SELF-COMPASSION PREDICTS STUDENT ATHLETES' NEGATIVE AND POSITIVE AFFECT AFTER REMEMBERING EXERCISE-RELATED SETBACKS

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ABSTRACT. Introduction. Previous findings show that self-compassion is an important resource for athletes, being associated with less fear of failure and better adaptation to obstacles. **Objective.** The study examines the role of self-compassion in predicting student athletes' negative and positive affect after recalling a negative, shameful experience of physical training. It examines the extent to which self-compassion can predict the different types of positive (soothing and activating) and negative affect in this context. **Method.** In a correlational design, self-compassion levels were measured in N = 62 student-athletes using the Self-Compassion Scale- Short Form. After remembering a training-related setback, levels of soothing and activating positive affect were measured using the Types of Positive Affect Scale, and levels of negative affect were assessed with the Emotional Distress Profile. **Results.** Results indicated that self-compassion is a significant positive predictor of both types of positive affect and a negative predictor of negative affect after recalling a negative shameful experience related to physical training. **Conclusion.** Confirming previous findings, self-compassion was a relevant construct in the sport context, predicting students' affect. These results suggest that interventions to improve self-compassion may be adaptive for athletes, and may improve their affect, probably leading to more optimal sport motivation, however, interventional studies are needed to investigate the effectiveness of self-compassion interventions in optimizing athletes' affect and motivation.

Keywords: self-compassion, athletes, affect, exercise.

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REZUMAT. *Auto-compasiunea prezice afectele negative și pozitive ale studenților sportivi în urma reamintirii eșecurilor legate de exerciții fizice.* **Introducere.** Rezultatele anterioare arată că auto-compasiunea este o resursă importantă pentru sportivi, fiind asociată cu o frică mai mică de eșec și o mai bună adaptare la obstacole. **Obiectiv.** Studiul examinează rolul auto-compasiunii în prezicerea afectelor negative și pozitive ale studenților sportivi după reamintirea unei experiențe negative și stânjenitoare de la antrenamentul fizic. Studiul examinează măsura în care auto-compasiunea poate prezice diferitele tipuri de afecte pozitive (liniștitoare și activatoare) și negative în acest context. **Metode.** Într-un design corelațional, nivelurile de auto-compasiune au fost măsurate la N = 62 de studenți-atleți folosind Scala de Auto-Compasiune - Forma Scurtă. După ce și-au amintit de un eșec legat de antrenamente fizice, nivelurile de afecte pozitive liniștitoare și activatoare au fost măsurate cu ajutorul Scalei Tipurilor de Afecte Pozitive, iar nivelurile de afecte negative au fost evaluate cu ajutorul Profilului Distresului Emoțional. **Rezultate.** Rezultatele au indicat că auto-compasiunea este un predictor pozitiv semnificativ al ambelor tipuri de afecte pozitive și un predictor negativ al afectelor negative după rememorarea unei experiențe rușinoase legate de antrenamentul fizic. **Concluzii.** Confirmând constatările anterioare, auto-compătimirea a fost un construct relevant în contextul sportiv, prezicând afectele studenților. Aceste rezultate sugerează că intervențiile de îmbunătățire a auto-compasiunii pot fi eficiente pentru sportivi și pot îmbunătăți afectele acestora, ducând probabil la o motivație sportivă mai optimă, însă sunt necesare studii intervenționale pentru a investiga eficiența intervențiilor de auto-compasiune în optimizarea afectului și motivației sportivilor.

Cuvinte cheie: auto-compasiune, sportivi, afect, exercițiu fizic.

INTRODUCTION

The context of sports and training can present many challenges, which can easily lead to perfectionism-related distress. Expectations related to performance, appearance, and interpersonal expectations can appear in large numbers, leading to diverse cognitive, emotional, and behavioral responses, which can give rise to additional demands (Magnus et al., 2010; Mosewich, 2020). Self-compassion is one approach that has great potential in helping athletes to adapt effectively to these challenges, supporting them to reach their performance potential while maintaining and promoting high levels of well-being (Mosewich, 2020).

Self-compassion is a recently introduced concept in the science of psychology, based on Buddhist tradition, as an antidote to maladaptive perfectionism (Neff 2003a, 2003b). It is a healthy way to relate to one's pain

and suffering, which are inevitable parts of human life. Instead of self-criticism, it involves a gentle, supportive attitude toward oneself (Germer, 2009; Neff, 2003a). According to Gilbert's (2009a, 2009b, 2014) definition of compassion, self-compassion means sensitivity to own suffering, accompanied by the intention to reduce or prevent it. Self-compassion has three main components: *mindfulness* rather than *over-identification*, *common humanity* rather than *isolation*, and *self-kindness* rather than *self-judgment* (Neff 2003a, 2003b). Meta-analyses have found a strong relationship between self-compassion and psychological distress in adults (MacBeth & Gumlay, 2012) and adolescents (Marsh et al., 2017). Self-compassion is related not only to psychopathology, but also to indicators of well-being, including positive affect (Zessin et al., 2015), correlates with physical health, with health behaviors in general (Phillips & Hine, 2021; Sirois et al., 2015; Terry & Leary, 2011), and also with physical activity (Wong et al., 2021). Self-compassion can be learned especially during face-to-face group interventions, and the acquisition of self-compassion has a range of benefits (Ferrari et al., 2019; Póka et al., 2023).

Self-compassion is also relevant in the context of physical training and can influence participation in physical activity, motivation to exercise, and even the level of emotional distress experienced when facing challenges. Self-compassion has been associated with a lower fear of failure and better adaptation to obstacles (Magnus et al., 2010; Mosewich, 2020; Mosewich et al., 2011; Mosewich et al., 2013; Phillips & Hine, 2021; Semenchuk et al., 2018). Athletes with high self-compassion are more likely to recall self-determined training goals and are more likely to recommit to their goals, have less rumination, and have fewer negative emotions following a sports injury (Semenchuk et al., 2018). There is also evidence that interventions aiming to improve self-compassion can be effective in young female athletes, with sustained reductions in self-criticism, rumination, and worrying about setbacks after just one week (Mosewich et al., 2013). For a current review of studies examining the role of self-compassion in sports settings, see Cormier and colleagues' (2023) study.

Sirois et al. (2015) found that self-compassion affects health behaviors by decreasing negative affect and increasing positive affect (negative and positive affect mediated the relationship between self-compassion and health behaviors), suggesting that different types of affect may be particularly important in the context of health behaviors, including physical exercise. We know that physical activity (both cardio and strength training) generally makes people feel better. Evidence suggests that during physical activity and physical training, positive affective states may be associated with short- and long-term positive benefits (Hall et al., 2005; Mutrie & Faulkner, 2012; Ekkekakis, 2003).

Positive affect is not just a simple response to physical activity but can also play a significant role in motivating behavior (Crocker et al., 2004). Our choices are not always based on logical analyses or rational cost-benefit analyses, but we also use emotions when deciding whether or not to engage in a particular behavior (Kiviniemi et al., 2007). For example, results show that increases in positive emotions predict subsequent participation in physical activity for up to six to twelve months. Repeated experiences of positive affect during and after physical exercise may support long-term participation in such activities (Guérin & Fotier, 2012; Kiviniemi et al., 2007). Therefore, the affect associated with exercise is very important, and it is also essential to investigate factors that may influence the affective impact of the training experience, even in the face of adversity, such as self-compassion (Semenchuk et al., 2018).

Although the PANAS (Positive and Negative Affect Scale; Watson & Clark, 1988) is the most commonly used instrument to measure affect, it only distinguishes between positive and negative affect, and only captures the valence of the affect. However, is also very important to take into consideration the arousal level (the activation dimension) too (Ekkekakis, 2003; Russell, 2003). Gilbert's (2009a, 2009b, 2014) neuroscience-based theory (Depue & Morrone-Strupinsky, 2005) describes the existence of three emotion-regulation systems: the threat–defense system, responsible for threat detection, the drive system, responsible for motivation and resource-seeking, and the soothing system, responsible for reassurance and comforting. According to the theory, there are two types of positive affect in line with these systems: activating positive affect and soothing positive affect (Gilbert et al., 2008).

Another important distinction, based on Gilberts' theory (2009a, 2009b, 2014), is between self-coldness and self-warmth. Self-warmth refers to the average of the positive dimensions of self-compassion (mindfulness, common humanity, and self-kindness), while self-coldness refers to the average of the negative dimensions of self-compassion (over-identification, isolation, and self-judgment). The theory assumes that self-coldness is related to the threat system and self-warmth is related to the soothing system, so it is important to make this distinction and not just consider the role of global self-compassion. The evidence from the meta-analyses (Chio et al, 2022; Muris & Petrocchi, 2016) also points out the importance of this distinction, because indicators of distress (e.g., negative affect, stress, depression, etc.) have a stronger relationship with self-coldness, but indicators of well-being in general have a stronger relationship with self-warmth.

To the best of the authors' knowledge, only one study has examined the relationships between self-compassion and different types of positive and negative affect in a training context (Póka et al., 2022). It investigated the

predictive power of self-compassion (and separately self-warmth and self-coldness) for different types of positive and negative affect on changes in workout schedules during Covid-19. However, no study has investigated these relationships in student athletes' by considering their state affect after recalling a negative, shameful training experience.

GOALS AND HYPOTHESES

Based on the theories and results presented, this study aimed to investigate the predictive power of self-compassion on student athletes' negative and positive affect after recalling a negative, shameful training experience. It was hypothesized that self-compassion would be a negative predictor of athletes' negative affect, a positive predictor of their positive affect in general, and separately for both types of positive affect (soothing and activating). We also aimed to explore the difference in the predictive power of self-compassion for these two different types of positive affect (activating and soothing positive affect).

We further aimed to investigate separately the predictive power of self-warmth and self-coldness in predicting affect. We hypothesized that self-coldness would have a stronger predictive power than self-warmth for the negative affect of student athletes after recall and that self-warmth would be a stronger predictor of positive affect than self-coldness. We also tested the explanatory power of this model separately for the two types of positive affect.

METHOD

Participants

The participants of our study were 62 first-year undergraduate students of the Faculty of Physical Education and Sport of the Babeş-Bolyai University (n = 28 males, 54.8%; and n = 28 females, 45.2%), aged between 18-22 years (M = 19.37, SD =.79). The G-power results indicated that a minimum of 55 participants would have been required for the study to have adequate statistical power (ß = 0.80) at a significance level of p = 0.05 for the anticipated mean effect size (f^2=.15).

Instruments

Self-Compassion

Self-compassion, self-warmth, and self-coldness were measured with the Self-Compassion Scale – Short Form (SCS-SF; Raes et al., 2011), which is a 12-item version of the original Self-Compassion Scale (SCS; Neff, 2003). The SCS-SF measures each component of self-compassion, the three negative- (self-judgment, isolation, and over-identification), and the three positive components (self-kindness, common humanity, and mindfulness) with two items. For example, „When I fail at something important to me, I tend to feel alone in my failure" is an item to measure isolation. Answers are to be given on a five-point scale ranging from 1 (almost never) to 5 (almost always). The self-warmth sub-scale scores were calculated by averaging the responses to items that measure the positive components of self-compassion (self-kindness, common humanity, and mindfulness), the compassionate responses; and self-coldness was calculated by averaging the responses to items that measure the negative components of self-compassion (self-judgment, isolation, and over-identification), the uncompassionate responses towards the self. The global score was calculated by averaging the responses to all items after that negative item which measures uncompassionate responses (i.e., self-judgment, isolation, and over-identification) were reverse-coded. Higher self-compassion, self-coldness, and self-warmth scores indicated higher levels of trait self-compassion, self-coldness, and self-warmth respectively.

The scale has good psychometric characteristics. In this study, the internal consistency for self-compassion as a complex indicator ($\alpha = .737$) and for self-coldness was acceptable ($\alpha = .754$), but for self-warmth was poor-questionable ($\alpha = .582$).

Positive Affect

The Types of Positive Affect Scale (Gilbert et al., 2008) was used to measure the levels of positive affect. The scale consists of three subscales, it measures three types of positive affect (*activating-, relaxing-, and soothing positive affect*). The activating positive affect is measured with eight items (e.g., "Active", "Dynamic", "Excited", etc.), the soothing positive affect is measured with four items (e.g., "Secure", "Safe", etc.), and the relaxing positive affect with six items (e.g., "Relaxed"). Answers are to be given on a five-point scale ranging from 1 to 5, indicating to which the given affect was characteristic of their current experience (positive affect was measured as a state). The global scores were determined by summing up all responses to items. The scores of the two specific subscales of interest (soothing and activating positive affect) were

calculated by summing up the responses to specific items. Higher scores indicate higher levels of positive affect. For this sample, the internal consistency of the global positive affect (α = .936) and activating positive affect sub-scale were excellent (α = .927), and the soothing positive affect sub-scale was acceptable (α = .692). Gilbert et al. (2008) found similar internal consistencies for soothing positive affect (α = 0.73), however, we found greater internal consistency for activating positive affect compared with their results (α = 0.83).

Negative Affect

To measure negative affect, we used the abbreviated version of the Emotional Distress Profile (Profilul Distresului Emoțional - PDE; Opris & Macavei, 2005). The scale was developed and validated in Romania. It has good psychometric properties and excellent internal consistency as a complex indicator of emotional distress (α = 0.94). The original scale consists of 26 items that describe different negative affect such as „depressed", „anxious" or „sad". In our study, we used 12 items evaluated on a five-point Likert scale to determine the extent to which the given affect was characteristic of their current state (negative affect was measured as state). Higher scores indicate higher levels of negative affect. For this sample, the internal consistency for the abbreviated version of the scale was also excellent (α = .921).

Procedure and design

The research was carried out with students of the Faculty of Sport at the Babeș-Bolyai University, during the seminar of the Educational Psychology course within the pedagogical module. After voluntarily agreeing to participate and providing online consent, participants completed an online structured survey using Google Forms. First, they had to provide demographic information and fill out the scale measuring self-compassion. After completing the scale, participants were asked to recall and describe in as much detail as possible a training setback, an unpleasant, shameful training experience, for that they criticized themselves. After describing the event, they had to complete the scales measuring the negative and positive affect they were currently experiencing (state affect).

Analytical procedure

For statistical analyses, we used the SPSS 20 software. The internal consistency of scales was tested using Cronbach Alpha. Following George & Mallery's (2003) recommendations we interpret the Cronbach Alpha values

as follows: α > 0.9 are indicative of excellent, α > 0.8 of good, α > 0.7 of acceptable, α > 0.6 of questionable, α > 0.5 of poor, and α < 0.5 of unacceptable indices of internal consistency. Pearson's correlation analysis was used to assess the relationship between measured variables, and for hypotheses testing, linear regression analyses were conducted, and F statistics with their significance level, R^2, and β were reported.

RESULTS

Descriptive statistics and preliminary analyses

First, we analyzed the descriptive statistics of the measured variables. Results are presented in Table 1.

Table 1. Descriptive statistics of the main quantitative variables (N = 62)

Variable	Min.	Max.	M	SD	Skewness		Kurtosis	
					Statistic	SE	Statistic	SE
Self-compassion	1.67	4.5	3.13	0.60	-.090	.304	-.159	.599
Self-coldness	1.17	4.67	2.96	.84	-.159	.304	-.514	.599
Self-warmth	1.83	4.33	3.23	.64	-.218	.304	-1.024	.599
Positive Affect	35	90	66.72	13.60	-.131	.304	-.859	.599
Soothing Positive Affect	8	20	14.37	3.26	-.246	.304	-.665	.599
Activating Positive Affect	14	40	30.24	6.94	-.367	.304	-.687	.599
Negative Affect	12	46	22.62	8.91	.821	.304	-.060	.599

The correlations between the measured variables are presented in Table 2.

Table 2. Correlations between measured variables (N = 62)

	1.	2.	3.	4.	5.	6.	7.
1. Self-compassion	-						
2. Self-coldness	-.866**	-					
3. Self-warmth	.752**	-.321*	-				
4. Positive affect	.464**	-.383**	.373**	-			
5. Soothing positive affect	.414**	-.332**	.345**	.801**	-		
6. Activating positive affect	.388**	-.287*	.357**	.937**	634**	-	
7. Negative affect	-.460**	.508**	-.201	-.515**	-.457**	-.404**	-

Notes: ** Correlation is significant at the .01 level (2-tailed)

To provide the prerequisites for a simple linear regression, we examined whether the relationships between different types of affect and self-compassion were linear, and we also examined the normal distribution of residuals and homoscedasticity. Our data met all three preconditions.

Hypotheses testing

To test the first hypothesis, we examined the predictive power of self-compassion on negative affect by simple linear regression. The model showed a significant fit, $F(1, 60) = 16.07$, $p < .001$, $R^2 = 0.211$, that is, self-compassion explains the variability of negative affect in 21.1%, thus it was a significant negative predictor ($\beta = -.46$, $p < .01$). Next, we examined the predictive power of self-compassion on positive affect. In this case, too, the model showed a significant fit, $F(1, 60) = 16.45$, $p < .001$, $R^2 = 0.215$, that is, self-compassion explains the variability of positive affect in 21.5%, it was a significant positive predictor ($\beta = .46$, $p < .01$).

Testing the predictive power of self-compassion on the two types of positive affect separately, for both types of affect, we found significant results. Self-compassion explains the variability of soothing positive affect in 17.1%, $F(1, 60) = 12.38$, $p = .001$, $R^2 = 0.171$), it was a significant positive predictor ($\beta = .41$, $p < .01$). For activating positive affect, the model also fitted the data, $F(1, 60) = 10.65$, $p = .002$, $R^2 = 0.151$, self-compassion explained the variability of activating positive affect in somewhat less extent than the variability of soothing positive affect (15,1%), but it was a significant predictor for activating positive affect too ($\beta = .38$, $p < .01$). The results of regression analyses are presented in Table 3. Based on these results, our first hypothesis was confirmed.

Table 3. Results of regression analyses (N = 62)

	β	p	F	p	R²
Negative affect					
Self-compassion	-.46	<.01	16.07	< .001	.211
Self-warmth	-.04	.71	10.32	< .001	.259
Self-coldness	49	<.01			
Positive affect					
Self-compassion	.46	<.01	16.45	< .001	.215
Self-warmth	.27	.025	8.15	.001	.217
Self-coldness	-.29	.019			
Soothing positive affect					
Self-compassion	.41	<.01	12.38	.001	.171
Self-warmth	.26	.038	6.20	.004	.174
Self-coldness	-.24	.053			
Activating positive affect					
Self-compassion	.38	<.01	10.65	.002	.151
Self-warmth	.29	.022	5.64	.006	.161
Self-coldness	-.19	.13			

Self-compassion predicted both student-athletes' negative and positive affect after remembering a negative, shameful physical training experience, regarding they were self-critical.

To test the second hypothesis, we examined separately the predictive power of self-coldness and self-warmth on negative affect and positive affect. For the model predicting negative affect our data fit the model significantly, $F(2, 59) = 10.32$, $p < .001$, $R^2 = 0.259$, that is, it explains the variability of negative affect in 25.9%. Self-coldness was a significant positive predictor ($\beta = .49$, $p < .001$), however self-warmth ($\beta = -.04$, $p = .71$) was not. In the case of positive affect in general our data also fit the model significantly, $F(2, 59) = 8.15$, $p = .001$, $R^2 = 0.217$, that is, it explains the variability of positive affect in 21.7%. For positive affect in general, both self-coldness ($\beta = -.294$, $p = .019$) and self-warmth ($\beta = .279$, $p = .025$) were significant predictors.

In our study, we also explored the role of self-warmth and self-coldness in predicting the two major types of positive affect. In both cases, our data fitted the model significantly. The model explained the variability of soothing positive affect in 17.4%, $F(2, 59) = 6.20$, $p = .004$, $R^2 = 0.174$. For soothing positive affect, self-warmth was a significant positive predictor ($\beta = .26$, $p = .038$), however, self-coldness ($\beta = -.24$, $p = .053$) was not. This model also explained the variability of activating positive affect 16.1%, $F(2, 59) = 5.64$, $p = .006$, $R^2 = 0.161$. Again, self-warmth was a significant positive predictor ($\beta = .29$, $p = .022$), however, self-coldness ($\beta = -.19$, $p = .13$) was not. Therefore, our second hypothesis was also confirmed, showing that self-coldness is more important in predicting negative affect after recalling a negative training experience and that self-warmth is more relevant in predicting both types of positive affect.

DISCUSSION

This study aimed to investigate the predictive power of self-compassion, self-warmth, and self-coldness on student athletes' affect after recalling a negative physical training experience, regarding they were self-critical. Based on previous results and theories (Chio et al., 2021; Depue & Morrone-Strupinsky, 2005; Gilbert, 2009a, 2009b, 2014; Gilbert et al., 2008; Muris & Petrocchi, 2016; Neff 2003a, 2003b) we expected that self-compassion will be a positive predictor for positive affect (both types of positive affect: activating and soothing) and will be a negative predictor for negative affect.

The results of testing the first hypothesis confirmed our expectations, that is, self-compassion predicted both negative and positive affect to the same extent and in different directions after recall. This finding is in line with the literature showing that self-compassion is associated with emotional distress,

including negative affect, and with emotional well-being, including positive affect (MacBeth & Gumlay, 2012; Ferrari et al., 2020; Póka et al., 2023), in the context of physical exercise too (Magnus et al., 2010; Mosewich, 2020; Semenchuk et al., 2018).

The results of testing the second hypothesis also confirmed our expectations. Based on meta-analytical findings (Chio et al., 2021; Muris & Petrocchi, 2016) we expected that self-coldness will have greater predictive power for negative affect than self-warmth, and that self-warmth will have greater predictive power for positive affect than self-coldness. Accordingly, the results indicated that only self-coldness is a significant predictor of negative affect. For predicting positive affect in general, both components of self-compassion (i.e., self-coldness and self-warmth) are similarly important, but when their role was analyzed separately for different types of positive affect, the results showed that only self-warmth is a significant predictor of these, self-coldness is not. These results reinforce the assumptions of Gilbert's (2009a, 2009b, 2014) theory and sustain the importance of the distinction between self-coldness and self-warmth. The results also have relevance for sport-related self-compassion interventions, suggesting that to reduce negative affect it may be preferable to focus on reducing self-coldness, but to improve soothing- and activating positive affect it may be preferable to focus on cultivating athletes' self-warmth levels.

In parallel to the results, we also have to take into consideration the limitations of our research, which include the correlational nature. It can be hypothesized that self-compassion may prevent negative affective consequences of training setbacks, but longitudinal and experimental studies are needed to support this idea. It can also be hypothesized that the development of self-compassion may be effective in reducing the level of negative affect associated with training setbacks and may optimize training motivation, however, research using a randomized controlled intervention design is needed to reach this conclusion. Another limitation was that we had poor internal consistency for self-warmth, so the results should be taken into account accordingly.

CONCLUSION

In conclusion, our results supported the idea that self-compassion predicts student athletes' negative and positive affect (both types of positive affect: soothing and activating) after recalling an exercise setback, a negative, shameful physical training experience. Considering the two dimensions of self-compassion separately, that is, self-coldness (negative dimensions, uncompassionate attitudes

towards oneself) and self-warmth (positive dimensions, compassionate attitudes towards oneself), results showed that only self-coldness was a significant predictor of negative affect levels, and only self-warmth was a significant predictor of different types of positive affect.

REFERENCES

Chio, F. H. N., Mak, W. W. S., & Yu, B. C. L. (2021). Meta-analytic review on the differential effects of self-compassion components on well-being and psychological distress: The moderating role of dialecticism on self-compassion. *Clinical Psychology Review, 85*, Article 101986. https://doi.org/10.1016/j.cpr.2021.101986

Cormier, D., Kowalski, K. C., Ferguson, L. J., Mosewich, A. D., McHugh, T.-L. F., & Rötlin, P. (2023). Self-compassion in sport: a scoping review. International Review of Sport and Exercise Psychology. https://doi.org/10.1080/1750984X.2022.2161064

Crocker, P.R.E., Kowalski, K.C., Hoar, S.D. & McDonough, M.H. (2004). Emotion in Sport across Adulthood. In M.R., Weiss (Ed.) *Developmental Sport and Exercise Psychology: A Lifespan Perspective*, 12, pp. 337-359, Fitness Information Technology, USA.

Depue, R. A., & Morrone-Strupinsky, J. V. (2005). A neurobehavioral model of affiliative bonding. *Behavioral and Brain Science, 28*(3)*, 313-395. https://doi.org/10.1017/s0140525x05000063

Ekkekakis, P. (2003). Pleasure and displeasure from the body: Perspectives from exercise. *Cognition and Emotion*, *17*(2), 213-239. https://doi.org/10.1080/02699930302292

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness, 10*(8), 1455–1473. https://doi.org/10.1007/s12671-019-01134-6

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.).* Boston: Allyn & Bacon.

Germer, C.K. (2009). *The Mindful Path to Self-Compassion. Freeing Yourself from Destructive Thoughts and Emotions.* The Guilford Press

Gilbert, P. (2009a). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment. 15*(3), 199-208. https://doi.org/10.1192/apt.bp.107.005264

Gilbert, P. (2009b). The nature and basis for compassion focused therapy. *Hellenic Journal of Psychology, 6*(3), 273-291.

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6-41. https://doi.org/10.1111/bjc.12043

Gilbert, P., McEwan, K., Mitra, R., Franks, L., Richter, A., & Rockliff, H. (2008). Feeling safe and content: A specific affect regulation system? Relationship to depression, anxiety, stress, and self-criticism. *The Journal of Positive Psychology*, *3*(3), 182-191. https://doi.org/10.1080/17439760801999461

Guérin, E. & Fotier, M.S. (2012). Situational motivation and perceived intensity: Their interaction in predicting changes in positive affect from physical activity. *Journal of Obesity. 12*, 269320 http://doi.org/10.1155/2012/269320

Hall, E., Chmelo, E., DeWitt, R., Kostura, C., Morrison, J. & Miller, P. (2005). Do you feel the pump? Examination of affective responses to different modes of resistance training in college females. In T. Morris (Ed.), *Proceedings of the 11th World Congress of Sport Psychology*. Sydney, Australia: International Society of Sport Psychology.

Kiviniemi, M.T, Voss-Humke, A.M. & Seifert, A.L. (2007). How do I feel about the behavior? The interplay of affective associations with behaviors and cognitive beliefs as influences on physical activity behavior. *Health Psychology, 26*(2), 152-158. https://doi.org/10.1037/0278-6133.26.2.152

MacBeth, A., & Gumley, A. (2012). Exploring compassion: a meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*(6). 545-552. https://doi.org/10.1016/j.cpr.2012.06.003

Magnus, C. M. R., Kowalski, K. C., & McHugh, T.-L. F. (2010). The role of self-compassion in women's self-determined motives to exercise and exercise-related outcomes. *Self and Identity, 9*(4), 363–382. https://psycnet.apa.org/doi/10.1080/15298860903135073

Marsh, I. C., Chan, S. W. Y., & MacBeth, A. (2018). Self-compassion and psychological distress in adolescents – a meta-analysis. *Mindfulness (N Y), 9*(4), 1011-1027. https://doi.org/10.1007/s12671-017-0850-7

Mosewich, A. D. (2020). Self-compassion in sport and exercise. In G. Tenenbaum & R. C. Eklund (Eds.). *Handbook of sport psychology* (4th ed., pp. 158-176). John Wiley & Sons, Inc. https://doi.org/10.1002/9781119568124.ch8

Mosewich, A. D., Crocker, P. R. E., Kowalski, K. C., & DeLongis, A. (2013). Applying self-compassion in sport: An intervention with women athletes. *Journal of Sport & Exercise Psychology, 35*(5), 514-524. https://doi.org/10.1123/jsep.35.5.514

Mosewich, A. D., Kowalski, K. C., Sabiston, C. M., Sedgwick, W. A., & Tracy, J. L. (2011). Self-compassion: a potential resource for young women athletes. *Journal of Sport & Exercise Psychology, 33*(1), 103-123. https://doi.org/10.1123/jsep.33.1.103

Muris, P., & Petrocchi, N. (2016). Protection or vulnerability? A meta-analysis of the relations between the positive and negative components of self-compassion and psychopathology. *Clinical Psychology and Psychotherapy, 24*(2), 373-383. https://doi.org/10.1002/cpp.2005

Mutrie, N.& Faulkner, G. (2012). Physical activity: Positive psychology in motion. In P. A. Linley, & S. Joseph (Eds.), *Positive Psychology in Practice* (pp. 146-164). Hoboken. https://doi.org/10.1002/9780470939338.ch9

Neff, K. (2003a). Self-compassion: an alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, *2*(2), 85-101. https://doi.org/10.1080/15298860309032

Neff, K. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223–250. https://doi.org/10.1080/15298860309027

Opriş, D., & Macavei, B. (2005). The distinction between functional and dysfunctional negative emotions: An empirical analysis. *Journal of Cognitive and Behavioral Psychotherapies, 5*(2), 181–195.

Phillips, W., & Hine, D.W. (2021). Self-compassion, physical health, and health behaviour: a meta-analysis. *Health Psychology Review*, *15*(1), 113-139. https://doi.org/10.1080/17437199.2019.1705872

Póka, T., Barta, A., & Mérő, L. (2022). Predictive power of self-compassion in anticipating positive and negative workout-related emotions during COVID-19. *European Journal of Applied Positive Psychology, 6*(14), 1-10.

Póka, T., Fodor, L-A., Barta, A., & Mérő, L. (2023). A systematic review and meta-analysis on the effectiveness of self-compassion interventions for changing university students' positive and negative affect. *Current Psychology,* http://dx.doi.org/10.1007/s12144-023-04834-4

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy, 18*(3), 250–255. https://doi.org/10.1002/cpp.702

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review, 110*(1), 145–172. https://doi.org/10.1037/0033-295X.110.1.145

Semenchuk, B. N., Strachan, S. M., & Fortier, M. (2018). Self-compassion and the self-regulation of exercise: Reactions to recalled exercise setbacks. *Journal of Sport and Exercise Psychology, 40*(1), 31-39. https://doi.org/10.1123/jsep.2017-0242

Sirois, F. M., Kitner, R., & Hirsch, J. K. (2015). Self-compassion, affect, and health-promoting behaviors. *Health Psychology*, *34*(6), 661-669. https://doi.apa.org/doi/10.1037/hea0000158

Terry, M.L., & Leary, M.R. (2011). Self-Compassion, self-regulation, and health. *Self and Identity*, *10*(3), 352-362. https://psycnet.apa.org/doi/10.1080/15298868.2011.558404

Watson, D. & Clark, L.A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 64*(6), 1063-1070.

Wong, M. Y. C., Chung, P.-K., & Leung, K.-M. (2021). The relationship between physical activity and self-compassion: A systematic review and meta-analysis. *Mindfulness, 12*, 547-563. https://doi.org/10.1007/s12671-020-01513-4

Zessin, U., Dickhauser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: A meta-analysis. A*pplier Psychology: Health and Well-Being*, *7*(3), 340-364. https://doi.org/10.1111/aphw.12051