emotion at a given time point to ego-resiliency at the subsequent time point; (d) self-efficacy beliefs in managing negative emotion at a given time point to ego-resiliency at the subsequent time point; (e) self-efficacy beliefs in expressing positive emotion at a given time point to self-efficacy beliefs in managing negative emotion at the subsequent time point; (f) self-efficacy beliefs in managing negative emotion at a given time point to self-efficacy beliefs in expressing positive emotion at the subsequent time point. In addition, all variables were allowed to covary within time.

Structural Equation Analysis

To estimate the hypothesized model, we used *Mplus* 5.01 (Muthén & Muthén, 2006). Missing data were handled by using Full Information Maximum Likelihood Estimation (*FIML*). This method offers unbiased estimates under the assumption of MCAR. According to a multifaceted approach to the assessment of model fit (Tanaka, 1993), the following criteria were employed to evaluate the goodness of tested models: χ^2 likelihood ratio statistic, Tucker and Lewis Index (*TLI*), Comparative Fit Index (*CFI*), and the Root Mean Square Error of Approximation (*RMSEA*) with associated confidence intervals. The significance value of chi-square is sensitive to large sample sizes and easily produces a statistically significant result (Kline, 2010). We accepted *TLI* and *CFI* values greater than .95 (Hu & Bentler, 1999) and *RMSEA* values lower than .06 (Browne & Cudeck, 1993) as thresholds for good fit to the data.

To test the possible moderating effects of sex, we used multiple-group structural equation modeling (Muthén & Muthén, 2006). In our approach, the equivalence between male and female groups was evaluated by imposing identical unstandardized estimates for autoregressive and cross-lagged paths (we refer to this model as the *sex-constrained model*). The plausibility of these equality constraints was examined with the chi squared difference test (χ^2) between nested models (i.e., the sex constrained model vs. the unconstrained model; see Bollen, 1989). We used the same procedure to constrain autoregressive and cross-lagged paths to be equal across time. Finally, we estimated the *sex-time constrained model*, in which equality constraints were applied across the sexes and across time simultaneously.

Mediated effects were calculated using the procedures outlined by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002). We followed the asymmetric confidence interval method recommended by MacKinnon et al. (2002) to formally test mediation (MacKinnon et al., 2004). The critical values for the upper and lower confidence limits for indirect effects were calculated on the basis of the product of two random variables by using the program *PRODCLIN2* (Fritz & MacKinnon, 2007; MacKinnon, Fritz, Williams, & Lockwood, 2007).

In order to deal with measurement error, all variables were included in the model as single indicator latent variables by estimating the error terms from the reliability of the measures (Kline, 2010).

Longitudinal Modeling

The *sex constrained model* showed a good fit to the data: $\chi^2(83) = 131.905, p < .01, CFI = .969, TLI = .950, RMSEA = .051(.034, .067)$. Following standard procedures, we examined the gain in fit achieved by freely estimating all paths across sexes. The change in fit between the *sex constrained* versus the *unconstrained model* was not significant: $\chi^2(33) = 45.255, p = .08$, supporting the tenability of the constraints imposed across male and female groups. We then estimated the *sex-time constrained model*, by further imposing equality constraints across time. This model fit the data well, $\chi^2(105) = 163.347, p < .01, CFI = .963, TLI = .953, RMSEA = .050(.034, .064)$. Furthermore, the change in fit between the *sex-time constrained*

model versus the *sex constrained model* was not significant: $\chi^2(22) = 31.442, p = .09$. This best-fitting sex-time constrained model is displayed in Figure 1.

As can be observed, all autoregressive paths were significant, demonstrating an high degree of stability over time. In addition, both self-efficacy beliefs in managing negative emotions and in expressing positive emotions significantly predicted ego-resiliency from T1 to T2, from T2 to T3, and from T3 to T4. At the same time, ego-resiliency predicted both emotional self-efficacy beliefs from T1 to T2, from T2 to T3, and from T3 to T4. All of these longitudinal predictions held above and beyond the stability of the variables. This result suggests that ego-resiliency and emotional self-efficacy beliefs reciprocally affect the development of each other during a long period of time, which ranges from adolescence to emerging adulthood. In contrast, reciprocal relations between self-efficacy beliefs in managing negative emotions and in expressing positive emotions were not observed.

As next step, we tested whether the effects of each variable assessed at one time point (i.e., ego-resiliency at T1) on non-adjacent scores of the same variable (i.e., ego-resiliency at T3) were longitudinally mediated by the other variables (i.e., by emotional self-efficacy beliefs at T2). We found that the unstandardized indirect effect of self-efficacy beliefs in managing negative emotions at T1 on self-efficacy beliefs in managing negative emotions at T3 through ego-resiliency at T2 was significant ($b = .014; z = 2.45$) and the associated confidence interval (CI) did not include zero (.009, .004), thus supporting mediation. The unstandardized indirect effect of self-efficacy beliefs in managing negative emotions at T2 on self-efficacy beliefs in managing negative emotions at T4 through ego-resiliency at T3 was also significant (parameter estimate, statistical test, and CI were identical to those of the mediated effect described above because the paths were all constrained to be equal across time). Similarly, the indirect effect of self-efficacy beliefs in expressing positive emotions at T1 on self-efficacy beliefs in expressing positive emotions at T3 through ego-resiliency at T2 was significant, as well as the indirect effect of self-efficacy beliefs in expressing positive emotions at T2 on self-efficacy beliefs in expressing positive emotions at T4 through ego-resiliency at T3 ($b = .026; z = 2.22, CI = .010, .005$).

A similar pattern was found for the mediating role of self-efficacy on across-time indices of ego-resiliency. The unstandardized indirect effect of ego-resiliency at T1 on ego-resiliency at T3 through self-efficacy beliefs in managing negative emotions at T2, and that from T2 to T4 through self-efficacy beliefs in managing negative emotions at T3, were both significant ($b = .014; z = 2.45, CI = .009, .004$). The indirect effect of ego-resiliency at T1 on ego-resiliency at T3 through self-efficacy beliefs in expressing positive emotions at T2 and the analogous relation from T2 to T4 were also significant ($b = .026; z = 2.22, CI = .010, .005$, for both relations). All the mediated paths were found to be equal for males and females.

The model accounted for a large proportion of variability for all variables, with little or no apparent differences across males and females. Specifically, (averaging for males and females), R-squared at T2 were 20% for self-efficacy beliefs in managing negative emotions, 19% for self-efficacy beliefs in expressing positive emotions, and 37% for ego-resiliency; at T3, they were 34% for self-efficacy beliefs in managing negative emotions, 24% for self-efficacy beliefs in expressing positive emotions, and 26% for ego-resiliency; at

T4, they were 23% for self-efficacy beliefs in managing negative emotions, 29% for self-efficacy beliefs in expressing positive emotions, and 38% for ego-resiliency.

Discussion

Researchers have acknowledged the importance of ego-resiliency for individual positive social functioning and youths' later outcomes. However, relatively little research focused on the relations of ego-resiliency with other personality variables over the course of development. This study examined the reciprocal relations of ego-resiliency with perceived self-efficacy in managing negative emotions and in expressing positive emotions during the transition from late adolescence to emerging adulthood. As hypothesized, findings from this longitudinal investigation indicated that self-efficacy beliefs in managing negative emotions and in expressing positive emotions were significantly associated with the development of ego-resiliency over time.

In accord with our first hypothesis, ego-resiliency significantly predicted the development of emotional self-efficacy beliefs. It is likely that experiencing oneself as an individual able to resourcefully adapt to changing circumstances and to environmental stressors provides the conditions for practicing and further strengthening the abilities that are at the basis of a feeling of efficacy. Self-perception theory (Bem, 1972) would suggest that feelings of emotional self-efficacy derive, at least in part, from seeing oneself as able to regulate emotionality under a large variety of environmental circumstances (i.e., from the more adverse to the more favorable).

In accord with our second hypothesis, emotional self-efficacy beliefs predicted ego-resiliency. Self-efficacy beliefs regulate human functioning and emotional well-being through cognitive, motivational, affective, and selective processes. As such, emotional self-efficacy likely affects individuals' ability to adapt and to deal flexibly with difficult situations, and enhance perseverance in the face of failure (Bandura, 1997), which are relevant for the development of youths' ego-resiliency. To successfully address the multitude of challenges and tasks associated with this transitional period (moving from college to University, getting married, starting a work, etc.), youths should possess robust self-efficacy beliefs (Alessandri, et al., 2014; Bandura, et al., 2001). Especially when faced with challenging situations, it is likely that self-efficacy beliefs are important in developing a sense of self-competence that, in turn, influences a person's ability to overcome the pernicious effects of adversities. Probably these beliefs can be important components of emotional competence in ego-resilient adolescents (Aspinwall & Richter, 1999).

The reciprocity observed among emotional self-efficacy beliefs and ego-resiliency suggests that the two constructs reinforce each other over time. Both positive and negative emotional self-efficacy beliefs predicted the development of ego-resiliency over time, and ego-resiliency, in turn, predicted the development of emotional self-efficacy beliefs in both domains (emotional self-efficacy beliefs in expressing positive emotions and in managing negative emotions). These relations held even when controlling for the stability of all the constructs. In addition, as hypothesized, the prediction of emotional self-efficacy beliefs from ego-resiliency appears to be stronger than the reverse effect. Indeed, individuals'

characteristic adaptations are typically conceived as personality features that develop after core traits have already been established, as byproducts of the interaction of core traits with the environment, including social experiences (McAdams & Pals, 2006; McCrae & Costa, 2008).

Also of importance, part of the change observed in ego-resiliency over time was mediated by both types of emotional self-efficacy beliefs; likewise, part of the change in both emotional self-efficacy beliefs was mediated by ego-resiliency. These findings suggest that self-efficacy in regard to modulating both positive and negative emotions may have unique effects on ego-resiliency and that ego-resiliency may have its own effect on both types of emotional self-efficacy. Although not tested, it is likely that emotional self-efficacy and ego-resiliency can each offer a specific contribution to optimal self-regulation by increasing the general capacity to tolerate and respond effectively to difficult situations and adverse emotions (Saarni, 1999).

Finally, the gender differences we found in the present study replicated those in previous research (Caprara, et al., 2003). At all ages, female adolescents reported higher self-efficacy beliefs in expressing positive emotions than did their male counterparts. In contrast, male scored higher than females on self-efficacy beliefs about managing negative emotions. At T1 and T2 (but not T3 or T4), females rated themselves as more ego-resilient than males. Perhaps males and females are differentially motivated to rate themselves in accordance with the perceived stereotypic gender roles. In fact, western societies tend to view the appropriate expression of positive emotion; the expression of internalizing negative emotions such as anxiety, sadness, and depression; and being generally, more flexible and adaptable as feminine traits. In contrast, the masculine role is often associated with impulsivity and higher level of externalizing emotions such as anger and high intensity positive emotion (see Eisenberg, et al., 1996; Else-Quest, Hyde, Goldsmith, Van Hulle, 2006). However, we found no differences in model parameters, and thus in the longitudinal relations observed among these constructs. Although the mean levels of the key variables of emotions varied across sexes, the relations between perceived self-efficacy competencies and ego-resiliency appeared to unfold similarly over time.

In contrast to the study of Alessandri et al (2009), our data did not support a reciprocal relation between self-efficacy beliefs in managing negative emotions and self-efficacy beliefs in expressing positive emotions. Thus, the development of self-efficacy in managing negative emotions and in expressing positive emotions seems to be relatively independent.

By examining the pattern of findings from late adolescence into emerging adulthood, we hoped to contribute to the understanding of the joint development of ego-resiliency and emotional self-efficacy beliefs and their interrelations. These results are particularly relevant in view of interventions aimed at fostering change in traits in a desirable direction. In this regard, recent findings have shown that traits are malleable and may change over the entire course of life (Roberts & DelVecchio, 2000; Roberts, Walton & Viechtbauer, 2006), yet our knowledge about interventions that could foster change in traits remains limited (see Magidson, Roberts, Collado-Rodriguez, Lejuez, 2014). A broad literature instead documents that self-efficacy beliefs can be adequately inoculated and strengthened (see, for example,

Bandura, 1997). With regard to emotional self-efficacy beliefs, modelling and mastery experiences may serve to promote emotional competences associated with ego-resiliency. Improving self-efficacy beliefs may thus promote ego-resiliency by leading people to perceive themselves as able to successfully deal with managing emotional situations. In addition, adaptive functioning in the face of adversity is dependent not only on the characteristics of the individual but also, and even more so, on processes and interactions arising from significant others and the wider social context. Indeed, most of an individual's emotional life has to do with the emotions that arise and have to be regulated during interactions with others. Likely the capacity to deal with these emotions is sustained and strengthened through those same interactions.

In regard to potential limitations of this study and future directions, it would be desirable to test the generalizability of our findings across different populations and in different cultural contexts. The beliefs about the regulation and expression of emotions and the concept of ego-resiliency may show important variations across social contexts and cultures (Mesquita & Frijda, 1992). In addition, the data are essentially correlational and cannot provide causal relations. Moreover the use of self-report data may be viewed as a major limitation that inevitably biases results. For example, the within-time correlations between measured variables might be inflated by the presence of common method variance. However, this study embraced a long temporal span (8 years) and focused on prospective relations that are less likely than contemporaneous data to be biased by method effects. Moreover, although the assessment of both ego-resiliency and perceived emotional self-efficacy would have benefited from the use of more than a single informant, one might argue that no one can report on individuals' own self-efficacy better than the participants themselves. Specifically, no person is in a better position than an agent to know and report about his or her self-perceived beliefs to manage negative affect and express positive affect across contexts and situations. In the future, it would be desirable to obtain measures of ego-resiliency from multiple informants (e.g., peer or family reports, behavioral measures). Although multiple measures of emotional self-efficacy might also be desirable, as already noted, it is difficult for other people to report on another's feelings of efficacy.

In addition, the measure of self-efficacy in regard to positive emotions in this study tapped primarily the expression of positive emotions, but it is likely that self-efficacy in regard to positive emotion also requires its regulation at one time or another. The fact that the measures of self-efficacy for positive and negative emotion differed somewhat makes it difficult to directly compare findings for these two types of self-efficacy. Finally, future studies may make use of latent state-trait models (Steyer, Schmitt, & Eid, 1999) to clarify the actual percentage of trait and state variance characterizing measures of ego-resiliency and emotional self-efficacy beliefs. This latter information is not easily reconstructed by the stability coefficients presented in above models. Despite these limitations, we believe that the present results provide a methodologically rigorous description of reciprocal relation between emotional self-efficacy beliefs and ego-resiliency from late adolescence to emerging adulthood.

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Figure 1.

Longitudinal relations between Emotional Self-Efficacy beliefs and individuals' Ego-Resiliency assessed at Time 1 (T1), at Time (T2), at Time 3 (T3) and at Time (T4) in the *sex-time constrained model*.

Note. Solid lines represent significant paths. Dashed lines represent non-significant paths. Reported coefficients refer to standardized estimates for males and for females (in parentheses), respectively. Significant ($p < .05$) coefficients are bolded. Non-significant ($p > .05$) coefficients are in italics.

Table 1

Means, Standard Deviations, and Sex Differences for Regulative Emotional Self-Efficacy beliefs and Ego-Resiliency at Each of the Four Assessments for Males and Females

Variable	Males		Females		Sex	
	M	SD	M	SD	F (1, 450)	Sign.
Positive self-efficacy T1	4.17	.71	4.37	.62	9.69*	.002
Negative self-efficacy T1	3.49	.66	3.21	.70	18.12*	.000
Ego-resiliency T1	4.87	.74	5.03	.72	5.06*	.025
Positive self-efficacy T2	3.99	.78	4.41	.60	41.13*	.000
Negative self-efficacy T2	3.25	.61	3.08	.65	8.66*	.003
Ego-resiliency T2	4.84	.71	5.04	.78	8.28*	.004
Positive self-efficacy T3	4.06	.73	4.38	.68	19.12*	.000
Negative self-efficacy T3	3.41	.68	3.08	.81	17.71*	.000
Ego-resiliency T3	5.04	.86	5.07	.81	.11	.742
Positive self-efficacy T4	4.09	.66	4.27	.70	4.01*	.046
Negative self-efficacy T4	3.58	.76	3.28	.83	7.96*	.005
Ego-resiliency T4	5.14	.69	5.11	.73	.09	.759

Note.

* $p < .05$.

T1 = variable assessed at Time 1; T2 = variable assessed at Time 2; T3 = variable assessed at Time 3; T4 = variable assessed at Time 4. F = F ratio from one-way analyses of variance; within the parentheses are the degrees of freedom and the number of participants.

Table 2

Zero-order Correlations among Measures of Regulative Emotional Self-Efficacy and Ego-Resiliency for Males and Females.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Pos-sef T1	1	0.26**	0.48**	0.37**	0.23**	0.44**	0.29**	0.15*	0.28**	0.15	0.03	0.22**
2. Neg-sef T1	0.36**	1	0.34**	0.13*	0.50**	0.33**	0.13	0.37**	0.29**	0.12	0.34**	0.28**
3. Ego-res T1	0.43**	0.41**	1	0.34**	0.30**	0.55**	0.13	0.12	0.39**	0.12	0.23**	0.37**
4. Pos-sef T2	0.45**	0.24**	0.30**	1	0.26**	0.40**	0.27**	0.07	0.24**	0.24**	0.15	0.20*
5. Neg-sef T2	0.09	0.35**	0.23**	0.27**	1	0.45**	0.08	0.42**	0.29**	0.07	0.41**	0.33**
6. Ego-res T2	0.32**	0.35**	0.55**	0.45**	0.32**	1	0.20**	0.22**	0.54**	0.16*	0.28**	0.51**
7. Pos-sef T3	0.33**	0.18*	0.37**	0.45**	0.10	0.44**	1	0.48**	0.40**	0.54**	0.24**	0.44**
8. Neg-sef T3	0.20**	0.37**	0.32**	0.39**	0.40**	0.43**	0.46**	1	0.30**	0.28**	0.52**	0.42**
9. Ego-res T3	0.15*	0.29**	0.36**	0.30**	0.24**	0.43**	0.41**	0.39**	1	0.32**	0.26**	0.67**
10. Pos-sef T4	0.14	0.13	0.20*	0.32**	0.13	0.27**	0.57**	0.31**	0.17	1	0.28**	0.35**
11. Neg-sef T4	0.26**	0.38**	0.33**	0.22*	0.42**	0.31**	0.21*	0.51**	0.10	0.23**	1	0.46**
12. Ego-res T4	0.24*	0.35**	0.48**	0.26**	0.07	0.47**	0.37**	0.35**	0.24*	0.46**	0.28**	1

Note. The correlation coefficients below the diagonal are for males; the correlation coefficients above the diagonal are for females; T1 = variable assessed at Time 1; T2 = variable assessed at Time 2; T3 = variable assessed at Time 3; T4 = variable assessed at Time 4. Pos-sef = Positive Self-Efficacy Beliefs; Neg-sef = Negative Self-Efficacy Beliefs; Ego-res = Ego-Resilience.

**
 $p < .01$;

*
 $p < .05$