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ORIGINAL PAPER

A Meta-Analysis of the Relation Between Self-Compassion and Self-Efficacy

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Abstract

Objectives Self-compassion may play a role in protecting one's self-efficacy in the face of failures. While research suggests a positive association between self-compassion and self-efficacy, the current study represents the first meta-analytic analysis of this association. Potential moderators including age, publication type, and sample type were also explored.

Methods Random-effects models were used to estimate the average effect size (ES) for the associations between self-compassion total score and self-efficacy and between self-compassion subscales and self-efficacy across 60 studies providing a total of 109 effect sizes.

Results Results showed a positive association between self-compassion total score and self-efficacy (r = .35), positive associations between self-compassion positive subscales and self-efficacy, and negative associations between self-compassion negative subscales and self-efficacy. Results also revealed that the associations between self-compassion subscales and self-efficacy were larger in non-students than in students, and in published studies versus unpublished studies.

Conclusions Clinical interventions that cultivate self-compassion may be conducive to one's sense of self-efficacy.

Keywords Self-compassion · Self-efficacy · Meta-analysis

Self-compassion is defined as a healthy attitude toward oneself (Neff, 2003a). It is theorized as the "ability to hold one's feelings of suffering with a sense of warmth, connection, and concern" (Neff & McGehee, 2010, p. 226). Self-compassion strengthens individuals' resilience against life's problems by influencing their evaluation of potentially threatening situations (Neff, 2003b). Specifically, it attenuates individuals' negative reactions to situations involving failure, rejection, and embarrassment (Leary et al., 2007). Self-compassion plays a critical role in positive psychological functioning (Neff, 2003b). Scholars have conducted meta-analyses to examine the associations between self-compassion and psychopathology (MacBeth & Gumley, 2012), psychological distress (Marsh et al., 2018), and well-being (Muris & Petrocchi, 2017; Zessin et al., 2015). The results from these studies generally support that self-compassion is negatively associated with mental health symptoms and positively associated with psychological well-being.

Self-compassion encompasses three components: self-kindness versus self-judgment, sense of common humanity versus isolation, and mindfulness versus over-identification (Barnard & Curry, 2011; Neff, 2003a). Self-kindness describes being comforting and warm to oneself when confronting painful life circumstances instead of being judgmental. Common humanity refers to recognizing that one's negative experience is part of the human experience rather than isolated events. Mindfulness pertains to holding one's painful experiences in a balanced perspective instead of over-identifying (i.e., being immersed in the emotional reaction to events) or avoiding them. These components help to regulate emotions by transforming negative emotions to positive feelings (e.g., holding negative emotions in awareness with kindness and viewing them as part of the human experience) (Neff, 2003a).

The Self-Compassion Scale was developed to measure the three components of self-compassion (self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification). However, analysis of the scale revealed that the positive and negative items in the scale

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loaded on six instead of three inter-correlated factors which are self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification (Neff, 2016). Specifically, the scale includes 26 items with half of the items measuring the three subscales that represent the lack of self-compassion (i.e., self-judgment, isolation, and over-identification) and the other half measuring the presence of self-compassion. In addition to the six factors, a single higher order self-compassion factor was also supported (Neff, 2016). Based on these findings, self-compassion can be represented by the six subscales or a total score (Neff, 2003a, 2003b; Neff & Germer, 2017). Furthermore, a short-form of the Self-Compassion Scale has been developed and it has a near perfect correlation with the long form (Raes et al., 2011).

Given that self-compassion pertains to the subjective evaluation of processes connected to how we view the self, emerging work has shown that it is relevant to self-efficacy (e.g., Manavipour & Saeedian, 2016; Sirois et al., 2015). Bandura (1977) defined self-efficacy as the strength of an individual's belief in one's capabilities to conduct the actions needed to achieve desired goals, that is, it involves cognitive judgments of personal capacity (Zimmerman & Cleary, 2006). Self-efficacy is also the individuals' perception of their ability to manage difficulties in life and it affects how long they will persevere in the face of challenging tasks (Bandura, 1977; Caprara et al., 2012). Moreover, self-efficacy is described as a powerful predictor of behavior and it affects the choices people make and the effort they spend (Bandura, 1986). Individuals with a high level of self-efficacy are likely to believe that they have control over potential threats and make greater efforts in the face of failures and setbacks (e.g., Caprara et al., 2008). In addition, self-efficacy is considered a cognitive appraisal process essential for the regulation of stress (Bandura, 1992; Bisschop et al., 2004). Thus, with high self-efficacy, individuals will think and perceive that they have the capabilities to manage stress in life. For this reason, self-efficacy has been linked to many positive mental health outcomes, including higher levels of subjective well-being, optimism, and life satisfaction (Azizli et al., 2015; Luszczynska et al., 2005).

Self-efficacy can either be defined and measured as a domain-specific construct such as academic self-efficacy or be conceptualized and measured in a more general way. General self-efficacy reflects the belief in one's competence to cope with a broader range of stressful or challenging demands (Bandura, 1977). It can be created and developed from different sources and domains (Pajares, 1997). General self-efficacy beliefs can also be generalized across different tasks and inform the performance on novel tasks (Pajares, 1997).

Self-compassion is likely to be positively associated with self-efficacy. Bandura (1986, 1997) maintained that self-efficacy is influenced by four sources of information including personal performance accomplishments, verbal or social persuasion, vicarious learning, and physiological and affective states and reactions. Self-compassion is likely to be related to self-efficacy through its positive impact on affective states and reactions, especially toward failures. Perception of failures in situations can reduce one's sense of self-efficacy. Common humanity, a component of self-compassion, enables individuals to consider their failures and shortcomings as a shared part of the human experience (Neff et al., 2005). This aids individuals to see that failed actions are not unique to them which may help protect and maintain their sense of self-efficacy. Mindfulness within self-compassion helps individuals to adopt a balanced perspective rather than over-identifying with failures or exaggerating the implications of their failures (Neff et al., 2005). This may prevent individuals with high self-compassion from seeing failure as an indictment of self-worth and be able to sustain self-efficacy and focus on mastering tasks in their reactions to failures (Neff et al., 2005). The above suggests that self-compassion may protect one's sense of self-efficacy in the face of setbacks.

Furthermore, self-efficacy pertains to individuals' judgment of how well they can perform courses of action required to manage a given situation (Bandura, 1992). Within self-compassion, self-kindness contrasted with self-judgment is likely to help individuals have a gentle and understanding attitude toward one's actions or competence (Neff et al., 2005). Moreover, mindfulness is a state of approaching one's thoughts and feelings in a nonjudgmental way. This aspect of self-compassion may lessen the likelihood that one will be judgmental and harsh about one's performance and is thus conducive to one's self efficacy (Neff et al., 2005). Empirically, specific components of self-compassion including self-kindness, mindfulness, and common humanity were positively associated with self-efficacy while over-identification was negatively related to self-efficacy (Manavipour & Saeedian, 2016).

Lastly, Bandura (1986, 1997) posited that self-efficacy is associated with mastery and competency beliefs. Empirically, those with high self-compassion reported high level of perceived competence, which is associated with having mastery as opposed to performance goals (Neff et al., 2005). The positive association between self-compassion and perceived competence might be attributed to those with self-compassion tend to have resilient self-appraisal and can accurately assess their performance while those with low levels of self-compassion tend to underrate their abilities (Leary et al., 2007). Based on these findings, self-compassion may foster self-efficacy through positive perception and judgment of one's abilities and performance.

The goal of the present meta-analysis was to examine the relation between self-compassion and self-efficacy. Specifically, our research aims to determine (1) how do self-compassion total score and self-compassion subscales relate to general and domain-specific self-efficacies? and (2) what

are potential moderators that influence these associations? For the first research aim, we would like to determine whether self-compassion total score, self-kindness, mindfulness, and common humanity components of self-compassion and self-efficacy would have a positive average effect size. Furthermore, we would like to determine whether the self-judgment, isolation, and over-identification components of self-compassion and self-efficacy would have a negative average effect size. Regarding the second research aim, we were interested in exploring potential moderators of the association between self-compassion and self-efficacy. In the literature, there is a paucity of studies with potential moderators. Accordingly, this meta-analysis focused mainly on the influence of different sample characteristic and study characteristic such as published vs. unpublished papers.

Method

Literature Search Strategy

A systematic search of the online databases including PsycINFO, PsycNet, and ERIC was conducted to find published papers. Unpublished works (e.g., theses and dissertations) were searched using ProQuest Dissertations and Theses Global. We also employed Google Scholar to search for additional research papers that were available online but not via databases. We used keywords with different wildcard characters to locate relevant research papers: self-efficacy, efficacy, self-compassion, compassion, self-concept, self-kindness, self-judgment, common humanity, mindfulness, isolation, over-identification, self-esteem, self-perception, self-acceptance, self-understanding, and self-forgiving. We selected these keywords based on their theoretical relevance to self-compassion and self-efficacy. All searches were conducted between 2003 and 2018. Fig. 1 depicts the literature search and selection process.

Inclusion and Exclusion Criteria

Regarding inclusion criteria, we included only studies with quantitative data. Because we operationalized self-compassion based on Neff's (2003a, 2003b) definition, we included only quantitative studies that utilized either the long-form (26-item; Neff, 2003b) or short-form (12-item; Muris et al., 2016; Raes et al., 2011) Self-Compassion Scale. We also included studies that examined the association between self-efficacy and at least one of the subscales (i.e., self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification) within the Self-Compassion Scale. This enabled us to perform the main analysis with both the self-compassion total score and the subscale scores. For self-efficacy, we included quantitative studies that had to report a self-efficacy measure which can be a global self-efficacy or a domain-specific self-efficacy measure.

In addition, we included only baseline or pre-treatment data and excluded retest and post-treatment measurements in studies with multiple self-compassion estimates per person or group (e.g., test–retest or pre- and post-treatment). Another inclusion criterion was that studies need to have statistics demonstrating the relation of the self-compassion scales and self-efficacy, such as r or statistics that could be converted to r. If this information was missing, we made efforts to contact the authors and included the study if this information could be obtained. We included all study age ranges and populations (e.g., students and non-students) for the purpose of examining potential moderators.

Regarding exclusion criteria, we excluded qualitative studies, reviews, or theoretical papers. In addition, studies were excluded if they were not available in English. We excluded studies that did not utilize the Self-Compassion Scale as well as studies that assessed components of self-compassion using measures other than the Self-Compassion Scale (e.g., Five Facet Mindfulness Questionnaire [Baer et al., 2006]). Regarding the latter, the rationale is that other measures that assess components within self-compassion may not capture the essence of the elements of self-compassion as defined by Neff (2003a). As an example, other mindfulness scales may not measure the same construct as the mindfulness subscale of the Self-Compassion Scale even though they share the same names for the scale (Strauss & Smith, 2009). One study found that the self-judgment subscale, rather than the mindfulness subscale of the Self-Compassion Scale, predicted the highest proportion of unique variance on the Mindful Attention Awareness Scale (MAAS) (Van Dam et al., 2011).

Our initial searches yielded 1143 research papers published between 2003 and 2018. Two hundred and fifty-six papers were duplicates; therefore, only 887 titles and abstracts were screened using the above inclusion and exclusion criteria. All authors contributed to the decision-making process for inclusion and exclusion of the research papers (i.e., published and unpublished papers). We only included research papers if there was consensus among the authors. Among these 887 research papers, there were 280 papers that were irrelevant to our topic, 160 were not empirical papers, 353 only studied self-efficacy, 16 only studied self-compassion, and nine papers were not in English. Thus, a total of 818 research papers were excluded from the study based on the initial screening. As a result, we were able to access 69 research papers by full text. Among these 69 research papers, 42 fulfilled criteria for inclusion, as 23 research papers did not provide correlation coefficients between self-efficacy and self-compassion, one full-text was not accessible even after we tried to acquire it via interlibrary loan and contacting the author of the paper, two only studied self-efficacy, and one was not an empirical study. Thus, 27 research papers were further excluded. Among the 42 research papers,

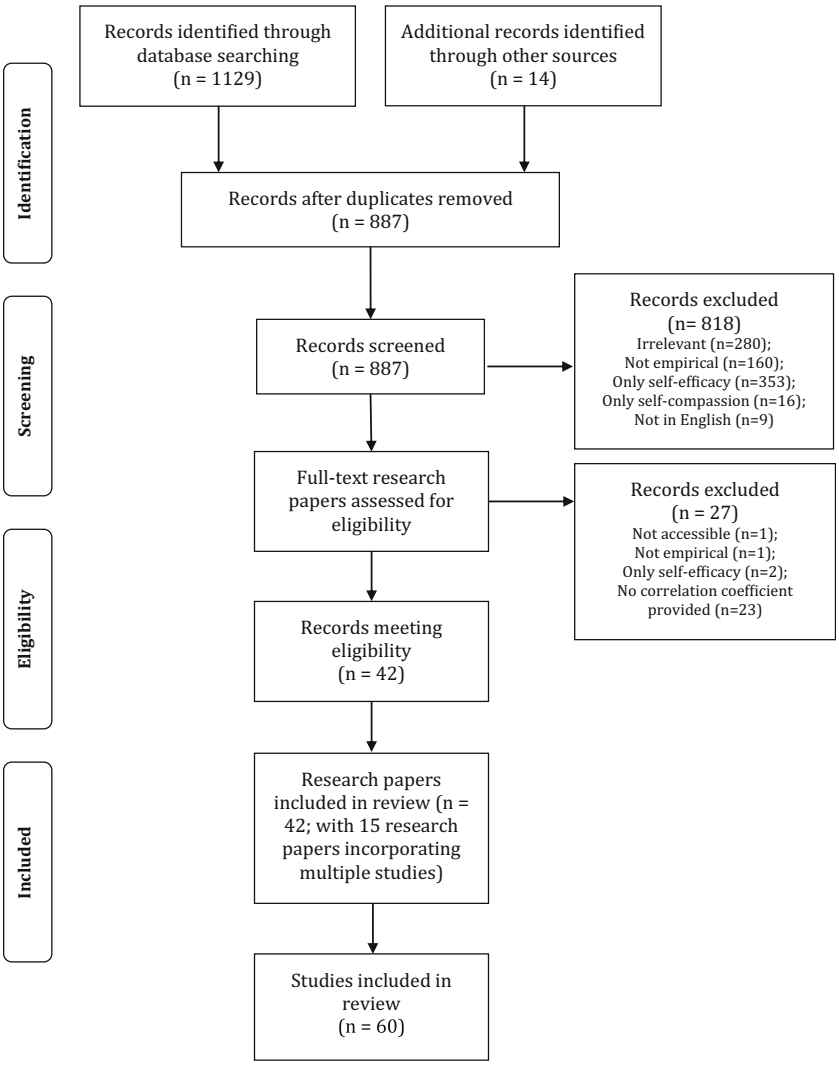

Fig. 1 PRISMA diagram

30 were peer-reviewed published papers, 11 were unpublished papers, and one was a conference presentation. From these 42 research papers, several papers reported multiple studies, which led to a total of 60 studies that were included in the review (see Fig. 1 for PRISMA diagram).

Coding

We coded several variables in the study. First, we recorded the title of the publication, the name of authors, and year of publication. Next, we coded sample size, mean age of participants, sample type (student, non-student, and a mix of sample types), and publication type (published or unpublished research papers) of the sample. In addition, we coded the measurement for self-compassion (long form vs. short form) and self-efficacy (name of the self-efficacy measure). Regarding the coding process of the effect sizes, the Pearson correlation (r) coefficient between self-compassion and self-efficacy was coded.

We conducted interrater analysis to determine the reliability of the coding process. All of the studies were coded by two coders who were the first and the second authors for the study. Cohen's κ for two raters was employed using a nominal scale, namely, agreement and no agreement resulting in Cohen's κ = .77, SE = .03. A Cohen's kappa of between 0.61 and 0.80 generally is interpreted as demonstrating substantial agreement (Landis & Koch, 1977). Accordingly, the interrater agreement was considered to be acceptable. Because there were discrepancies in the ratings across the two coders, the third author of the study also coded the studies in order to resolve the differences that were found. We were able to reach consensus by comparing the ratings against the third author's coding and re-checking the studies. Accordingly, we did not exclude any studies due to coder disagreement.

Statistical Analysis

The meta-analyses were conducted using the Comprehensive Meta-Analysis software and were based on random-effects

models, as a common effect size was not assumed (as is the case in a fixed effects model) and the purpose was to generalize our findings beyond the studies that we used (Borenstein et al., 2011; Card, 2012). Meta-analyses were performed on data from 60 studies, to assess the associations between self-compassion and self-efficacy. The analyses first evaluated the relation between self-compassion total score and self-efficacy. Further analyses were conducted to assess the relations between self-efficacy and the six subscales of the Self-Compassion Scale. Moderating variables were employed where statistically significant heterogeneity was present.

Moderator Analyses

We examined mean age, sample type, and publication type as potential moderators for the association between self-compassion and self-efficacy. A study conducted with a Brazilian sample found that adults aged 31–66 years old had significantly higher levels of self-compassion than 18–30 years old (de Souza & Hutz, 2016). On the other hand, neither Neff and McGehee (2010) found age differences in self-compassion among teenagers and young adults nor did Neff and Pommier (2013) in a study with college students and adults who were not enrolled in higher education. Thus, the findings regarding age differences in self-compassion are inconsistent. Regarding self-efficacy, a study found age to be a significant predictor of career decision-making self-efficacy (Kelly & Hatcher, 2013). However, Wang et al. (2006) reported no relation between age and career decision-making self-efficacy among undergraduate students. Thus, findings of age differences in self-efficacy are equivocal.

Furthermore, we included publication type (published and unpublished research papers) as another moderator. This was to provide an alternative examination of publication bias to Egger's test, which examines a scatterplot of effect sizes in relation to their respective sample sizes (Card, 2012).

Quality Assessment

A quality assessment was conducted on the research papers (i.e., published and unpublished papers) included in the meta-analysis to provide a critique of these papers rather than for deciding whether or not to include them in the meta-analysis (Stevenson et al., 2017). The third author rated the research papers based on an adapted form of the Effective Public Health Practice Project (EPHPP) tool. This tool has shown good construct validity and interrater reliability (Armijo-Olivo et al., 2012; Thomas et al., 2004). All the research papers included in the meta-analyses were assessed on two relevant criteria based on the EPHPP: (1) selection bias and (2) data collection methods (i.e., whether the measures used were reliable and valid). We followed the guideline outlined in the EPHPP tool to evaluate these two criteria. Each criterion is given a rating of strong, moderate, or weak. A global rating is then assigned to each research paper based on the following: strong (no weak ratings for the two criteria), moderate (one weak rating for the two criteria), or weak (two or more weak ratings for the two criteria).

The third author and a doctoral student in counseling psychology first rated the quality of the research papers based on the aforementioned criteria (i.e., selection bias, data collection methods, and global rating). Cohen's κ for two raters was employed using a nominal scale, namely, strong, moderate, and weak, resulting in Cohen's $\kappa = .67$, $SE = .81$ for selection bias, Cohen's $\kappa = .67$, $SE = .81$ for data collection methods, and Cohen's $\kappa = .67$, $SE = .58$ for global rating, respectively. These Cohen's κ values are generally interpreted as demonstrating substantial agreement (Landis & Koch, 1977). Next, the first author rated the research papers. The two coders' ratings were then compared to the first author's ratings and the discrepancies were resolved by re-checking the research papers and reaching consensus.

Out of the 42 research papers included in the meta-analysis, on the global rating, 21 were rated moderately, 17 were rated strong, and four were rated weak. The strength of the research papers was that the majority used reliable and valid measures, that is, 37 research papers were rated strongly for the data collection methods, and only five were rated weakly. The weakness of the research papers was that 24 or more than half of them failed to include a representative sample, with many of them sampled a student sample from a specific educational institution.

Results

Overview of Studies

Majority of the research papers (n [i.e., n refers to published and unpublished papers] = 21) were conducted in the USA, with seven research papers conducted in Canada, and the rest of the 14 papers were conducted in other countries (e.g., UK, Netherlands, Turkey, Iran, and Norway). Sample size ranged from 25 to 1811, with a large portion of research papers (n = 34) including over 100 participants. Regarding the samples used, majority of the research papers (n = 25) used student samples, 15 used the non-student samples, and two research papers used a mix of students and the non-student samples. The mean age range across the research papers utilized was between 13.64 and 53.93 years.

All research papers used either the original 26-item or 12-item short-form instruments to measure self-compassion, in either English version or non-English version, including Self-Compassion Scales in Turkish (Akın et al., 2007), in Portuguese (Pinto-Gouveia et al., 2012), and in Brazilian (de Souza & Hutz, 2016). We also included a 12-item short-form

Self-Compassion Scale for Adolescents (Muris et al., 2016). Instruments used to measure self-efficacy in these studies included, but were not limited to, Perceived Social Self-Efficacy scale (Smith & Betz, 2000), Self-Efficacy for Managing Chronic Disease (Lorig et al., 1996), Self-Efficacy for Exercise scale (Resnick & Jenkins, 2000), Chronic Disease Self-Efficacy scale (Lorig et al., 1996), Self-Regulatory Efficacy (Strachan & Brawley, 2008), Concurrent Self-Regulatory Efficacy (Jung & Brawley, 2013), Pain Self-Efficacy Questionnaire (Nicholas, 2007), HIV Symptom Management Self-Efficacy (Lorig et al., 2001), Multidimensional Self-Efficacy for Exercise scale (Rodgers et al., 2008), Counselor Activity Self-Efficacy scales (Lent et al., 2003), self-efficacy subscale of the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1993), and the General Self-Efficacy scale (Schwarzer & Jerusalem, 1995).

The included research papers reported 47 effect sizes for the self-efficacy/self-compassion (total score) relation, 11 effect sizes for the self-efficacy/self-kindness relation, 11 effect sizes for the self-efficacy/self-judgment relation, 11 effect sizes for the self-efficacy/common humanity relation, 12 effect sizes for the self-efficacy/mindfulness relation, 10 effect sizes for the self-efficacy/isolation relation, and seven effect sizes for the self-efficacy/over-identification relation. The numbers of research papers included either a totftal score of Self-Compassion Scale or any subscale score of Self-Compassion Scale are far more than two research papers, which is sufficient to conduct a meta-analysis, as suggested by Valentine et al. (2010) and Pigott (2012). A total of 109 effect sizes were utilized to determine the association between self-compassion and self-efficacy.

Publication Bias

As non-significant findings are less likely to be published, mean effect sizes may be exaggerated. To examine publication bias, we used Egger's test for publication bias. The results indicated no bias was found for all associations ($p > .10$). A statistically non-significant finding suggests that there is no evidence that studies less likely to have statistically significant results are not included relative to those likely to have statistically significant results (Card, 2012).

Self-Compassion Total Score, Self-Compassion Subscales, and Self-Efficacy

Tables 1 and 2 supply descriptive data for each study employed, namely, sample size, the effect size relations, and their 95% confidence levels between self-compassion and self-efficacy. Mean effect size *r* is also provided. Table 3 shows the relation between self-compassion and self-efficacy. The results indicated that the effect size correlations (*ES r*)

Table 1 Study data for random models of self-compassion total score and self-efficacy score correlations

Study name	*n*	*r*	95% CI	
			LL	*UL*
Babenko and Oswald (2019)	200	.29	.16	.41
Benn et al. (2012)	35	− .13	− .21	.44
Benn et al. (2012)	35	.14	− .20	.45
Benn et al. (2012)	25	.34	− .06	.65
Bogosian et al. (2016)	40	.08	− .24	.38
Cole (2015)	149	.15	− .01	.30
Corless et al. (2017)	1811	.32	.28	.36
Corless et al. (2017)	1811	.41	.37	.45
de Souza and Hutz (2016)	432	.50	.43	.57
Dowd and Jung (2017)	193	.16	.02	.29
Dowd and Jung (2017)	192	.36	.23	.48
Dundas et al. (2017)	158	.52	.40	.63
Elander et al. (2014)	112	.15	− .04	.33
Flett (2017)	221	.41	.29	.51
Hung (2015)	466	.35	.26	.42
Hung (2015)	466	.35	.27	.43
Iskender (2009)	390	.01	− .09	.11
Jang et al. (2020)	252	.37	.26	.47
Kemper et al. (2015)	213	.15	.02	.28
Kwan et al. (2009)	260	.39	.28	.49
Kwan et al. (2009)	131	.33	.17	.47
Kwan et al. (2009)	116	.35	.18	.50
Manavipour and Saeedian (2016)	216	.32	.19	.43
Martin and Kennett (2017)	196	.22	.08	.35
Muris et al. (2016)	132	.50	.36	.62
Muris et al. (2017)	157	.23	.08	.37
Nalipay and Alfonso (2018)	620	.21	.13	.28
Neff et al. (2018)	191	.55	.44	.64
Pinto-Gouveia et al. (2012)	100	.65	.52	.75
Pinto-Gouveia et al. (2012)	100	.43	.26	.58
Pudalov (2016)	147	.33	.18	.47
Roos et al. (2019)	109	.48	.32	.61
Ruggiero et al. (2013)	198	.28	.15	.40
Sabaitytė and Diržytė (2016)	80	.33	.12	.51
Salazar (2018)	285	.20	.09	.31
Sirois (2015)	403	.40	.31	.48
Sirois et al. (2015)	155	.43	.29	.55
Sirois et al. (2015)	170	.47	.34	.58
Smeets et al. (2014)	52	.56	.34	.72
St Charles (2010)	151	.63	.52	.71
St Charles (2013)	35	.41	.09	.65
Tsai (2015)	116	.31	.14	.47
Tyer-Viola et al. (2014)	383	.37	.27	.45
Unsworth (2015)	213	.37	.25	.48
Willoughby (2017)	78	.32	.10	.51
Wren et al. (2012)	88	.25	.04	.44
Ziemer (2014)	93	.49	.32	.63
Mean *ES r*		.35	.31	.39

n = total sample size; *r* = correlation; 95% CI = 95% confidence interval; *ES r* = effect size *r*. Benn et al. (a) and (b) used Teaching Self-Efficacy scale and Emotion Regulation at Work Self-Efficacy scale, respectively, among a sample of educators, while Benn et al. (c) used the Everyday Parenting Self-Efficacy scale among a sample of parents. Corless et al. (a) and (b) used an Adherence Self-Efficacy scale and a Chronic Disease Self-Efficacy scale, respectively. Dowd & Jung (a) and (b) used a Self-Regulatory Efficacy scale and a Concurrent Self-Regulatory Efficacy scale, respectively. Hung (a) and (b) used a Session Management Self-Efficacy scale and a Counseling Challenges Self-Efficacy, respectively. Kwan (a), (b), and (c) refer to a USA sample, a different USA sample, and a sample from China, respectively. Pinto-Gouveia (a) and (b) refer to male and female samples, respectively. Sirois (a) and (b) refer to participants with inflammatory bowel disease and arthritis, respectively

were statistically significant for the associations between self-compassion total score and self-efficacy and between self-compassion subscales and self-efficacy. Regarding the latter, results indicated positive associations between self-compassion positive subscales and self-efficacy, and negative associations between self-compassion negative subscales and self-efficacy. The mean power and standard deviations respectively for studies' correlations with self-efficacy were: self-compassion total score (.85, .27), self-knowledge (.88, .18), self-judgment (.79, .30), common humanity (.72, .33), isolation (.83, .27), mindfulness (.96, .08), and over-identification (.74, .23).

Moderating Variables

As can be seen in Table 3, the effect size heterogeneity was statistically significant ($p < .05$) for all relations indicating that moderator variables may a play a role in these relations. We first examined age as a moderating variable. The results (see Table 4) showed that age was not a significant moderator between self-compassion total scores and self-efficacy and between self-compassion subscales and self-efficacy. Next, we examined sample type which is a categorical moderator that included student vs. non-student (mixed sample type had too few studies to be analyzed as a separate category). The purpose was to determine whether student and non-student differed statistically significantly in terms of between-group heterogeneity. In these analyses, total heterogeneity is partitioned into between- and within-group components with between-group heterogeneity = total heterogeneity – between-group heterogeneity (Card, 2012). Sample type was not a statistically significant moderating variable for self-compassion total score and self-efficacy (see Table 5). However, sample type was a statistically significant moderating variable between the self-compassion subscales and self-efficacy. For each of the significant results, non-students had significantly higher effect sizes for self-kindness, common humanity, and mindfulness, and significantly lower effect sizes for self-judgment, isolation, and over-identification, than students.

Publication type included published and unpublished research papers and this was used as a categorical moderator for the relation between self-compassion (and its subscales) and self-efficacy. The purpose was to determine whether published and unpublished research papers differed statistically significantly in terms of between-group heterogeneity. Over-identification did not have sufficient sample sizes to analyze. The results (see Table 6) showed that publication type was a statistically significant moderating variable for common humanity but was not a statistically significant moderating variable for self-compassion total score and self-efficacy and for the other four self-compassion subscales and self-efficacy. For common humanity, published research papers had a stronger effect size for the self-compassion self-efficacy relation than unpublished research papers.

Discussion

The results support our hypothesis of the associations between self-compassion and self-efficacy. Specifically, the self-

Table 2 Study data for random models of five self-compassion subscale scores and self-efficacy score correlations

Study name	*n*	Self-kindess			Self-judgment															
		r	95% CI		*r*	95% CI		*r*	95% CI		*r*	95% CI		*r*	95% CI		*r*	95% CI	
			LL	*UL*		*LL*	*UL*		*LL*	*UL*		*LL*	*UL*		*LL*	*UL*		*LL*	*UL*
Akın and Akın (2015)	299	.61	.53	.68	− .52	− .60	− .43	.51	.42	.59	.65	.58	.71	− .60	− .67	− .52	− .62	− .69	− .54
Eller et al. (2014)	1176	.35	.30	.40	− .29	− .34	− .24												
Gilbertson (2016)	332	.16	.05	.26	− .17	− .27	− .06	.14	.03	.24	.25	.15	.35	− .23	− .33	− .13			
Gilbertson (2016)	332	.18	.07	.28	− .22	− .32	− .12	.07	− .04	.18	.20	.09	.30	− .25	− .35	− .15			
Gilbertson (2016)	332	.17	.06	.27	− .22	− .32	− .12	.07	− .04	.18	.17	.06	.27	− .27	− .37	− .17			
Iskender (2009)	390	.33	.24	.42	− .12	− .22	− .02	.27	.18	.36	.38	.29	.46	− .14	− .24	− .04	− .11	− .21	− .01
Manavipour and Saeedian (2016)	216	.31	.18	.43	− .01	− .14	.12	.20	.07	.32	.26	.13	.38	− .27	− .39	− .14	− .24	− .36	− .11
Martin (2015)	196				− .17	− .30	− .03	.09	− .05	.23	.25	.11	.38	− .15	− .28	− .01	− .16	− .29	− .02
Muris et al. (2016)	132	.78	.70	.84				.80	.73	.85	.83	.77	.88						
Nalipay and Alfonso (2018)	620	.07	− .01	.15	− .23	− .30	− .15	.19	.11	.26	.19	.11	.26	− .12	− .20	− .04	− .09	− .17	− .01
Neff et al. (2018)	191	.44	.32	.55	− .49	− .59	− .37	.44	.32	.55	.47	.35	.57	− .46	− .57	− .34	− .51	− .61	− .40
Sabaitytė and Diržytė (2016)	80	.27	.05	.46	− .22	− .42	.00	.26	.04	.45	.28	.06	.47	− .12	− .33	.10	− .20	− .40	.02
St Charles (2010)	151										.59	.47	.68						
Mean *ES r*		.35	.23	.47	− .25	− .33	− .17	.30	.16	.43	.40	.27	.52	− .27	− .37	− .16	− .29	− .46	− .10

n = total sample size; *r* = correlation coefficient; 95% CI = 95% confidence interval; *ES r* = effect size *r*. Gilbertson (a), (b), and (c) used the Multidimensional Self-Efficacy for Exercise Scale-Task subscale, the Multidimensional Self-Efficacy for Exercise Scale-Coping subscale, and the Multidimensional Self-Efficacy for Exercise Scale-Scheduling subscale, respectively

Table 3 Association between self-compassion and self-efficacy

Self-compassion	*n*	*k*	*ES r*	95% CI		*p*	*Q*	I^2	τ^2
				LL	*UL*				
Total score	12,176	47	.35	.31	.39	.001	219.41***	79.03	.02
Self-kindness	4100	11	.35	.29	.47	.001	179.71***	64.29	.05
Self-judgment	4164	11	− .25	− .33	− .17	.001	72.29***	86.17	.02
Common humanity	3120	11	.30	.16	.43	.001	163.89***	93.90	.06
Isolation	2988	10	− .27	− .37	− .16	.001	87.74***	89.74	.03
Mindfulness	3271	10	.40	.27	.52	.001	204.15***	94.61	.07
Over-identification	1992	7	− .29	− .46	− .10	.003	109.83***	94.54	.07

n = total sample size; *k* = number of groups/effect sizes; *ES r* = effect size *r*; 95% CI = 95% confidence interval; *Q* = heterogeneity in effect sizes; I^2 = proportion of total variation owing to heterogeneity expressed as a percentage; τ^2 = population variance estimate of effect size

***$p < .001$

compassion total score was positively associated with self-efficacy. Regarding the subscales, consistent with our hypothesis, self-judgment, over-identification, and isolation were negatively associated with self-efficacy while self-kindness, common humanity, and mindfulness were positively associated with self-efficacy. These findings suggest that those with high levels of self-compassion are likely to have a high level of self-efficacy. Bandura (1977) posited that one of the sources of self-efficacy is psychological states. For example, a positive mood state can help increase perceptions of capability and lower fear toward performance, which may help strengthen one's sense of self-efficacy (Pajares, 1997). Because self-compassion can help transform negative emotion to positive feelings, the positive emotion it creates may help foster one's sense of self-efficacy. Relatedly, previous research has linked the tendency to react with negative emotions, such as shame, to low perception of self-efficacy (Turner et al., 2002). Because self-compassion helps individuals take a balanced perspective on their shortcomings rather than viewing them through harsh self-criticisms, or over-identification with their negative emotional reactions (Neff, 2003a), those with high self-compassion are likely to have a more positive perceptions of their abilities or perceived self-efficacy than those with low levels of self-compassion.

Table 4 Age as a continuous moderator between self-compassion and self-efficacy

Self-compassion	*n*	$Q_{regression}$	*df*	*p*
Total score	7164	34.97	36	.518
Self-kindness	2697	4.37	5	.497
Self-judgment	2565	2.88	4	.577
Common humanity	1521	4.66	4	.325
Isolation	1389	2.26	3	.522
Mindfulness	1521	3.78	4	.436
Over-identification	1389	2.27	3	.518

n = total sample size; $Q_{regression}$ = heterogeneity accounted for using the linear regression model

Table 5 Students and non-students as categorical moderators between self-compassion and self-efficacy

Self-compassion	Moderator	*k*	*n*	*ES r*	$Q_{between}$	*p*
Total score					.37	.541
	Student	20	4924	.36		
	Non-student	22	2882	.34		
Self-kindness					7.86**	.005
	Student	6	2222	.20		
	Non-student	4	1746	.44		
Self-judgment					12.09***	.001
	Student	7	2418	− .17		
	Non-student	4	1746	− .40		
Common humanity					22.59***	.001
	Student	7	2418	.15		
	Non-student	3	570	.44		
Isolation					10.94***	.001
	Student	7	2418	− .20		
	Non-student	3	570	− .45		
Mindfulness					5.67*	.017
	Student	8	2569	.29		
	Non-student	3	570	.50		
Over-identification					14.99***	.001
	Student	4	1422	− .15		
	Non-student	3	570	− .49		

k = number of groups/effect sizes; *n* = total sample size; *ES r* = effect size *r*; $Q_{between}$ = between group differences in heterogeneity

*$p < .05$; **$p < .01$; ***$p < .001$

Table 6 Publication type as a categorical moderator between self-compassion and self-efficacy

Self-compassion	Moderator	*k*	*n*	*ES r*	$Q_{between}$	*p*
Total score					.63	.429
	Published papers	36	9658	.34		
	Unpublished papers	11	2135	.38		
Self-kindness					3.25	.072
	Published papers	8	3104	.42		
	Unpublished papers	3	996	.17		
Self-judgment					.90	.342
	Published papers	7	2972	− .28		
	Unpublished papers	4	1192	− .20		
Common humanity					6.28*	.012
	Published papers	7	1928	.35		
	Unpublished papers	4	1192	.09		
Isolation					.22	.641
	Published papers	6	1796	− .30		
	Unpublished papers	4	1192	− .23		
Mindfulness					1.72	.189
	Published papers	7	1928	.47		
	Unpublished papers	5	1343	.30		

k = number of groups/effect sizes; *n* = total sample size; *ES r* = effect size *r*; $Q_{between}$ = between group differences in heterogeneity

*$p < .05$

Sample type was a significant moderator in the association between all the self-compassion subscales and self-efficacy. Specifically, the positive associations between the subscales of self-kindness, common humanity, mindfulness, and self-efficacy were significant among non-students but not significant for students. Similarly, the negative associations between the subscales of self-judgment, over-identification, isolation, and self-efficacy were also significant among non-students but not among students. These findings suggest that compared to students, self-compassion plays a significant role in promoting self-efficacy among non-students. Perhaps non-students are more receptive to self-compassion compared to students who might have harder time believing that they deserve kindness and that others also experience similar difficulties as they do (Bluth et al., 2017). In addition, self-compassion might be challenging for young adults who are likely to be immersed in self-reflections, self-evaluations, and comparison with societal standards which might magnify imperfections (Elkind, 1967; Neff, 2003a, 2009). However, sample type was not a moderator between the self-compassion total score and self-efficacy. The discrepant finding could be due to an artifact of smaller sample size for research papers that utilized self-compassion subscales (n = 11) than those that used the self-compassion total scores (n = 38). Alternatively, studies have recently revealed that the self-compassion measures two distinct constructs of self-compassion and self-coldness, rather than the one overall factor of self-compassion (Brenner et al., 2017; Costa et al., 2016; López et al., 2015). Specifically, the self-compassion subfacet consists of the self-kindness, mindfulness, and common humanity subscales while the self-coldness subfacet composes of the negative subscales of self-compassion including self-judgment, over-identification, and isolation. Notably, age was not a significant moderator. This finding can be explained by the inconsistent findings in the literature regarding age differences in self-compassion (e.g., de Souza & Hutz, 2016; Neff & McGehee, 2010).

Publication type was a significant moderator in the association between the common humanity self-compassion subscale and self-efficacy. This association was stronger in published than unpublished research papers. When we examined this further, we noticed that the self-efficacy scores tended to be higher in published papers, which might have higher standards of scientific rigor. Thus, there might be publication bias regarding self-efficacy. However, this could also be an artifact of a relatively small sample size for studies that utilized self-compassion subscales. Regarding total self-compassion and self-efficacy scores, publication type was not a significant moderator, suggesting that mean effect size correlations did not differ significantly based on the type of publication.

Clinical Implications, Limitations, and Future Research

Self-efficacy can influence one's psychological states, behavior, as well as motivation (Bandura, 1977). In

addition, because people can possess self-efficacy in different domains, it can affect people's performance or success in areas such as school, work, friendship, and parenting (e.g., Manavipour & Saeedian, 2016). For these reasons, understanding factors that are conducive to one's self-efficacy may have beneficial outcomes. Our study suggests that cultivating mindfulness, common humanity, and self-kindness while discouraging over-identification with negative emotions, isolation, and self-judgment can facilitate self-efficacy among non-students. In clinical practice, counselors may engage clients low in self-efficacy in interventions such as writing a compassionate letter to yourself (Shapira & Mongrain, 2010) and self-compassion meditation training (Albertson et al., 2015). These self-compassion interventions may protect clients' self-efficacy during times of difficulty and failure (Neff et al., 2005) in addition to helping them feel control over their performance. Furthermore, bringing self-compassion practices or training to workplace or other settings as a mean to create a culture of self-compassion may also indirectly foster persistence and commitment to activities and recover quickly from setbacks through increased self-efficacy. Theoretically, it is likely that self-compassion helps protect one's sense of competence and fosters a sense of mastery, which are related to perceived self-efficacy. Nevertheless, because the majority of the studies we included were correlational in nature, it is plausible that improving one's sense of self-efficacy could also promote self-compassion.

Similar to other meta-analytic studies, our study bears the limitations of the studies included in the analysis. While we aimed to include studies with measurements that have shown acceptable reliability, there were studies we included that had poor reliability for the self-compassion subscales (e.g., Sabaitytė & Diržytė, 2016). Similarly, all the studies administered self-reports of these measures, which could lead to potential bias. Also, the majority of the studies we included relied on a cross-sectional design, which does not allow for inferences about causality or confirm stability of the self-compassion and self-efficacy relation over time. A few studies have examined self-compassion interventions as well as experimentally manipulated self-compassion (e.g., Hermanto & Zuroff, 2018; Neff & Germer, 2013). A casual association can be determined in the future by including research that manipulates self-compassion to examine its causal effect on self-efficacy. Analysis of longitudinal studies of the association between self-compassion and self-efficacy can help determine whether this association is unidirectional or bidirectional. Furthermore, many of the studies we included lacked representative samples, which limits the generalizability of our findings. In addition, we did not have enough samples to analyze every facet of the two constructs, for example, it was not possible to conduct moderation analysis between some of the self-compassion subscales and self-efficacy. However, as there has been increased research being conducted on self-compassion, analyses for all self-compassion subscales may become possible. We also did not examine the association between self-compassion and specific self-efficacy scales. In this study, the self-efficacy variable consisted of a very heterogenic types of self-efficacy scales and therefore was not adequate for a detailed analysis. Future research with specific self-efficacy measures will help gain new understanding of the association between self-compassion and self-efficacy.

The current study evaluated several basic moderators; however, more work is needed to explore moderators of the benefits of self-compassion. Cognitive reappraisal, an emotion-regulation strategy, might influence the association between self-compassion and self-efficacy. Similarly, psychological flexibility and perfectionism might be potential moderators (Barnard & Curry, 2011). Lastly, with more research examining the two independent constructs of self-compassion and self-coldness rather than the self-compassion as a composite score, examining the association between these two factors and self-efficacy can be the focus of future studies.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s12671-021-01626-4.

Declarations We have followed the ethical principles of the American Psychological Association in conducting this study and in the treatment of research participants. We do not have a financial interest or other conflict of interest that influenced the conduct of this study or the reporting of results.

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