



Review

Self-criticism and attachment: A systematic review and meta-analysis

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ABSTRACT

Several contributions argue that insecure attachment accounts for the development of self-criticism. However, advances in the field are replete with theoretical issues that limit the integration of past results. This work estimates the strength of the associations between attachment and self-criticism and examines which theoretical and methodological features impact these estimations. A PRISMA systematic search was conducted. A three-level meta-analytic approach has been used to estimate effect sizes and the role of theoretical and methodological moderators. Low levels of secure attachment and high levels of insecure attachment were both positively associated with self-criticism. The type of insecure attachment significantly moderated this result, with attachment anxiety being more strongly associated with self-criticism than avoidant attachment. In some cases, the conceptualization and operationalization of both attachment and self-criticism were significant moderators. Self-criticism is likely to be rooted in insecure attachment, supporting most theoretical models and clinical indications. However, results regarding anxious attachment call for an additional theoretical effort to extend the current model. Furthermore, the bi-dimensional conceptualization of insecure attachment may lead to an overestimation of the association between avoidant attachment and self-criticism. The different nature of the emotional components involved may impact observations, suggesting the need to use multidimensional measures.

1. Introduction

As better illustrated below, the lack of synthesis of the existing knowledge hinders advances in the field focusing on the relationship between attachment and Self-Criticism (SC). This systematic review and meta-analysis aim to fill this gap, providing a summary of the data available and estimating the strength of the link between the two variables. In addition, the study aims to challenge theoretical frameworks assuming a univocal relationship between attachment and SC. Specifically, it tests the hypotheses that distinctive features of SC may be differently related to distinctive types of insecure attachment. Doing so, the final goal of this study is to stimulate the development of a nuanced approach to the topic, which may lead to the formulation of tailored clinical indications.

International research widely supports the lifelong role of attachment and Internal Working Models (IWM; Bowlby, 1980) as stable but not immutable bases for the development of personality and coping strategies (Ein-Dor et al., 2011). The attachment lens has been used to understand the development of the most disparate personality constructs, with useful implications for clinical practice. Among these, the

scientific community is paying a growing interest to SC (Krueger & Eaton, 2015), which several authors consider a transdiagnostic risk factor and a relevant predictor of poor treatment outcomes (Rector et al., 2000; Rose & Rimes, 2018; Shahar et al., 2012).

Indeed, SC has been related to lower well-being and quality of life in individuals without a psychiatric diagnosis (Kausser et al., 2022; Michaeli et al., 2019). Moreover, high levels of SC have also been documented in individuals suffering from several mental disorders such as depression, social anxiety, eating disorders, non-suicidal self-injury, post-traumatic stress disorder, bipolar disorder, and borderline personality disorder. It is considered as a factor for the explanation of comorbidity among psychiatric diagnoses (Cox, Fleet, & Stein, 2004; Cox, MacPherson, et al., 2004; Fennig et al., 2008; Francis-Raniere et al., 2006; Kopala-Sibley et al., 2012; Low et al., 2020; Luyten et al., 2007; Zerkowitz & Cole, 2019; Williams & Levinson, 2022). For instance, a study found that individuals suffering from both depression and social phobia showed higher levels of SC compared to individuals suffering from only one of these conditions, or who do not suffer any mental illness (Cox, Fleet, & Stein, 2004). Therefore, fostering the understanding of SC as a potential transdiagnostic factor involved in

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psychiatric comorbidity may be helpful for tailored and strategic choices in clinical intervention planning (Barlow et al., 2017).

Another reason for investigating SC is that it often emerged as a significant predictor of treatment outcomes. Low et al. (2020) meta-analyzed the results of studies investigating the relationship between pre-treatment levels of SC and treatment outcomes in patients suffering from different mental disorders, such as depression, anxiety, and eating disorders. A moderate, negative, and significant main effect size was found, supporting the idea that SC might be considered as a negative prognostic factor for most psychopathological conditions (Low et al., 2020). It is worth noting that the authors concluded that SC may negatively predict treatment outcomes due to its association with an insecure attachment, which is a well-known predictive factor of ruptures of the therapeutic alliance (Miller-Bottome et al., 2018).

In addition, the attachment framework has demonstrated its utility in explaining a number of psychopathological conditions and especially pathological personality traits, providing useful clinical implications for mental health workers. Given these reasons, several authors have attempted to increase the understanding of SC through the lens of the attachment theory. The present work aims to operate a synthesis of the current knowledge on the topic, estimating the strength of the associations between attachment and SC, accounting for theoretical and methodological issues characterizing the field of study. A final goal is to draw clinically useful conclusions regarding the relationship between attachment and SC, therefore providing recommendations for future research.

1.1. Self-criticism or self-criticisms?

Authors generally agree that SC involves a negative and/or harsh judgment of one-self (Shahar et al., 2015). However, there is still no consensus on the construct's definition (Rose & Rimes, 2018), thus a primary issue in current literature concerns the heterogeneity in the definition(s) of SC, its components, and consequently the plurality of assessment measures capturing different facets of the construct.

First, the construct appears to be heterogeneous within the nature of this variable, with some authors considering SC as a personality trait—i.e., a pervasive and stable proneness to criticize the self (Blatt, 2004)—and others describing it as a coping process (Lazarus & Folkman, 1984).

A second issue regards the need to differentiate between the *enduring and generalized* proneness to use SC in reaction to stressors, from the proneness to use SC only *in response to specific stressors* (Rose & Rimes, 2018). This issue seems especially relevant regarding a specific form of SC—self-blame, which consists in representing the self as responsible for some negative event occurring to the self (Janoff-Bulman, 1992). Self-blame has been traditionally conceptualized as a normal reaction to traumatic events, especially in early childhood, and could be used to cope with the unbearable feeling that external events are unpredictable, and thus threatening (Janoff-Bulman, 1992; Skinner & Zimmer-Gembeck, 2011). However, theorists working on the topic of coping stated that self-blame is a general and pervasive way to cope with a wide range of stressors (Lazarus & Folkman, 1984). Therefore, these perspectives converge towards the nature of the process but diverge when regarding the specific *versus* general context in which the process is implemented.

Lastly, different contributions stressed different contents of SC's cognitions and associated emotional experiences. For instance, there is great variability in the way the self is represented during self-critical processes (Gilbert et al., 2004) that may be viewed as inadequate for one's own standards (e.g. Blatt, 1974; Neff, 2003), disgusting (e.g. Gilbert et al., 2004), guilty (e.g. Blatt, 1974), hateful (e.g. Gilbert et al., 2004), and/or unlovable (e.g. Blatt, 1974). Of note, only recently authors stressed the need to differentiate these dimensions in the construct of SC and the associated behavioral tendencies (Irons et al., 2006). Consequently, some instruments measure the construct in a multidimensional

way whereas others provide an unspecified assessment (Bagby et al., 1994; Thompson & Zuroff, 2004). Although these forms have been well examined in their specificities (e.g., Rose & Rimes, 2018), the question of whether and how these could and should be integrated into a unique model is yet to be clarified. This is a crucial question to answer in order to better plan future scientific investigations and to correctly interpret findings brought by past studies.

1.2. The roots of self-criticism through the lens of attachment theory

A rapid glance at the literature discussing the roots of SC evidences that the most influential theories argue the crucial role of the quality of the attachment bond with the caregiver in shaping the proneness to SC, regardless of its type (Blatt, 2004; Blatt & Homann, 1992; Gilbert et al., 2004; Shahar et al., 2012). However, because of the heterogeneity of SC definition(s) illustrated above, it is still not clear if the different forms of SC (e.g. self-blame, hateful SC, Blatt's SC) share a similar pattern of association with attachment, as helpful to define the utility of differentiation or assimilating different SC conceptualizations. Such knowledge would be precious when disentangling the question of the utility of differentiating, rather than assimilating the different conceptualizations of SC. However, as better detailed below, the conclusions provided by literature regarding the associations between predictive factors—attachment in particular—and SCs are confusing and often contrasting, calling for clarification of the existing evidence.

1.2.1. Self-criticism is rooted in attachment

It is noteworthy that SC can be easily reframed in terms of the self-representation that is developed during the experience of distress, and self-blame, as a coping strategy. The latter may be conceptualized as rooted in the development of attachment-related representations. Self-representation and self-blame differ in their nature according to the type of interactions the child experiences with the caregiver when the attachment system is activated (Ainsworth et al., 1978; Hazan & Shaver, 1987; Main et al., 1985). In optimal conditions, the individual develops a positive representation of both the self—as worthy of love and care—and the significant other—as emotionally available and with the capacity to provide love and care to the self (Ainsworth et al., 1978). In contrast, non-optimal conditions typically lead to a lack of this feeling of security (i.e., insecure attachment).

Several alternative models have been developed in order to grasp the differences across individuals with insecure attachments (Ravitz et al., 2010). Hazan and Shaver (1987) proposed that insecurity in attachment is underlined by two fundamental dimensions—*anxiety and avoidance*. The anxious attachment could be characterized by a positive view of the other but also by a negative self-view. In contrast, avoidant attachment could consist of a combination between a negative view of the other and a positive view of the self. An alternative model, operationalized by Bartholomew and Horowitz (1991), proposed a four-way classification of attachment by adding the fearful profile. Fearful individuals may have developed a negative self-view of both the self and the significant other.

1.2.2. Expected relationships between insecure attachment and self-criticism

According to the etiopathological model of depression developed by Blatt and Homann (1992), a key risk factor for introjective depression is SC, a pathological personality trait developed in the context of adverse early interpersonal experiences leading to an avoidant attachment. Associated achievement pressure and self-reliance beliefs, combined with perfectionism and sensitivity to personal failures, could lead to high levels of criticism towards one's own performance. In contrast, this theory argues that low levels of SC among individuals with anxious attachment are more prone to dependency and therefore attribute the cause of their distress to the other, who is perceived as powerful. Despite the utility of this contribution, several doubts arise regarding its predictions.

Firstly, considering avoidant attachment, it has been underlined that the use of SC may not completely fit with the characteristics of this type of insecure attachment (Murphy & Bates, 1997). Indeed, individuals with high avoidance are usually described as individuals with high levels of self-esteem, low proneness to guilt, and a high propensity to blame others for their faults (Brennan & Morris, 1997). This picture seems quite far removed from an individual using self-blame as a coping strategy. Therefore, avoidance may be associated with a form of SC related to perfectionism, focused on criticism towards one's own sense of adequacy, which is the need for feeling a minimal discrepancy between one's own performance and high personal standards.

Secondly, the construct of SC conceptualized by Beck (1983) places greater emphasis on the combination of avoidance and the desire for intimacy than on the fear of personal failure (Murphy & Bates, 1997), converging more towards the fearful-avoidant profile as opposed to the dismissive-avoidant one. Therefore, distinct dimensions of SC are likely to be associated differently with the fearful-avoidant and dismissive attachment profiles.

Lastly, despite anxious attachment being thought to not be associated with SC, other contributions may suggest that, in fact, it is. For instance, self-blame has been explained as the attempt to preserve a sense of predictability regarding the external world that needs to remain, from the child's perspective, exempt from any fault (Frazier et al., 2005; Weiner, 1985). Theoretically, this process description mirrors the representations of anxious attachment, characterized by a negative view of the self and a positive view of the other so that intermittent and unpredictable positive interactions with the caregiver are explained by the unworthiness of the self. Therefore, an additional and plausible hypothesis is that anxious attachment may be related to SC because the individual is involved in efforts to obtain the approval of the significant other (Cantazaro & Wei, 2010) or to avoid blaming the significant other to maintain his/her positive representation (Gilbert & Irons, 2004; Gilbert & Procter, 2006). It is worth highlighting that the type of SC potentially involved in anxious attachment may be more related to beliefs of undeservedness of love and proximity, in turn, associated with feelings that the self is guilty, hateful, and disgusting.

From a clinical perspective, increasing knowledge on this issue may more precisely inform interventions targeting SC, for instance addressing guilt, self-disgust, and self-hate in patients with anxious attachment and addressing shame and feelings of inadequacy in patients with avoidant attachment. Moreover, SC shows heterogeneous trajectories of the effect on therapeutic outcomes (Blatt, 1992; Low et al., 2020) suggesting that the role of intervening moderator variables such as different types of insecure attachment. For instance, despite both anxious and avoidant attachment leading to a problematic therapeutic alliance, they may also elicit different types of relationship difficulties that should be addressed with different therapeutic strategies (Miller-Bottome et al., 2018). Therefore, estimating the association between SC and the different types of insecure attachment could provide practitioners with attachment-informed recommendations in intervening on SC as a clinical target. In this regard, existing contributions already suggest that the association of SC with an avoidant attachment (characterized by emotional detachment, minimization of attachment needs, and emphasis on self-strength; Muller, 2009) may account for the prognostic capacity of SC on treatment outcomes (Low et al., 2020). In contrast, similar information regarding anxious attachment is not available, thus, investigating this point may open up new clinical perspectives.

1.3. The current study

In light of these considerations, several gaps need to be filled in the field of attachment and SC, and this systematic review and meta-analysis could be a contribution to this issue. Moreover, multiple unintegrated perspectives on both SC and attachment hinder non-expert readers' appreciation and use of the existing knowledge.

Therefore, this systematic review aimed at synthesizing the results of

the empirical studies investigating the relationship between attachment and SCs, in order to provide an easily consultable summary for clinicians or researchers interested in the topic. In this regard, the meta-analyses estimated the strength and the statistical significance of associations between attachment and SC to test the validity of the theoretical predictions illustrated above. Additionally, this contribution aimed at testing the hypothesis that different forms of SC may impact the strength of the association between the two variables, accounting for the moderating role of attachment types on this estimated relationship. Lastly, this contribution explored the possibility that traditional moderating factors (*i.e.*, characteristics of the sample and methodological features) may account for heterogeneity in the results brought by the studies.

2. Methods

This systematic review was performed using published literature investigating the associations between SC and attachment, according to the more recent (PRISMA) guidelines (Page et al., 2021). In addition, meta-analyses were performed on data extracted from these studies.

2.1. Search strategy

First, a search string was elaborated which operationalized the main research questions, displayed in Appendix A. Specifically, two lists of keywords were developed corresponding to the investigated constructs of SC and attachment.¹ Terms were adapted to the scientific databases languages (*e.g.*, truncation, parentheses) and each term belonging to the same list was linked to the others using the OR Boolean operator. Then, the string was elaborated to search for these terms in both the Title and Abstract fields of the databases. Lastly, these two strings (corresponding to each construct) were linked using the AND Boolean operator. The final string was used to interrogate five scientific databases (Medline, Psycinfo, Psycharticle, PubMed, and Scopus) on 17/12/2021 without other field restrictions.

2.2. Studies selection

The flow diagram in Fig. 1 details the entire identification and screening process.

The operations of duplicate removal and records screening for eligibility were performed with the Zotero software, v.6. The screening process was conducted according to a selection criteria established *a priori*. Specifically, a contribution was selected in case i) it was illustrated an empirical and quantitative study; ii) the study was conducted on humans; iii) the contribution provided original data (*e.g.*, review, comments, editorial were excluded); iv) the contribution measured both attachment and SC, and provided a statistical estimation of the link between the two. After this first step, the full texts of the included records were downloaded and screened for eligibility following the same procedure. As shown in Fig. 1, this process led to a final inclusion of 27 contributions (See Appendix B for the reference list).

2.3. Data extraction

A coding protocol was designed *ad hoc* to extract and encode necessary information by the included full-texts, and some information has to be re-coded to perform meta-analyses. Information extracted (with recoding information) was:

¹ Appendix A includes terms that are related to childhood trauma because this systematic review is part of a wider investigation including also relationships between SC and childhood trauma.

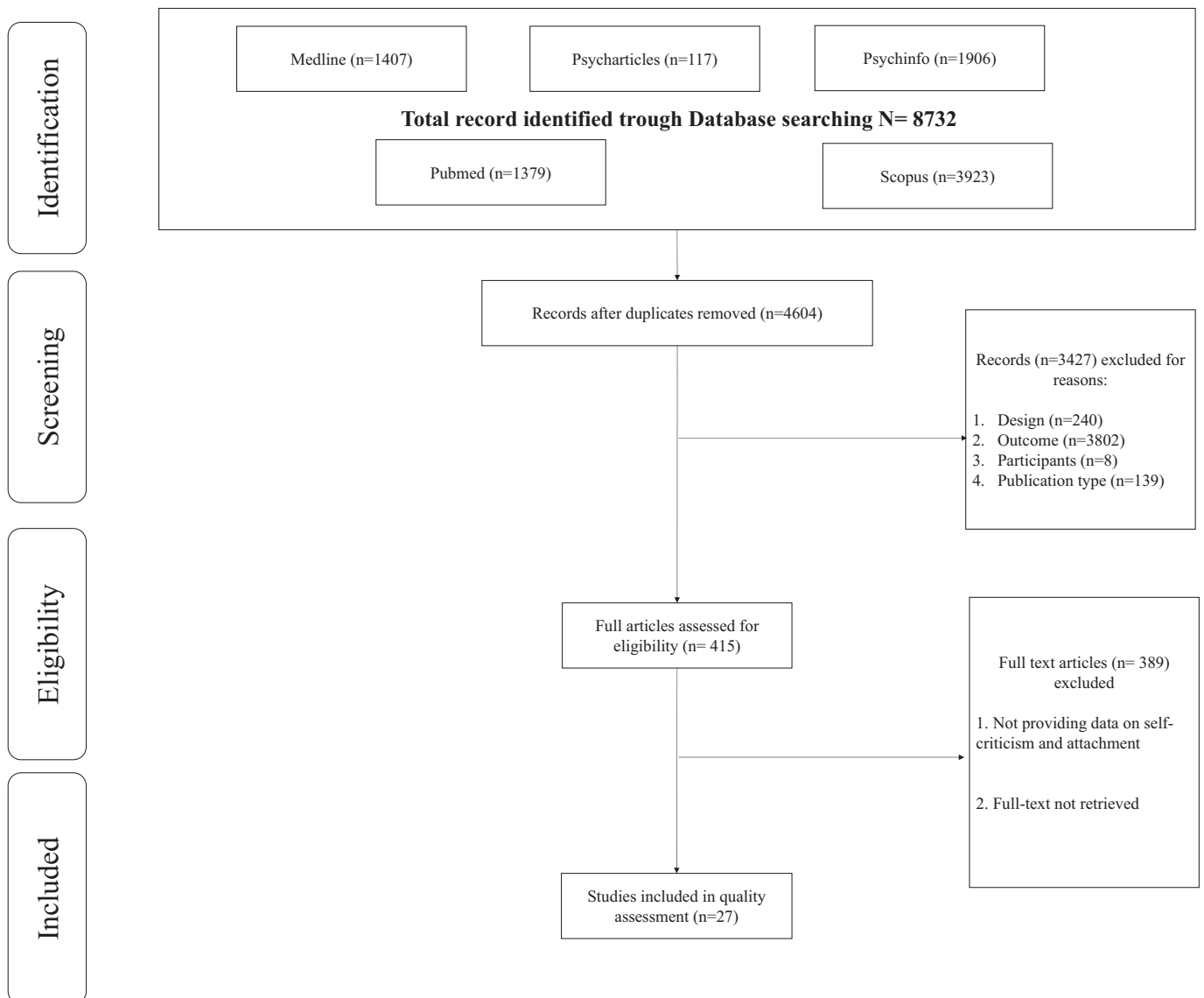


Fig. 1. Flow diagram of the search and screening process of contributions included in the systematic review on self-criticism and attachment.

- Meta-data of the contribution, *i.e.*, author(s), year of publication (re-coded as the number resulting in subtracting it from the current year, 2022).
- Participants characteristics, *i.e.*, sample size, clinical status (coded 0 if non-clinical, and 1 if clinical, *i.e.*, carriers of psychiatric diagnoses or at clinical risk of psychiatric onset, *e.g.* because experienced child sexual abuse), gender (coded as the percentage of males), mean age (coded in years);
- Measurement methods, *i.e.*, research design (*e.g.*, cross-sectional or longitudinal), and the instrument used to measure SC and attachment. Specifically about instruments, information was recorded through two approaches. First, the use of each instrument was coded as absent (0) or present (1) for each observation.

Second, all instruments measuring SC were coded as follows: I. the instrument considers SC as a personality trait (1) or as a coping mechanism (0); II. the instrument provided a general measure of SC (1) or a measure of a specific context (0); III. the instrument measured emotions of guilt, or hate, or self-disgust, or lovability, or inadequacy concerning personal standards related to performance, and each of them was coded

separately as absent (0) or present (1) (see Appendix C for details about this operation).

Concerning instruments of attachment, for each observation, a dimension of attachment investigated among Security (which effect size was reversed to capture the relationship between low security and SC) and Insecurity was extracted. Specifically, the latter included three types of insecure patterns: Anxiety/preoccupation (including scores in questionnaires and insecure-entangled or preoccupied pattern through interviews), Avoidance (including scores in questionnaires and insecure-dismissing through interviews) or Disorganization (including studies investigating the fearful attachment and disorganized-disoriented pattern through interviews).

- Outcome concerning the association between SC and attachment, namely bivariate correlations between the variables and a brief narrative summary of the main results.
- Certainty score, as the result of a certainty assessment performed on each contribution through the Newcastle - Ottawa quality assessment Scale (NOS; Modesti et al., 2016; O'Driscoll et al., 2014; Wells et al., 2009) for cross-sectional studies.

2.4. Statistical analyses

According to the study's objectives, analyses were performed to capture relationships within Security and Insecurity separately, eventually discriminating according to the type of insecure pattern if the effect of insecurity Anxiety/preoccupation, Avoidance, or Disorganization.

A random effects model was used for the calculation of Effect Sizes (ESs), assuming their heterogeneity across studies (Cooper & Hedges, 1994; Rosenthal, 1995). ESs were computed for each study by transforming Pearson's r in z through Fisher's- z transformation, and then transforming z again in standardized r , calculating 95 % Confidence Intervals for each Effect Size (Rosenthal, 1995). This procedure allowed to obtain standardized ESs. In the case of attachment Security, ESs were reversed to obtain all positive coefficients, indicative of the association between low attachment security and high SC levels. The strength of ESs was evaluated as small with a value of 0.15, medium with 0.25, and large with 0.35 or more (Gignac & Szodorai, 2016).

Moreover, given many contributions provided information on relationships between SC and different attachment patterns, meaning that data for different analyses were extracted by the same contribution and same participants, interdependency between observations was suspected. In this case, traditional meta-analytic techniques may be misleading, so the R package *metaSEM* was employed to compute a three-level meta-analysis as recommended to obtain more robust results (Cheung, 2015). This procedure permitted ESs to vary across three study levels, with corresponding analyses: at level 1, it accounted for the known sampling variance of the ESs, so Q statistics were performed and reported to indicate the heterogeneity of ESs (as in the two-level meta-analysis). At level 2, this procedure accounted for the variance between ESs of the same study, and the estimated heterogeneity at this level was calculated and indicated with the index $\tau^2_{(2)}$. At level 3, the variance between all studies was considered, of which heterogeneity was calculated and reported as $\tau^2_{(3)}$. Two-levels and three-level meta-analyses were also compared, reporting the significance of the Likelihood Ratio Test (LRT) to check if the third level introduced by the three-level meta-analyses was justified and the model better fitted compared to a traditional two-level one.

Then, the effect of moderators' gender, age, publication year, the instrument used, and the dimension of SC implicated (e.g., as a trait, guilt, etc.) were tested through a mixed model when the variability of moderators permitted it, with a minimum of four samples as Higgins et al. (2008) suggests. The Q statistic and meta-regression techniques were used to estimate the study heterogeneity and effect of these moderators (Borenstein et al., 2010; Rosenthal, 1995).

3. Results

3.1. Studies description and certainty

Because the number of studies was insufficient to compute a meta-effect size estimating the link between SC and disorganized/fearful attachment, these contributions were not included in the subsequent analyses. Table 1 (see supplementary material) details the characteristics of the included studies and the information extracted, including the score obtained at the certainty assessment.

This review considers 27 contributions for a total of 31 independent samples, including an overall of 6654 participants with an average age of 25 years, mostly composed of community samples (24; 77.5 %) and only seven clinical samples (22.5 %). Except for three contributions on community minors (Peter and Gazelle, 2017; Selçuk et al., 2020; Thompson & Zuroff, 1999), almost all contributions included adults.

Contributions were published between 1995 and 2020, and most of them employed a cross-sectional design (85 %), with only two longitudinal studies (Lassri et al., 2018; Peter and Gazelle, 2017) and one experimental one (Kim et al., 2020).

Sixteen investigated SC and four investigated self-blame (Ascone et al., 2020; Bayley et al., 2009; DeBoard-Lucas et al., 2010; Selçuk et al., 2020), and the more used instrument was the Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976). The instrument more frequently used to assess attachment was the Experience in Close Relationships questionnaire (ECR; Fraley et al., 2000).

3.2. Self-criticism and low attachment security

Twenty-seven samples ($k = 27$) were considered in the meta-analysis concerning attachment security, as displayed in the forest plot in Fig. 2a (the funnel plot is displayed in Fig. 2b). The pooled effect size resulted statistically significant ($r = 0.36$ [CI 0.26–0.46], $SE = 0.05$, $z = 0.38$, $p < .001$), indicating a strong correlation between lower attachment security and SC.

The comparison with the two-level meta-analysis revealed that the three-level analysis did not add a relevant contribution to a better model fit as LRT comparing the two models was not significant, $p = .662$, and the two-level meta-analytic model was significant with $p < .001$.

Analyses indicated that ESs were heterogeneous (level 1), $Q(26) = 279.94$, $p < .0001$. The variance heterogeneity in ESs within the same study was $\tau^2_{(2)} = 0.01$ (level 2, $k = 16$), while between-cluster variance heterogeneity was $\tau^2_{(3)} = 0.06$ (level 3, $k = 27$).

3.2.1. Moderators

Given that only one sample was clinical (de la Parra et al., 2017) and the rest were non-clinical, the clinical status could not be checked as a moderator. The number of observations allowed the exploration of the moderation effect of: mean age, gender, publication year, the instruments of SC DEQ and Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FCSFRS; Gilbert et al., 2004), and attachment ones Revised Adult Attachment Scale (RASS; Collins, 1996) and Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991); the SC as a trait or coping, and related emotions of guilt, hate, disgust, lovability and inadequacy for personal standards. None of these moderators was significant, all $p > .168$.

3.3. Self-criticism and attachment insecurity

Sixty-one contributions ($k = 61$) were considered in the meta-analysis concerning attachment insecurity (avoidance and anxiety), of which the pooled effect was moderate and significant ($r = 0.34$ [CI 0.26–0.42], $SE = 0.04$). In addition, they were positively and significantly moderated by the type of attachment measured (i.e., anxiety vs avoidance), $r = -0.17$ [CI -0.26–0.08], $SE = 0.05$. Therefore, narrow analyses were performed considering Anxiety/preoccupation and Avoidance separately to capture the eventual effect according to the quality of insecurity.

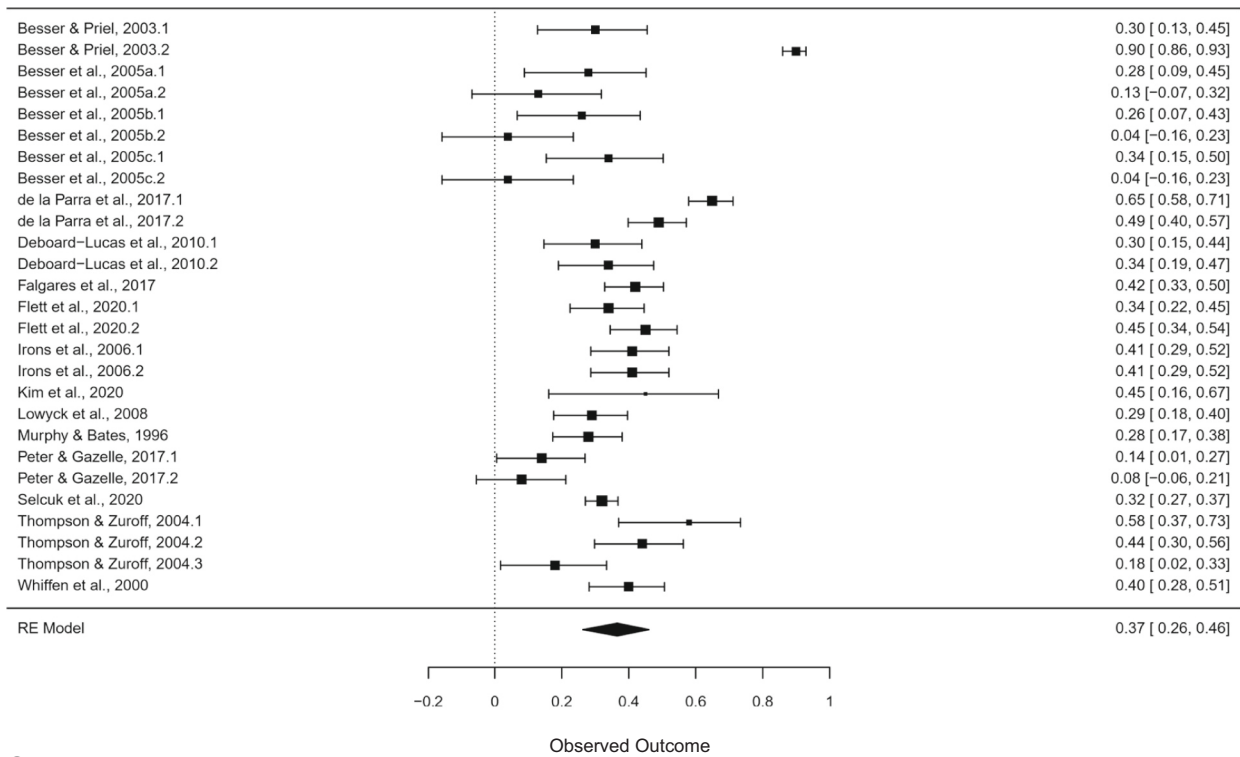
3.3.1. Anxiety/preoccupation

Thirty-one contributions ($k = 31$) were considered in the meta-analysis on the effect of Anxiety/preoccupation, of which ESs are displayed in the forest plot Fig. 3a. Results indicated a positive and strong effect of Anxiety/preoccupation on SC, with a pooled ES being statistically significant, $r = 0.40$ [CI 0.35–0.44], $SE = 0.03$, $z = 0.42$, $p < .001$. The Funnel plot is displayed in Fig. 3b and it indicates the existence of publication biases.

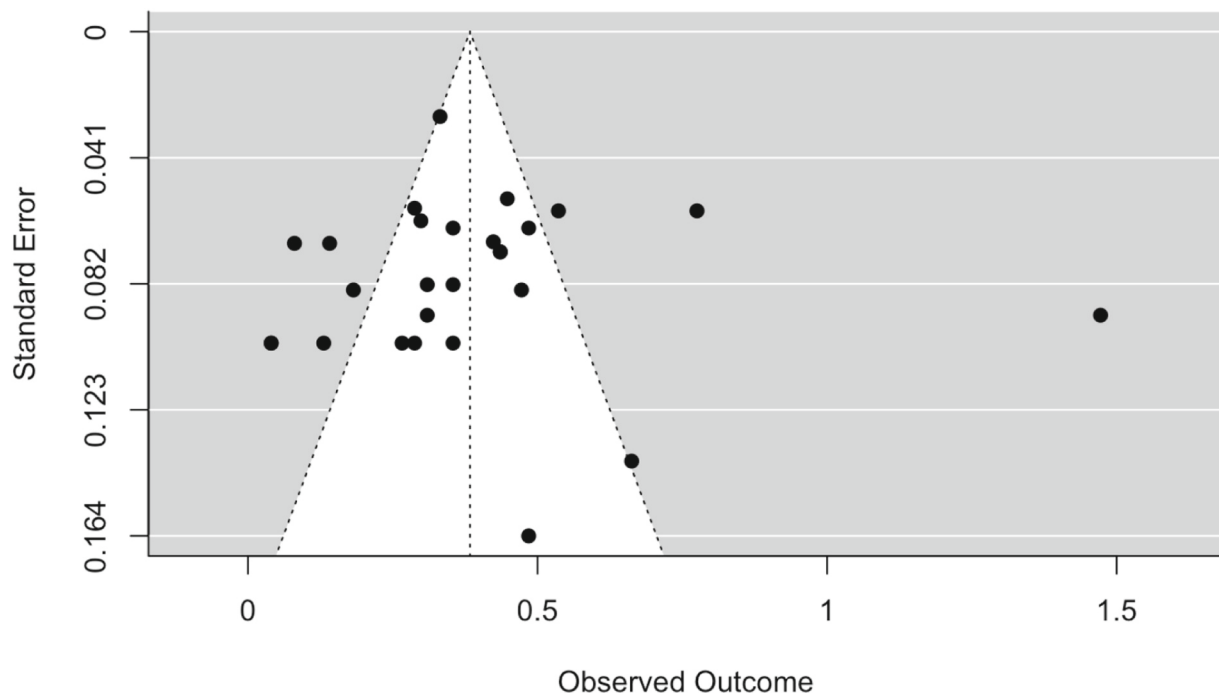
LRT value was not significant, $p = .197$, indicating no added value of the three-level model on the two-level one, which instead was significant ($p < .001$).

Analyses indicates that ESs were heterogeneous (level 1), $Q(30) = 99.29$, $p < .0001$. Level2 ESs heterogeneity (within the same study) was $\tau^2_{(2)} = 0.01$ (level 2, $k = 21$), while heterogeneity between-cluster was $\tau^2_{(3)} = 0.005$ (level 3, $k = 31$).

Moderators that could be tested were age, gender, year of publication, clinical status of the sample, study design, the SC instruments



a

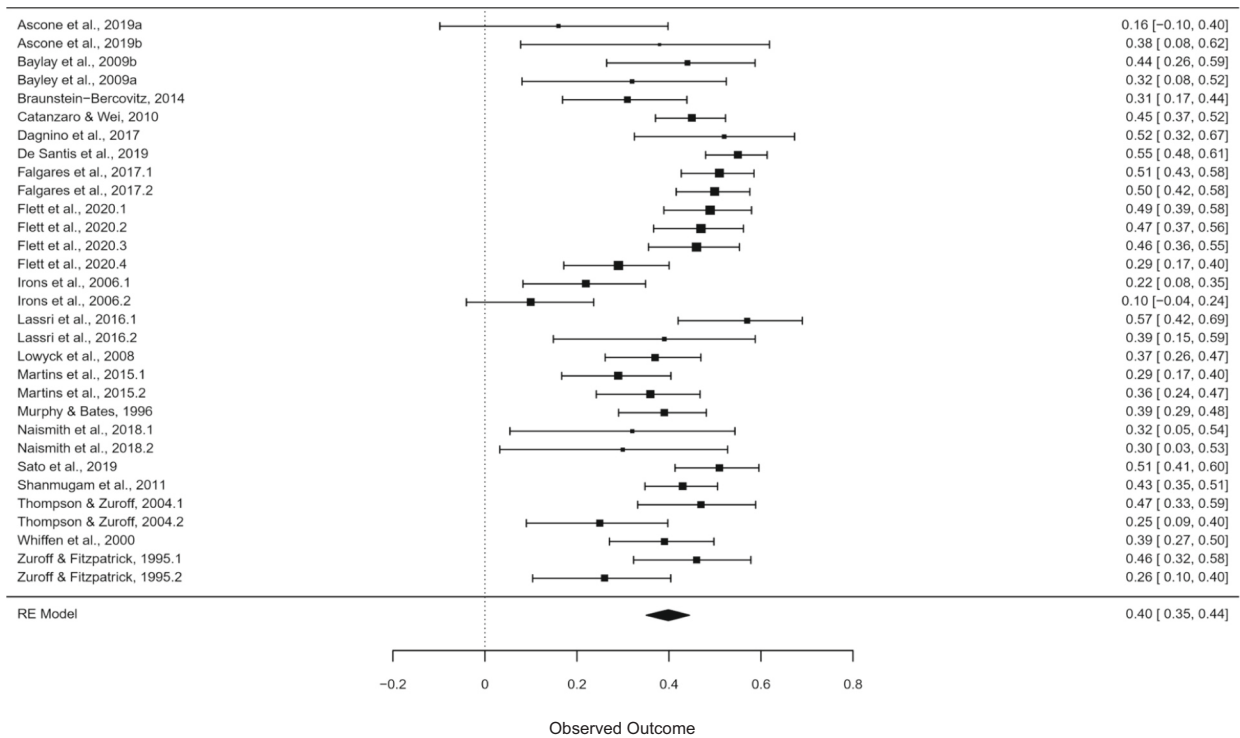


b

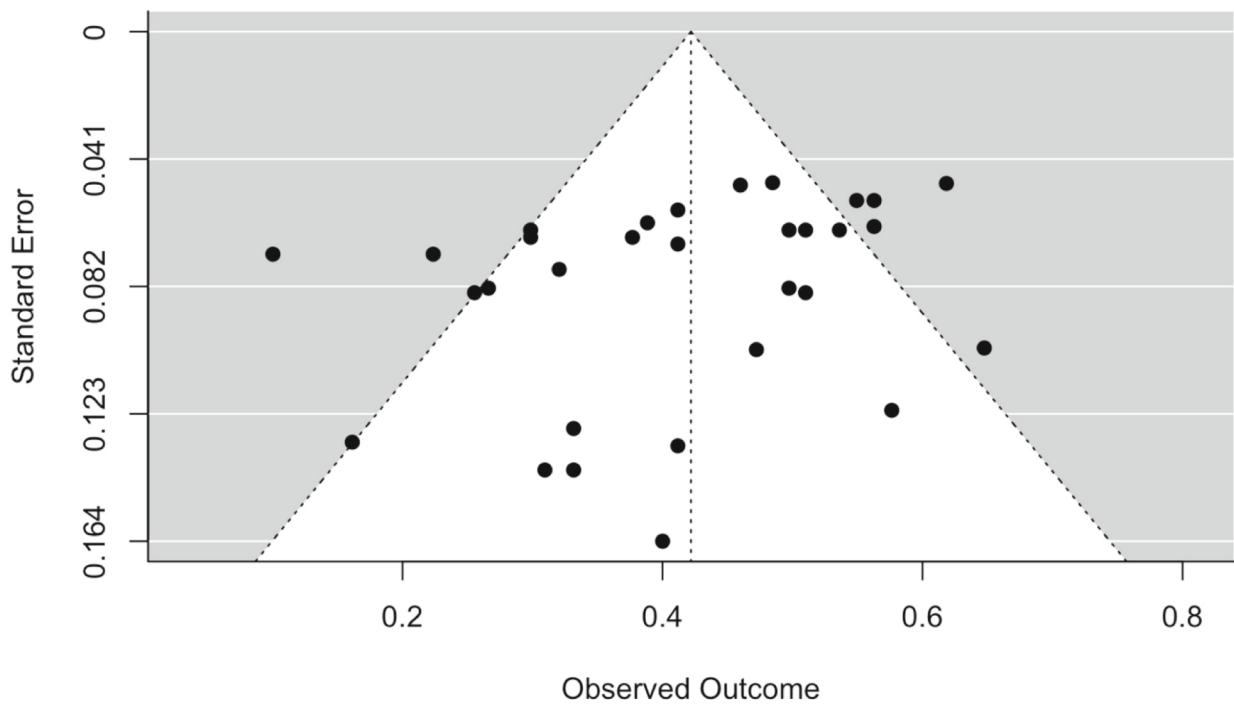
Fig. 2. a. Forest plot of studies included in the meta-analysis on attachment security and self-criticism. b. Funnel plot of studies included in the meta-analysis on attachment security and self-criticism.

Ways of Coping Checklist (WCC; Folkman & Lazarus, 1988), DEQ, FSCSFRS; the attachment instruments Attachment Style Questionnaire (ASQ; Feeney et al., 1994), ECR, RASS, and RQ; the SC as a trait vs. coping, and related emotions of guilt, hate, disgust, inadequacy for personal standards. The analyses revealed a significant negative effect of

age ($\beta = -0.005, SE = 0.002, z = -2.81, p = .005$). There was one negative effect of the instrument for SC FSCSRS ($\beta = -0.119, SE = 0.055, z = -2.16, p = .031$) and two of the attachment instruments, one positive effect of the use of the questionnaire ASQ ($\beta = 0.135, SE = 0.054, z = 2.48, p = .013$) and a negative one of the use of the RQ ($\beta =$



a



b

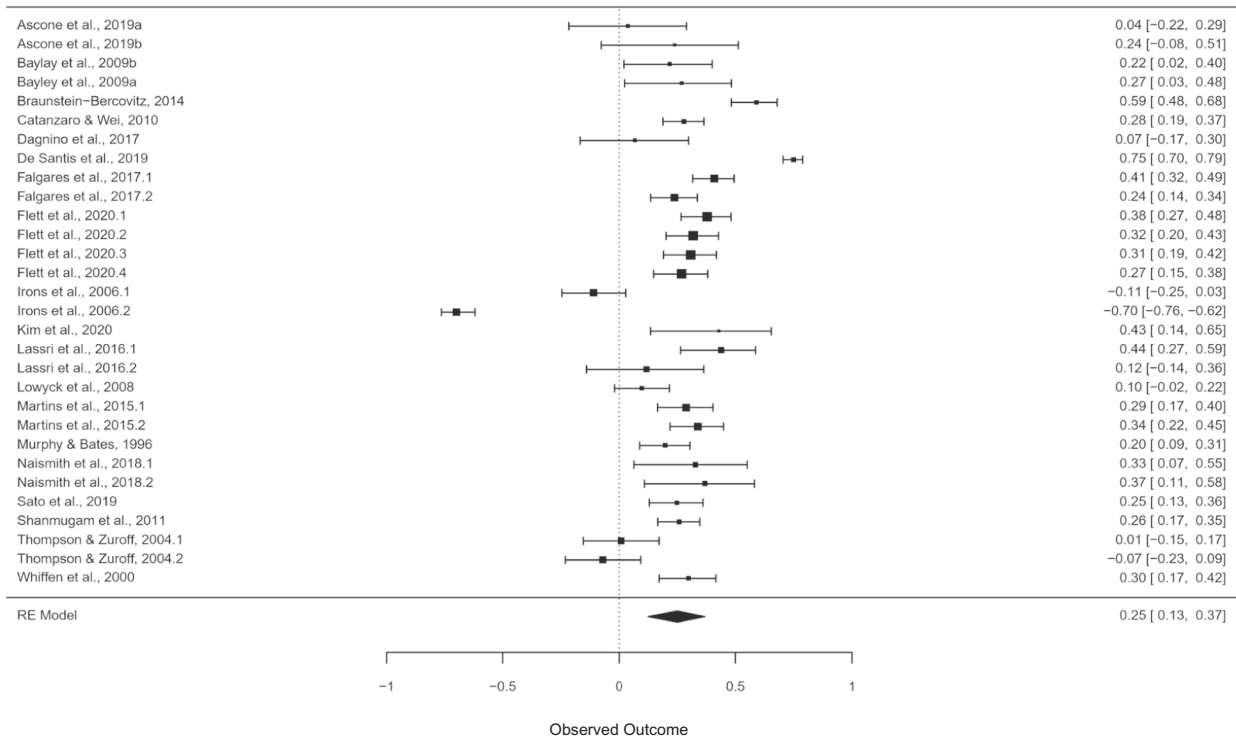
Fig. 3. a. Forest plot of contributions of the meta-analysis on Anxiety/preoccupation and self-criticism. b. Funnel plot of contributions of the meta-analysis on Anxiety/preoccupation and self-criticism.

-0.167, $SE = 0.053$, $z = -3.14$, $p = .002$). Moreover, when the “guilt” dimension of SC was investigated, it showed a positive moderation effect in the relationship between attachment anxiety on SC ($\beta = 0.098$, $SE = 0.049$, $z = 2.01$, $p = .045$).

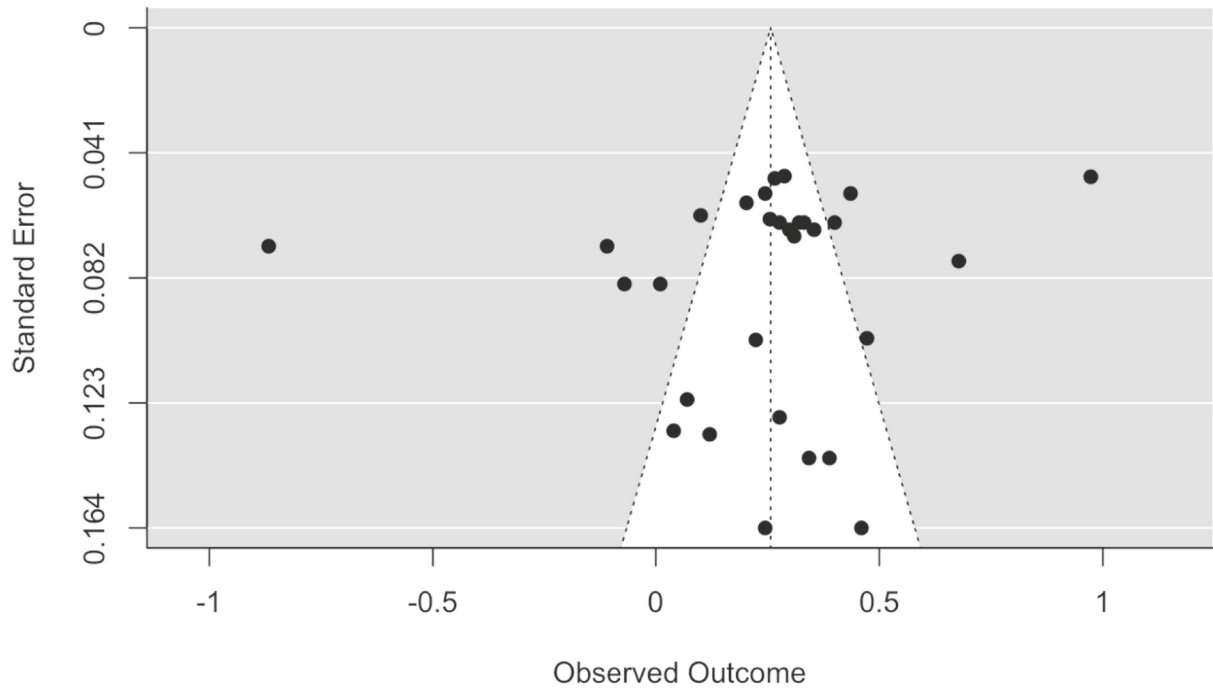
There were no moderation effects of gender, year of publication, clinical status of the sample, and research design, all $p > .30$.

3.3.2. Avoidance

Thirty contributions ($k = 30$) were considered in the meta-analysis for the effect of Avoidance/Dismissal. The forest plot in Fig. 4a displays ESs of these contributions. The pooled ES was moderate in entity and statistically significant, $r = 0.25$ [CI 0.13–0.37], $SE = 0.64$, $z = 0.26$, $p < .001$. As shown in Fig. 4b, the funnel plot suggested the existence of



a



b

Fig. 4. a. Forest plot of studies included in the meta-analysis on attachment Avoidance and self-criticism.
 b. Forest plot of studies included in the meta-analysis on attachment avoidance and self-criticism.

publication biases. The LRT value was significant, $p = .044$, suggesting that the added complexity of the three-level meta-analysis was justified in this case and this model better fitted compared to the two-level one. At level 1 there was significant heterogeneity in ESs, $Q(29) = 578.36$, $p < .001$. Heterogeneity within the ESs of the same study on level 2 was

$\tau^2_{(2)} = 0.052$ ($k = 21$), while level 3 heterogeneity between-cluster was $\tau^2_{(3)} = 0.034$ ($k = 30$).
 Moderators with enough observations to be tested were: age, gender, publication year, the status of the sample, study design, SC instruments WOC, DEQ, FSCFRS, attachment instruments ASQ, RQ, RASS, ECR, SC as

trait vs. coping, and related emotions of guilt, hate, disgust, lovability and inadequacy for personal standards. Significant moderators identified by the analyses were: age, with a negative effect ($\beta = -0.017$, $SE = 0.004$, $z = -3.90$, $p < .001$); a negative effect of the publication year of the contribution ($\beta = -0.017$, $SE = 0.008$, $z = -2.07$, $p = .038$); effects of the instruments to measure attachment ASQ (positive; $\beta = 0.299$, $SE = 0.152$, $z = 1.97$, $p = .048$) and RQ (negative; $\beta = -0.434$, $SE = 0.132$, $z = -3.30$, $p = .001$).

4. Discussion

The growing interest in SC can be attributed to its transdiagnostic nature and its predictive power of outcome treatment (Rector et al., 2000; Rose & Rimes, 2018; Shahar et al., 2012). This systematic review and meta-analysis summarize and extend the knowledge of the roots of SC by analyzing its relationships with attachment, another influential construct in clinical psychology. Overall, results support the existence of significant links between SC and attachment. However, data also challenges the available conceptual frameworks of SC in several way. Firstly, the data revealed that anxious attachment, in addition to avoidant attachment, is related to SC too. This suggests that the strength of the association between SC and anxious attachment might vary according to the different forms of SC. Indeed, we found that in some cases the links between attachment and SC are impacted by the type of SC measured as well as the tools used to operationalize attachment.

4.1. Attachment security and self-criticism

The meta-analysis revealed a strong effect size for the association between (low) attachment security and SC, confirming the hypothesis and the majority of previous findings (Falgares et al., 2017; DeBoard-Lucas et al., 2010). This finding supports the theoretical and empirical literature, suggesting that dysfunctional attachment contexts may prompt the development of pathological personality traits and disorders, such as SC, which can be conceptualized in terms of dysfunctional representations of the relationship between the Self and the Other (e.g. Fonagy et al., 2002; Lorenzini & Fonagy, 2013; Riggs et al., 2007).

From an attachment perspective, the conceptualization of self-blame as a coping modality may also suggest that the selection of this strategy is rooted in the process underlying the development of IWMs. This converges with the vast amount of research evidencing that maladaptive emotional regulation profiles are linked to low secure attachment and few positive experiences of reassurance in childhood (Gilbert & Irons, 2004; Mikulincer & Shaver, 2019).

Lastly, this finding may shed light on a potential explanation of why individuals with high levels of SC are likely to be treatment-resistant, as low levels of secure attachment have been shown to negatively predict treatment outcomes (Mikulincer et al., 2013; McBride et al., 2006). Since no moderators were discovered, the attachment instruments employed did not affect the relationship between these two dimensions, in contrast to what was found for other attachment types. However, although the association was strong and consistent, this result may resent the impact of other moderators which were not examined here due to a lack of heterogeneity in studies, such as the type of population (e.g., clinical).

4.2. Type of attachment insecurity and self-criticism

In line with contributions theorizing on the existence of a link between insecure attachment and SC (e.g. Blatt & Homann, 1992), we found an overall significant and moderate relationship between the two variables. In particular, higher levels of insecure attachment corresponded to higher levels of SC. However, contrary to our expectation, the moderation analysis showed that anxious attachment had a stronger relationship with SC as compared to avoidant attachment. This result contrasts with earlier theories and research hypotheses that claimed that

SC would be characteristic of individuals with avoidant attachment, whereas those who are anxiously attached could be more prone to dependency (Blatt & Homann, 1992). Several explanations of this result may be formulated, including the confounding role played by the multidimensionality of the SC construct, the need to extend the conceptualization of the association between anxious attachment and SC, and the importance of distinguishing between fearful and dismissive attachment when examining the link between avoidance and SC. Each of these potential explanations are addressed in the sections below.

4.3. Anxious attachment and self-criticism

Analyses documented a strong, positive, and significant relationship between attachment anxiety and SC levels. Notably, this result questions Blatt's influential framework that predicts no significant association between anxious attachment and SC and stresses the need to theorize the process that may underline the empirically observed association. For instance, it supports the hypothesis that an individual with anxious attachment, with a view of the self as unworthy of love and attention due to intermittent unpredictable caregivers' responses, can blame him/herself in the attempt to preserve a sense of predictability of the external world (Frazier et al., 2005; Weiner, 1985) and/or avoid to blame the Other in order to maintain his/her positive representation (Gilbert & Irons, 2004). This result seems coherent with the idea that self-blame is used to maintain the feeling that the environment is predictable and trustworthy (Frazier et al., 2005; Weiner, 1985) and that anxiously attached individuals chose to develop a negative self-concept rather than accepting the unreliability of the significant other. A possible interpretation is that anxiously attached individuals are prone to SC because of their need for approval (Cantazaro & Wei, 2010) or their need to maintain a positive representation of the significant other (Gilbert & Irons, 2004; Gilbert & Procter, 2006).

Results brought by moderation analyses additionally supported this interpretation. Firstly, age seemed to lessen the relationship between anxious attachment and SC. This appears in line with the observation that blaming oneself to avoid deteriorating the positive image of the caregiver is a strategy that is especially used among children and that is likely to decrease with age (Van Assche et al., 2013). Then, according to the explanation provided above, the type of SC that should be involved in anxious attachment should be more related to beliefs of undeservedness of love and proximity, which is in turn associated with feelings of guilt, hate and disgust. Indeed, findings showed that the association between anxious attachment and SC was stronger among studies evaluating the negative view of the self as guilty, as opposed to those that do not. Importantly, the analyses did not replicate this finding for the hate and disgust components, and one possible explanation could be that in the community sample the levels of self-hatred were lower than in the clinical group, and the underrepresentation of clinical sample in the meta-analysis did not allow to test its moderator role (Martins et al., 2015). Complementarily, it was found that the association between anxious attachment and SC was lower in studies using the FSCSRS to measure SC that include the assessment of feelings of inadequacy, more likely to be related to Blatt's description of the process. As a whole, these two results are in line with the idea that the conceptualization of the association between anxious attachment and SC could better specify the emotional content that colors self-criticism.

Lastly, additional data revealed that studies employing the Relationship Questionnaire observed lower associations between anxious attachment and SC whereas studies using the Attachment Style Questionnaire reported the inverse effect. Within the explanation of these results, it should be noted that the RQ and the ASQ share the preoccupation with relationships component but that the RQ does not directly assess the need for approval that is described in the items of the ASQ. This difference is likely to impact the estimation of the association between anxious attachment and SC, as self-criticism has been pointed out as a result of rejection sensitivity (Sato et al., 2020). Overall, this result

evidences an impact of the measurement tool used to assess anxious attachment on results, adding information to the existing debate on the impact of attachment conceptualization and methods of assessment on empirical results (Muzi et al., 2022; Shi et al., 2013).

4.4. Avoidant attachment and self-criticism

A positive, significant, and moderate association was observed between avoidant attachment and SC, confirming the expectations based on the strong theoretical frameworks that argue for a tight link between these variables. Indeed, Blatt and Homann (1992) conceptualized SC as a pathological personality trait developing in the context of non-optimal attachment bonds. Specifically, coldness, refusal, and punitive parenting would increase the risk for SC development by fostering avoidant attachment. From this perspective, the excessive pressure for achievement and self-reliance beliefs characterizing avoidance could lead to proneness in perfectionism, high standards, high sensitivity to personal failures, and consequently high levels of criticism towards one's own performance. It is of note that this is in line with the observation that both avoidance and SC are thought to develop in response to parenting that is characterized by high expectations regarding the child's performance and parental rejection (Koestner et al., 1991; McCranie & Bass, 1984).

As in the case of findings on anxious attachment, studies using the RQ observed weaker associations between the two variables, whereas studies using the ASQ reported stronger associations revealed a moderation role of the attachment measurement tool. This result may be explained in light of the lack of distinction between dismissive-avoidant and fearful-avoidant attachment that characterizes the ASQ, in contrast with the RQ that provides separate evaluations. Indeed, as well explained by Murphy and Bates (1997), the SC trait as described by Beck (1983), compared to Blatt's description, places less emphasis on the drive for achievement and fear of failure, but more on the avoidance of intimacy. This description seems more in line with the fearful-avoidant profile than the dismissive-avoidant one. More specifically, fearful-avoidant attachment is characterized by distrust in the availability of others, a need for approval, and a fear of intimacy. As a result, the ASQ may provide an inflated measure of the association between avoidance and SC because it includes features of both the dismissive and fearful attachment styles. In contrast, the RQ, providing a specific measure of dismissing attachment, may lead to an underestimation of the link between avoidance and SC. In support of this, research using the RQ found that participants who were fearfully attached expressed higher levels of SC than those who were dismissively attached (Irons et al., 2006; Lowyck et al., 2008). Therefore, the results of studies using instruments that do not differentiate between dismissive and fearful attachment should be appreciated with caution. Unfortunately, the dearth of retrieved research that estimates the association between fearful avoidance and SC did not allow the finding of meta-analytic evidence, highlighting the need for future research on the topic.

The heterogeneity in the operationalization of the avoidant attachment construct may also explain the lack of significant moderation effects played by the type of SC investigated. Indeed, it was somewhat expected that the measurement of SC's components related to perfectionism would have led to a stronger association with avoidant attachment, whereas the component of guilt would have lowered this relationship. However, because fearful and dismissive attachment may be linked to different components of SC, the poor distinction between these two types of attachment in most of the included studies may have masked the impact of this variable. Overall, these findings may suggest the use of RQ in future research, and further investigation on the links between different forms of SC and dismissive or fearful attachment.

Subsequently, it was found that the relationship between avoidant attachment and SC declined with age. This interesting finding may indicate that, in line with previous contributions, defense mechanisms and coping strategies may evolve during an individual's life span (Segal

et al., 2007; Whitty, 2003). For instance, it is often reported that feelings of strength and pursuit for perfection, characteristic of personality organizations associated with avoidant attachment (e.g. narcissism), are likely to decline with the advancement of age (Robinson et al., 2021). Because SC in avoidant attachment has been conceptualized as a defensive mechanism protecting these feelings, the reduction of their association with age may be understood as a result of this wider process.

Lastly, some tested variables did not seem to have a significant impact on the association between avoidance and SC. For instance, in this study, the gender composition of samples did not affect results, in contrast with Cantazaro and Wei (2010) who documented a stronger relationship between avoidant attachment and SC in men than women. One possible explanation of this result is a possible insufficient variability in the gender composition of studies included in the meta-analysis, hindering the identification of a gender effect, and calling for meta-analytic updates focusing on gender differences. Another possible explanation is that gender differences in the link between SC and avoidant attachment may vary according to the type of SC investigated. Indeed, Catanzaro et al. (2010) employed an instrument that assessed SC components such as fear of failure, ambivalent feelings towards oneself and others, and striving for achievement, which previous literature found to be more relevant in men than in women (Kirsch & Kuiper, 2002; Stoppard, 1999).

4.5. Practical implications

Current results may have several implications for clinical practice. Indeed, results suggest that SC is strongly related to insecure attachment, suggesting the utility of an attachment-informed approach during intervention on SC.

However, to the best of the authors' knowledge, few interventions directly refer to the attachment framework in illustrating their rationale for the technique used. A well-known exception is Self-compassion Focused Therapy (Gilbert, 2005) which has brought promising evidence (Wilson et al., 2019). This intervention aims to restore the individual's capacity to activate the attachment system during episodes of psychological distress. Specifically, through imagery techniques, patients create mental scenarios where they can find refuge and benefit from compassionate care. This repeated experience could foster the development of the representation of the self as lovable and deserving of care. In other words, the treatment goal consists in promoting a secure attachment to a self-soothing internal image (Gilbert, 2005). On the one hand, our results strongly support the treatment rationale, as we observed an association between low attachment security and SC. On the other hand, this intervention proposal does not seem to address the specificities of the insecure attachment types underlying SC.

Indeed, results of our meta-analyses indicated that both avoidant and anxious attachment are linked to SC, suggesting that treatment should not only address the lack of security underlying SC but also the specificities of insecure attachment.

For instance, regarding avoidant attachment, it has been hypothesized that SC may lead to poor treatment outcomes because of the associated avoidance of negative emotions that could impair the quality of the attachment relationship with the therapist (Low et al., 2020). Therefore, interventions on SC may greatly benefit from working on the self-critical process fostered by emerging feelings of vulnerability and shame connected to the vicissitudes of the patient-therapist bond. From this perspective, the current treatments for SC may therefore be successfully integrated by clinical indications provided for the treatment of individuals with avoidant attachment and/or emotional avoidance, such as the proposal of Muller (2009) and McCullough and Vaillant (1997). In other words, rather than addressing self-critical thoughts *tout court*, a treatment of SC in patients with an avoidant attachment should focus on self-criticism emerging from the relational dynamics with the therapist, connecting and confronting the corrective experience of patients with their previous early attachment experiences with caregivers.

Then, our results suggest that a clinical approach should be developed to address SC in patients with anxious attachment. Because the role of anxious attachment in SC has been conceptually overlooked, few indications are available in the literature. Again, these results may suggest that the treatment of SC may benefit from a greater focus on the dynamic of SC within the attachment relationship created with the therapist. Some indications might be suggested by literature detailing the clinical approach for patients with preoccupied attachment. For instance, several authors argued that a frequent challenge in psychotherapy with these patients consists in regulating thoughts and feelings emerging in response to oscillations of interpersonal distance with the therapist (Mallinckrodt, 2010; Wallin, 2007). From this perspective, it may be expected that crucial self-critical thoughts towards the target could emerge from this relational dynamic. Also, this work provides original findings documenting the specificity of SC thoughts related to anxious attachment, highlighting the role of guilt. Indeed, in this case, the intervention should focus on feelings of guilt in the therapeutic setting as a possible key component underlying SC in individuals with anxious attachment. Especially in young patients, where the link between SC and anxious attachment was stronger. These considerations can be deemed valid for both community and clinical clients, as the findings did not reveal an impact of the nature of the sample (with or without a psychiatric diagnosis) in the link between anxious attachment and SC. This latter finding can also suggest that attachment-informed prevention and intervention on SC can rely on the same basis and strategies in both community and clinical populations.

Overall, it can be suggested that the treatment of SC should be framed within an attachment-informed approach, targeting self-critical thoughts elicited by attachment contexts—including the patient-therapist relationship. Also, the assessment of the client's attachment type and components underlying SC can help tailor the clinical intervention to the client's specific needs, as well as forecast relational and therapeutic processes to better plan clinical strategies to cope with difficulties.

4.6. Limitations and future directions

The main weakness of this meta-analysis was the lack of research taking into account the fearful-avoidance dimension, which prevented critically important exploration. The studies that were found were therefore unbalanced, with most samples used being drawn from the general population. In particular, this limits the generalization of our conclusions regarding the association between the security of attachment and SC as we were not able to test the moderating role of sample status for this set of studies. Finally, it could be beneficial to have additional research on the various facets of SC. Future lines of research should consider evaluating attachment and SC on several levels, distinguishing between dismissive-avoidance and fearful-avoidance, employing clinical samples, and comparing men and women on the aforementioned dimensions. Additionally, it could be helpful to assess together the various facets of SC and the different attachment patterns, in order to deepen the knowledge of their relationships. Finally, as age demonstrated its effect, longitudinal or stratified studies are required to strengthen this result.

5. Conclusions

The strong relationship between attachment and SC suggests adopting an attachment-informed approach to research and in clinical interventions on SC, with possible indirect benefits on mental health and treatment outcomes. However, several questions remain open, such as the utility of adopting a multidimensional conceptualization of SC or investigating the fearful-avoidant profile, as well as the mechanisms through which different attachment types affect the development and maintenance of self-criticism. Results suggest the need for extending the current conceptualization of the way insecure attachment accounts for

the development of SC, integrating a hypothesis regarding the role of anxious attachment. Two different types of SC may preferably arise from avoidant and anxious attachment respectively, with the latter being more related to the use of self-blame and guilt. Consequently, and coherently with literature recommending the need to tailor interventions according to the patients' IWMs, in targeting SC, different therapeutic strategies are suggested based on the client's attachment, reinforcing the utility of continuing the investigation on this topic.

Declaration of competing interest

None.

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Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2023.112359>.

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