

**A Review of the Literature on the Relationship Between Coping Style and the
Development of Athlete Burnout**

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Abstract

Background Due to the rising number of athletes suffering from burnout, it is of relevance to look into vulnerabilities that can increase the likelihood to develop burnout.

Objective The aim of this paper was to review the literature on the relationship between coping styles and the development of athlete burnout from the perspective of the Stress Response Network Model.

Methods PsychINFO, MEDLINE, and SocINDEX were used to perform a systematic search to find the existing relevant literature. Search terms were related to 'coping', 'athletes', and 'burnout'. Studies were included if they measured the relationship between coping style and burnout amongst athletes. A division between active coping style and passive coping style was made.

Results Based on the inclusion and exclusion criteria, a total of 15 papers were included in the systematic review. Studies that measured the relationship between active coping style and the development of athlete burnout revealed that there was a negative relationship between the two constructs. Studies that measured passive coping style showed a positive relationship with the onset of athlete burnout.

Conclusions This systematic review concluded that coping style and athlete burnout are related constructs. The use of an active coping style can be seen as a protective mechanism for developing burnout and the use of a passive coping style can be seen as a vulnerability for the onset of athlete burnout. Further research could be focused on the identification of conditions under which athletes adopt a certain coping style and other stressors and stress responses that are related to athlete burnout.

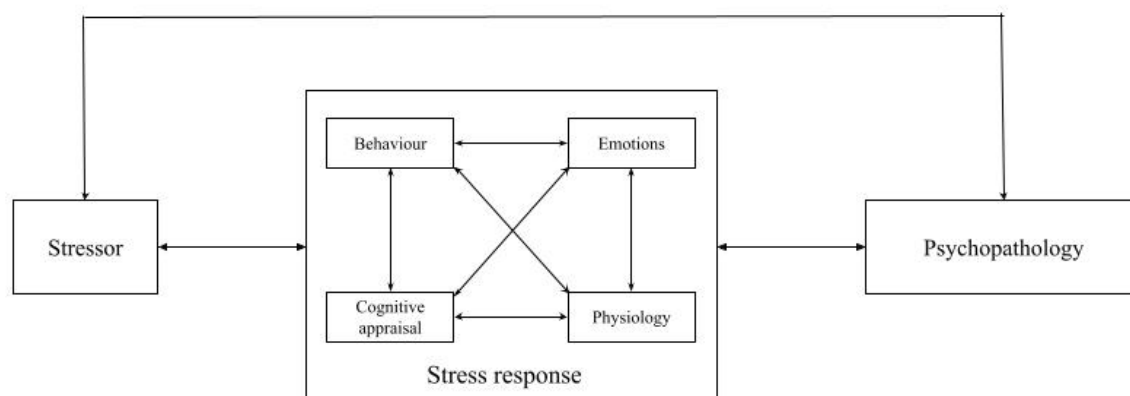
Keywords: coping style, athletes, burnout, Stress Response Network Model, systematic review

A review of the literature on the Relationship Between Coping Style and the Development of Athlete Burnout

More and more athletes publicly state that they are dealing with stress, injuries, and even burnout. There is a rising awareness of the mental aspect of being an elite athlete, and in fact, increasing amounts of athletes are quitting their sports careers because of burnout-related problems (Verweire, 2021). An example is Simone Biles, who withdrew from the team finale in gymnastics during the Olympic Games of Tokyo. Following the rise of attention to mental aspects in sports, this paper investigates the development of athlete burnout. Burnout is usually not associated with athletes, more so with occupations or jobs (Smith, 1986). However, being an athlete is inherently a job, and therefore it is useful to look into burnout amongst athletes. The development of burnout will be investigated in light of a Stress Response Network Model. This model states that the stress response mediates the relationship between stressors and psychopathology. The stress response can be cognitive appraisal, behaviour, physiology, or emotions as shown in Figure 1. Taken from the model, this paper explores the link between cognitive appraisal and psychopathology, which in this paper is narrowed down to coping style and athlete burnout, respectively.

Figure 1.

Conceptualization of the Stress Response Network Model



Defining athlete burnout

Burnout is a disorder in the Diagnostic and Statistical Manual of Mental Disorders (fifth edition) categorized under adjustment disorders (GGZ standaarden, 2021). To be classified as having a burnout, one needs to be overworked, the symptoms should exist for at least six months and feelings of fatigue and exhaustion are present. For many people, burnout has the connotation that a process of an increasing amount of stress has been going on and that burnout is the end product of this process. Burnout is a manifestation of exposure to high levels of stress for a long time (Smith, 1986). Hence, burnout perfectly fits in the Stress Response Network Model this paper sets out to test.

Several models of the development of burnout have been researched. According to Silva's model (1990), which is based on burnout amongst athletes, burnout is the last stage in a continuum of staleness and overtraining. Silva (1990) calls this the Training Stress Syndrome. When an athlete experiences staleness, one fails to deal with the training demands. This manifests in a malfunction of the body. Chronic exposure to training stress can lead to overtraining. If the body is unable to manage the stressful demands of training for a longer period, overtraining, in turn, produces an exhaustive state of burnout. In this model, burnout is seen as a negative response to or by-product of excessive training load or training stress. This is probably due to a missing balance between demands of training and coping. Smith (1986) came up with the Athletic Burnout Model, which combines situational, cognitive, physiological, and behavioural aspects of stress and burnout. This implies that stress and burnout are linked to each other, which is mediated by several aspects depending on personality and motivational components. The model of stress that is used in the current paper very much resembles the Athletic Burnout Model of Smith (1986).

Coping style

Coping has been defined in multiple ways in the literature (Beutler et al., 2003). Some theorists have focused on coping as a personality trait and others have pointed the definition toward the responses to stressful experiences. Different terms have been intertwined to define coping, for instance coping style, coping skills, coping strategy, and coping responses. Specifically, coping is seen as the effort a person takes to deal with demands that are appraised as burdensome (Folkman et al., 1986). According to a theory by Folkman et al. (1986), cognitive appraisal and coping are mediators in the relationship between experiencing stressful events and outcomes. Cognitive appraisal in this model is the way a person evaluates if a stressor is pertinent to their well-being. Another study by Folkman and Lazarus (1986) showed that cognitive appraisal and coping style are strongly related. The model that is used in the current paper, to investigate the relationship between stress, stress response, and psychopathology, uses cognitive appraisal as a part of the stress response. Since coping style and cognitive appraisal are strongly related, the terms will be used interchangeably within the model.

Coping strategies can be divided into plenty of dimensions. According to Lazarus and Folkman (1986), emotion-focused coping and problem-focused coping are two broadly used dimensions of coping. These two macro-dimensions of coping are sometimes classified as active or positive coping styles (Billings et al., 1981). Emotion-focused coping is about dealing with the emotions involved in the issue. If a person is dealing with the problem that is causing an issue, problem-focused coping is used. These types of coping strategies can be further divided into micro-dimensions (Nicholls et al., 2007). For instance, seeking social support, imaging, and humour are seen as subdimensions of emotion-focused coping. Micro-dimensions for problem-focused coping include approach-cognitive strategies, task-oriented coping, and time management. A systematic review (Nicholls et al., 2007) found that another, more recent, higher-order dimension of coping is avoidance coping, sometimes also called

passive or negative coping style (Billings et al., 1981). The avoidance of a stressor can be physical, by removing your body away from the stressor, or cognitive, by blocking the stressor from your mind. It is shown that especially avoidance coping is a strong predictor of stress among Taiwanese students (Po-Chi Kao, 2013), but also in Western culture (Elliot et al., 2011). It is expected that the coping style an athlete uses is related to the development of burnout. Specifically, the expectation is that using a passive coping style is positively related to the development of athlete burnout and using an active coping style is negatively related to the development of athlete burnout.

Coping style and burnout

Multiple studies have confirmed that there is a relationship between coping style and burnout (Daumiller, Rinas, & Breithecker, 2021; González-García, & Martinent, 2020; Hill et al., 2010; Madigan et al., 2020). Relatedly, using a passive coping style increases the chance of developing burnout according to the Diagnostic and Statistical Manual of Mental Disorders (fifth edition) (GGZ standaarden, 2021). A study by Smith (1986) applied the cognitive-affective model of stress to athlete burnout. This model conceptualizes burnout as a result of situational, behavioural, cognitive, and physiological responses to stress, which is similar to the Stress Response Network Model used in the current paper.

The current paper will review the existing literature on the link between cognitive appraisal and psychopathology, which in this paper is narrowed down to coping style and athlete burnout, respectively. Based on the existing literature, hypothesis one is that using an active coping style is negatively related to the development of athlete burnout. Hypothesis two is that the use of a passive coping style is positively related to the onset of burnout among athletes.

Methods

Eligibility criteria

Studies were included if they looked into the relationship between coping style and the development of burnout, only if this was measured amongst athletes. Studies that measured active coping style as well as studies that measured passive coping style, or both, were included. Only empirical studies that measured the relevant endpoints were included in the systematic review. Articles were eliminated if they were a review of the literature since there is a risk of including papers several times. Studies were also excluded if they did not end up having relevant endpoints when reading the full article, or if they did not show the relationship between coping style and burnout. Lastly, articles were removed if they were book chapters.

Due to the different hypothesized effects that coping styles can have on the development of athlete burnout, two groups were created. Studies that looked into the relationship between active coping style and the onset of athlete burnout were placed in one group. Studies that showed results for the link between passive coping style and the development of athlete burnout were placed in a second group.

Information sources

For the current review of the literature, the search for relevant literature was conducted on PsychINFO, SocINDEX, and MEDLINE. Snowballing was used to identify other relevant studies. The last search for studies was done in April 2022.

Search strategy

Literature was searched with the following search term: 'Coping strategies OR coping style OR coping mechanisms OR coping AND Athlete OR Athletes AND burnout OR burn-out OR burn out'. Next to the search term, 'English language' was selected as a criterion during the search.

Selection process

Relevant literature was collected manually. Literature was first excluded based on title and abstract. After the screening for the title and abstract, a more thorough, second screening was done based on the full article. A flow chart was used to give an overview of the selection process. Due to time constraints, there was no screening done by a second investigator. No automation tools were used in the selection process.

Data collection process

The data collection process from relevant literature was collected manually. There was no data collection process done by a second investigator. No automation tools were used in the data collection process.

Data items

Data that looked into the relationship between coping style and burnout was sought. Studies were included if the sample consisted of athletes. Coping style could be operationalized as either an active coping style or a passive coping style or both. Some studies did not specifically mention which coping style they measured. For those studies, the classification of active or passive coping styles was done based on the withdrawal of information from the text.

Study risk of bias assessment

There was no formal method of bias assessment used. No more than half of the data included in the systematic review should be sought via hand-search.

Effect measures

The effect measures in the results of the current systematic review include betas (β), correlations (r), and effect sizes ($e.s.$).

Synthesis methods

Relevant literature was assessed to visualize which syntheses were necessary for conducting a systematic review. Google Spreadsheet was used to tabulate the relevant

information extracted from the data. After the assessment, it became clear that synthesis should be grouped based on correlations and effect sizes. For studies not providing correlations or effect sizes, the results were converted to effect sizes.

Forest plots were used to give an overview of the results from the relevant studies. A total of two forest plots were needed, due to different statistics used by the relevant literature. These plots were created using Microsoft Office Excel (2010). Cohen's guidelines were used for interpretations of the size of correlations and effect sizes (Emory college of arts and sciences, n.d.).

Results were not summarized into one single measure, due to time constraints. Next to that, there was no sensitivity analysis conducted.

Reporting bias assessment

There was no formal method of reporting bias assessment used.

Certainty assessment

There was no formal method of certainty assessment used.

Results

Study selection

The search term yielded 99 papers in total over the three databases. Next to the search term, 'English language' was selected as a criterion, which resulted in 89 papers. Publication dates of these 89 studies ranged from 1986 to 2022. Three databases were used to conduct the search for relevant articles. On PsychINFO, 26 papers were left after exclusion for title and abstract. Fifteen of the excluded papers were not about athletes but about their trainers or coaches. Another 14 papers were excluded because they were not related to either coping style or burnout. Five other papers were not relevant since they showed the relationship between stressors and coping style, which is not what the current paper is reviewing. The last paper was excluded because this was not an empirical study. Next to PsychINFO, SocINDEX

was also used to test the search string. Four papers resulted from the search string. Two of them were already found via PsychINFO, and the other two were not relevant to the topic. On MEDLINE, 25 papers resulted from the search string. Five were not about athletes themselves, so those papers were excluded from the data. Another 10 papers were also found via PsychINFO, so those papers were also excluded. One article was found via snowballing. All in all, 49 papers were excluded based on the first screening for title and abstract. Thirty-seven papers were left for the second screening, based on specific exclusion criteria.

The second screening for relevant literature was done based on the full article. Of the 37 papers, 22 were excluded. Articles were eliminated if they were a review of the literature which was the case with three articles. Eight studies were removed because they ended up not having relevant endpoints. Another four studies measured coping and burnout among other things but did not show the relationship between coping style and burnout. Those studies were excluded as well. Lastly, seven titles found were book chapters and therefore excluded from the dataset.

In total, twenty-two studies were excluded based on the second screening. The search and selection criteria yielded a total of 15 relevant articles. Figure 2 gives an overview of the search screening process.

Study characteristics

An extraction sheet was used to summarize the relevant studies (see Table 1). A total of fifteen studies were included in the systematic review. Two of these articles were qualitative measures of the relationship between coping and burnout. The other studies included were mainly based on quantitative measures, like cross-sectional and longitudinal studies. For studies that did not show correlations or effect sizes, the effect sizes were calculated based on means and standard errors. This resulted in a total of twenty statistics that showed the relationship between coping style and the onset of athlete burnout.

Figure 2.

Flow Chart of Literature Review for the Relationship between Coping Style and the Development of Athlete Burnout (Prisma, 2020)

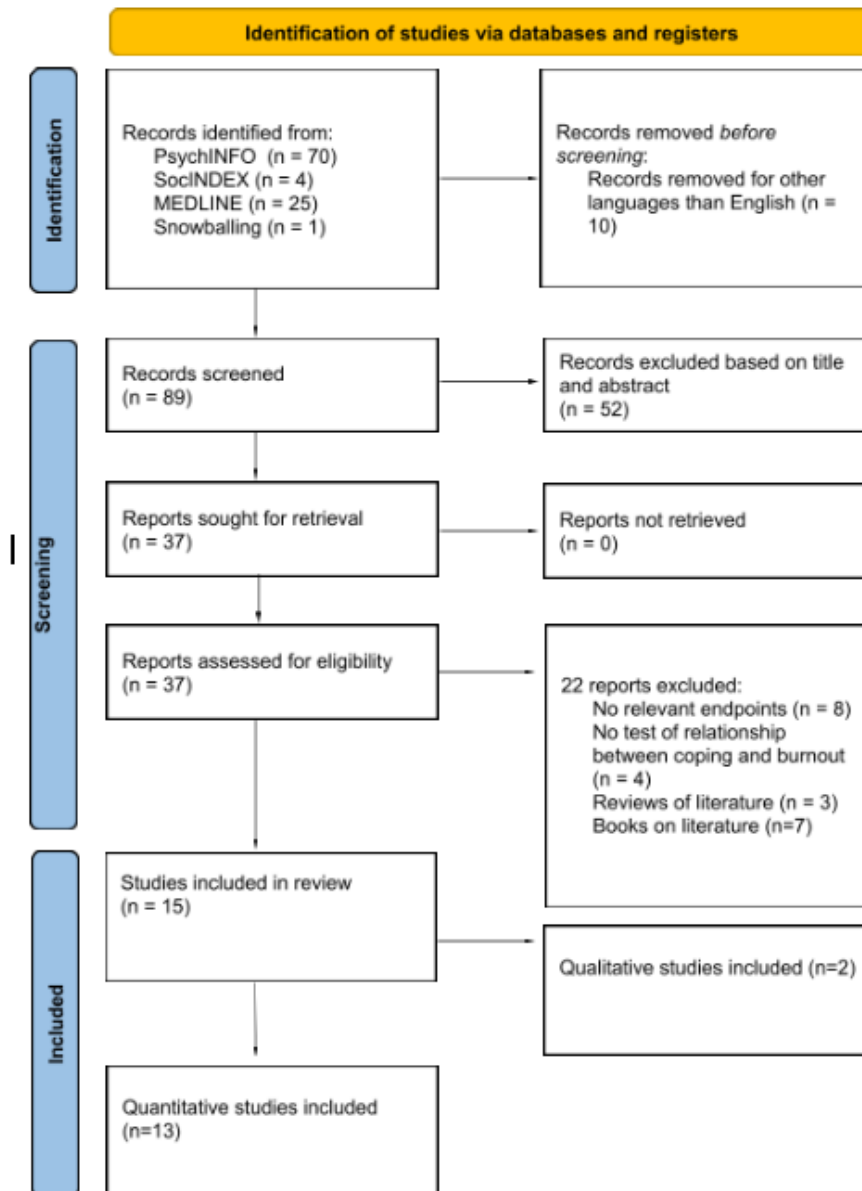


Table 1.*Extraction Sheet Relevant Studies*

Study	Participants	Sex	Age (Mean and Standard Deviation)	Coping measure	Coping style (passive (PC)/ active (AC))	Burnout measure	Results
Cartigny, E., Vickers, E., Harrison, G., Appleby, R., & McCulloch, N. (2022)	165	58 men/ 101 women	Not specified	COPE	PC	ABQ	$s.e.s.(pc) = 0.258$
Chiu, Y.-H., Lu, F. J.-H., Lin, J.-H., Nien, C.-L., Hsu, Y.-W., & Liu, H.-Y. (2016)	196	139 men/ 57 women	$M: 19.88; SD: 1.35$	CSE	AC	ABQ	$r_{(ac)} = -0.30 (P < 0.05)$
Daumiller, M., Rinas, R., & Breithecker, J. (2021)	125	97 men/ 28 women	$M: 23.7; SD: 4.0$	SCI	AC	ABQ-D	$r_{(ac)} = -0.32 (P < 0.05)$ $se_{(ac)} = 0.13$
Gould, D., Udry, E., Tuffey, S., & Loehr, J. (1996)	62	36 men/ 26 women	$M: 16.4; SD: 2.4$	COPE	PC	EABI	$s.e.s.(pc) = 1.21 (P < 0.000)$

Hill, A. P., Hall, H. K., & Appleton, P. R. (2010)	206	97 men/ 109 women	<i>M</i> : 15.15; <i>SD</i> : 1.88	MCOPE	PC and AC	ABQ	$r_{(pc)} = 0.73 (P < 0.01)$ $r_{(ac)} = -0.38 (P < 0.01)$
Madigan, D. J., Rumbold, J. L., Gerber, M., & Nicholls, A. R. (2020)	141	124 men/ 17 women	<i>M</i> : 17.3; <i>SD</i> : 0.8	COPE	PC and AC	ABQ	$r_{(pc)} = 0.22 (P < 0.05)$ $r_{(ac)} = -0.04$ (not significant)
Martinet, G., & Decret, J.-C. (2015)	147	98 men/ 49 women	<i>M</i> : 13.91; <i>SD</i> : 2.03	CICS	PC and AC	ABQ	$s.e.s_{(pc)} = 0.72$ $s.e.s_{(ac)} = 0.06$
Nixdorf, I., Beckmann, J., & Nixdorf, R. (2020)	85	Not specified	<i>M</i> : 14.82; <i>SD</i> : 2.26	SVF	PC	ABQ	$Beta_{(pc)} = 0.27 (P < 0.05)$
Pacewicz, C. E., Gotwals, J. K., & Blanton, J. E. (2018)	173	86 men/ 87 women	<i>M</i> : 19.83; <i>SD</i> : 1.45	CFQ	PC and AC	ABQ	$s.e.s_{(pc)} = 0.1004$ (not significant) $s.e.s_{(ac)} = -0.573$ (not significant)
Pires, D. A., & Ugrinowitsch, H. (2021)	54	28 men/ 26 women	<i>M</i> : 25.57; <i>SD</i> : 4.72	ACSI-28BR	AC	ABQ	$r_{(ac)} = -0.25 (P < 0.05)$

Raedeke, T. D., & Smith, A. L. (2001)	244	112 men/ 131 women	<i>M</i> : 15.8; <i>SD</i> : 1.3	Stress Audit Questionnaire	AC	ABQ	$r_{(ac)} = -0.24 (P < 0.05)$
Raedeke, T. D., & Smith, A. L. (2004)	244	112 men/ 131 women	<i>M</i> : 15.8; <i>SD</i> : 1.3	Stress Audit Questionnaire	AC	ABQ	$s.e.s_{(ac)} = -0.37 (P < 0.01)$ $se_{(ac)} = 0.48$
Schellenberg, B. J. I., Gaudreau, P., & Crocker, P. R. E. (2013)	421	219 men/ 202 women	<i>M</i> : 19.68; <i>SD</i> : 1.83	CICS/ DCICS-T	PC and AC	ABQ	$r_{(pc)} = 0.612 (P < 0.01)$ $r_{(ac)} = -0.14 (P < 0.05)$

Note. CSE = Coping Self-Efficacy scale; SCI = Stress and Coping Inventory; MCOPE = Modified COPE; CICS = Coping Inventory for Competitive Sport; SVF = Stress-Coping Questionnaire; CFQ = Coping Function Questionnaire; ACSI-28BR = Athletic Coping Skills Inventory; DCICS-T = Dispositional Coping Inventory for Competitive Sport Training; PC = passive coping; AC = active coping; ABQ = Athlete Burnout Questionnaire.

Risk of bias in studies

There was no formal method of reporting bias assessment used.

Results of individual studies

An extraction sheet was used to give an overview of the statistics and results of each included study (see Table 1).

Results of synthesis

Quantitative literature

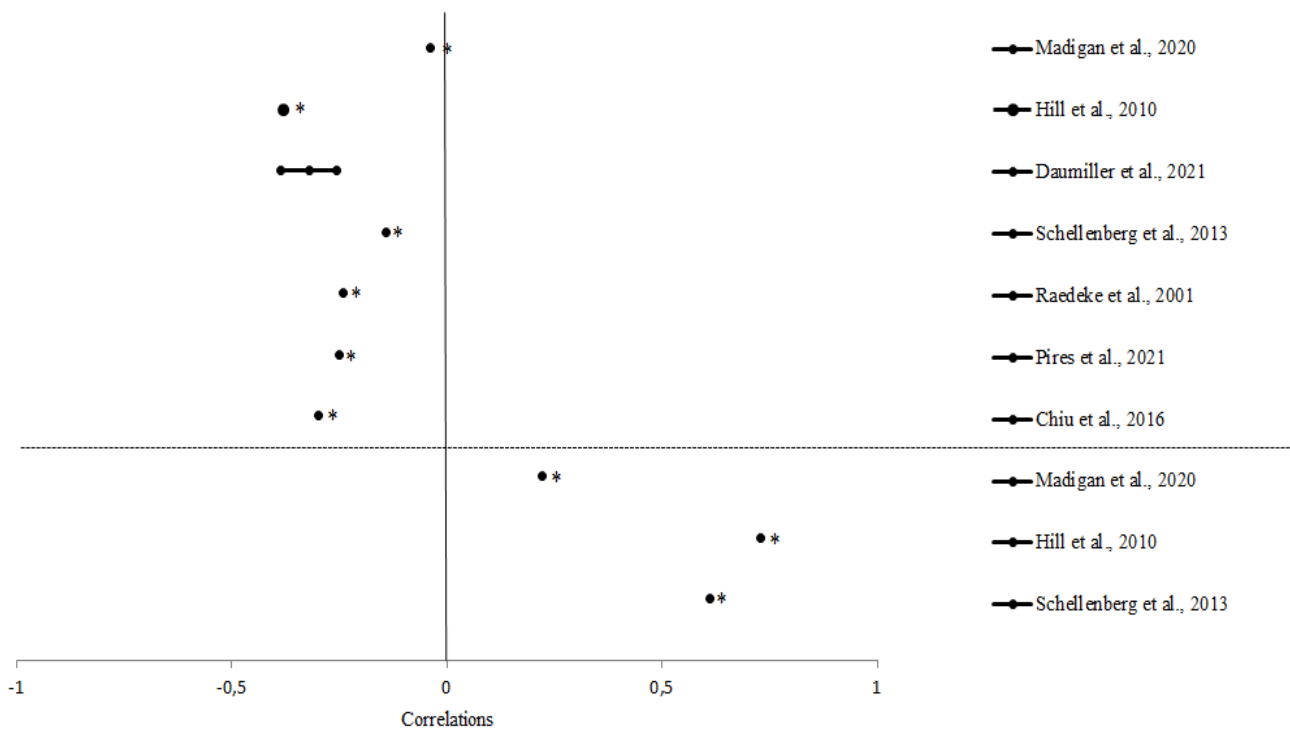
The literature search resulted in a total of 13 quantitative studies about the relationship between coping style and the development of athlete burnout. All of the relevant studies found that coping is related to athlete burnout ($n = 13$). Samples sizes ranged from 54 to 421. Five studies split the measure of coping up into some sort of active coping and some sort of passive coping. Ten studies (76.9%) found that the use of coping styles was negatively linked to athlete burnout. These studies used measures for active coping styles. Correlations ranged from -0.38 to -0.04 ($n = 7$, see Figure 3) for active coping of which one was a non-significant result (Madigan et al., 2020). The effect sizes ranged from -0.573 to 0.06 ($n = 3$, see Figure 4). One of the three effect sizes was not significant (Pacewicz et al., 2018). This provides evidence that the use of an active coping style reduced the likelihood of developing burnout for athletes, as expected by hypothesis one.

Conversely, six studies (23.1%) found that coping style had a positive relationship with the development of athlete burnout. These six studies measured the use of a passive coping style. Correlations between passive coping style and athlete burnout ranged from 0.22 to 0.73 ($n = 3$, see Figure 3) with all results being significant. The effect sizes ranged from 0.1004 to 1.21 ($n = 4$, see Figure 4). One of them was a non-significant result (Pacewicz et al., 2018). In support of hypothesis two, these results demonstrate that the use of a passive coping style is positively related to the development of athlete burnout. Most of the data were

correlations that were already standardized. No standard errors are known for those studies, as indicated by an asterisk in the forest plot (Figure 3 and Figure 4).

Figure 3.

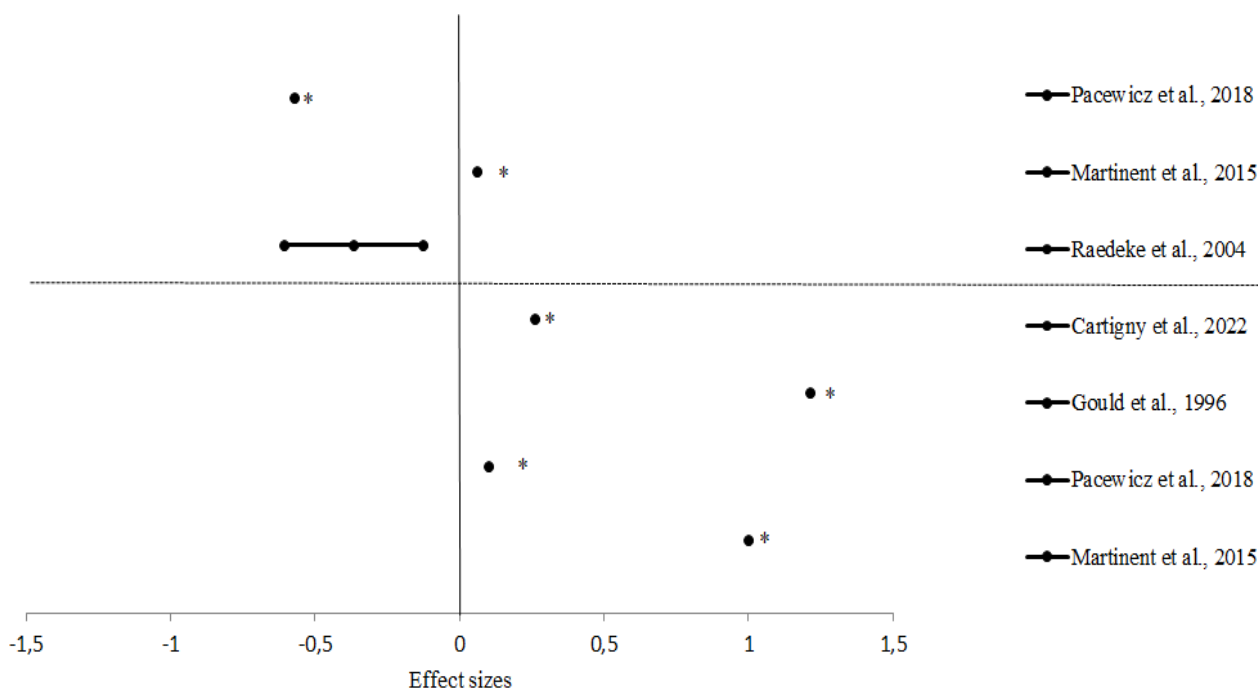
Forest Plot correlations Coping Style versus Athlete Burnout



Note. For points indicated by an asterisk (*), no standard errors were provided. Points above the dotted line show relationships between active coping and burnout and points below the dotted line show relationships between passive coping and burnout.

Figure 4.

Forest Plot effectsizes Coping style versus Athlete Burnout



Note. For points indicated by an asterisk (*), no standard errors were provided. Points above the dotted line show relationships between active coping and burnout and points below the dotted line show relationships between passive coping and burnout.

Additional studies

The association between coping style and the development of burnout in athletes has been established by quantitative studies. More support for this association was found in a longitudinal study that used multiple regression analysis to test the relationship between coping style and burnout (Nixdorf et al., 2020). Hierarchical regression analysis showed that a negative/passive coping style (resignation) was related to burnout ($\beta = 0.27, P < 0.05$). This adds to the finding that the coping style an athlete uses is related to the process of developing burnout.

Qualitative research showed that time management, which is a micro-level of problem-focused coping, was negatively related to the development of burnout (Dubuc et al.,

2010; Wilding et al., 2012). Both are case studies that indicated contributors to the development of athlete burnout. One case study found that two of the three athletes used inadequate coping strategies to deal with the demands of training (Dubuc et al., 2010). Specifically, finding a balance, failure, poor time management, and overtraining were seen as large contributors to the development of burnout within these three athletes. Time management is a form of problem-focused coping (Nicholls et al., 2007). According to Dubuc et al., (2010), the lack of good time-management skills can be seen as a lack of appropriate coping skills and this contributed to the development of burnout.

Another case study also found that poor time management and challenges with balancing life were large vulnerabilities for the development of burnout. Wilding et al. (2012) noted that “Laura struggled with the responsibility of having to micromanage her time” (p. 7). This adds to the relevant literature that a lack of problem-focused coping was related to the development of athlete burnout.

Summarizing the existing literature on this topic shows that the use of a passive coping style was positively related to the development of burnout and that the use of an active coping style was negatively linked to the development of burnout. The results of qualitative and longitudinal research supported this finding.

Reporting biases

There was no formal method of reporting bias assessment used.

Certainty assessment

There was no formal method of certainty assessment used.

Discussion

The majority of the reviewed literature shows a positive relationship between passive coping style and the development of athlete burnout and a negative relationship between active coping style and the development of athlete burnout. The current study investigated this

relationship in 15 English papers. Ten studies looked into the relationship between active coping style and athlete burnout, which generally supported hypothesis one. Nine of them found a small to moderately negative relationship, which is an indication that the use of active coping styles is a protective mechanism for the development of athlete burnout. One of the studies showed a weak positive relationship between active coping and athlete burnout (Martinent, & Decret, 2015). This might be due to a different measure for assessing the coping style someone uses. Martinent and Decret (2015) used the CICS for measuring passive coping style and active coping style, whereas other studies used different measures, like the DCICS-T or the Stress Audit Questionnaire, for measuring active coping style. In support of hypothesis two, seven studies reported that the relationship between passive coping style and the onset of athlete burnout was moderately to largely positive (Emory college of arts and sciences, n.d.). This indicates that the use of a passive coping style increases the risk of developing burnout in athletes. All studies had a relatively large sample size consisting of men and women. Two qualitative further studies supported the finding that the use of active or passive coping styles is related to the onset of burnout (Dubuc et al., 2010; Wilding et al., 2012).

The results are in line with Silva's model (1990), which stated that the way athletes cope with demands from training and overtraining is related to the development of burnout. Smith (1986) also found that cognitive responses to stress are related to the development of athlete burnout. More specifically, the use of a passive coping style was positively related to the development of burnout and the use of an active coping style was negatively linked to the development of burnout. The tendency to use a passive coping style can be seen as a vulnerability for the onset of burnout, whereas the use of an active coping style can be seen as a protective mechanism. A plausible explanation could be the blocking of stressors when using a passive coping style (Billings et al., 1981). If an athlete blocks stressors and postpones

solving a problem, several stressors and problems pile up and this can lead to an overwhelming amount of untreated issues that become too much. According to Silva (1990), too much stress leads to the development of athlete burnout. Therefore, it is likely that the use of a passive coping style is positively related to the onset of athlete burnout.

As expected, the coping style an athlete uses is related to the development of athlete burnout. These results can be placed in the perspective of the Stress Response Network Model. This study looked into the relationship between cognitive appraisal as a stress response and psychopathology. Coping style can be seen as a form of cognitive appraisal (Folkman, & Lazarus, 1986) and burnout as a form of psychopathology (GGZ standaarden, 2021). The current study supports the Stress Response Network Model by the finding that, according to the literature, coping style is related to the development of athlete burnout.

Limitations

Several limitations can be mentioned regarding the current review of the literature. First of all, the search was limited to English literature. Relatedly, most of the relevant studies were conducted in Western culture. This narrows the generalizability down to athletes (men and women) in Western culture.

Limitations of review

Due to time restrictions, there are some methodological limitations of the current review. It was not possible to conduct a bias assessment and a certainty assessment. These checks would have strengthened the results of the current review by assessing the quality of included literature. According to the PRISMA guidelines for systematic review (PRISMA, 2020), the screening should be conducted by a second reviewer. However, the current review gives clear guidelines regarding the inclusion and exclusion criteria, which increases replicability.

Limitations of included studies

Some limitations regarding the methodology of included literature were found. Most of the studies included in the review did not provide sufficient information to calculate the confidence intervals. This can impair the validity of the obtained results. However, some studies showed standardized effect sizes, in which the confidence interval is already included.

Next to that, the studies used different measures to operationalize coping styles. However, it was not always clear which coping style questionnaires measured and this had to be subtracted from the text. It is possible that biases have occurred during this process.

Implications and future directions

This review highlights the importance of the coping style an athlete uses when encountering stressful experiences based on a review of existing literature. As mentioned earlier, more and more athletes publicly state that they are dealing with stress (Verweire, 2021). Since stress can lead to the development of burnout in athletes (Smith, 1986) and coping style has an influence on that relationship, it is relevant to know what can be done to prevent athletes from developing burnout. The results are placed in the perspective of the Stress Response Network Model, which can help explain what is going on if athletes experience burnout. The implications of the results are relevant to sports psychologists, trainers, and coaches of athletes especially.

First of all, it should be clear how to assess the coping style an athlete uses. By mapping out which athletes use a passive or active coping style, practitioners can support athletes in need of more efficient coping styles. Research has already pointed out some questionnaires that measure coping strategies, like the CICS, COPE, and CFQ (Crocker & Graham, 1995; Gaudrea & Blondin, 2002; Kowalski & Crocker, 2001). Further research is needed to conclude which questionnaire is most useful in testing the coping style an athlete uses.

Concurrently, practitioners should know how they can support athletes in using an active coping style and prevent them from using a passive coping style. As Devonport (2016) also mentions in his book chapter, coping-skill interventions should be studied to help athletes with relieving stress and preventing the development of burnout. More research is needed on how coaches can help athletes in the selection and use of efficient coping strategies and what coping-skill interventions are useful.

On top of that, this review has brought to light a lack of research on the relationship between coping styles and athlete burnout in other cultures than the Western culture. Research has shown that culture influences the coping style someone uses (Szabo et al., 2017). More research is needed about the relationship between coping style and athlete burnout in other cultures.

Conclusion

The current systematic review concludes that coping style and athlete burnout are related constructs. More specifically, the use of active or passive coping styles was negatively or positively related to athlete burnout, respectively. In other words, athletes who were prone to using a passive coping style were more likely to develop athlete burnout. The tendency to use an active coping style reduced the likelihood of developing athlete burnout. Future empirical research could focus on the direction of the relationship between coping style and athlete burnout by adopting a longitudinal design. From the perspective of the Stress Response Network Model, this review looked into the relationship between cognitive appraisal and psychopathology. Future research could be guided by the Stress Response Network Model, to understand what other stressors and stress responses are related to the development of athlete burnout and under which conditions athletes adopt passive or active coping mechanisms.

References

- Beutler, L. E., Moos, R. H., & Lane, G. (2003). Coping, Treatment Planning, and Treatment Outcome: Discussion. *Journal of Clinical Psychology*, 59(10), 1151–1167. <https://doi-org.proxy-ub.rug.nl/10.1002/jclp.10216>
- Billings, A. G., & Moos, R. H. (1981). The role of coping responses and social resources in attenuating the stress of life events. *Journal of Behavioral Medicine*, 4(2), 139–157. <https://doi-org.proxy-ub.rug.nl/10.1007/BF00844267>
- Cartigny, E., Vickers, E., Harrison, G., Appleby, R., & McCulloch, N. (2022). The impact of COVID-19 on dual career athletes: Three typologies of coping. *Journal of Sports Sciences*, 1–10. <https://doi-org.proxy-ub.rug.nl/10.1080/02640414.2022.2065088>
- Chiu, Y.-H., Lu, F. J.-H., Lin, J.-H., Nien, C.-L., Hsu, Y.-W., & Liu, H.-Y. (2016). Psychometric properties of the Perceived Stress Scale (PSS): measurement invariance between athletes and non-athletes and construct validity. *PeerJ*, 4, e2790. <https://doi-org.proxy-ub.rug.nl/10.7717/peerj.2790>
- Crocker, P. R. E., & Graham, T. R. (1995). Coping by competitive athletes with performance stress: Gender differences and relationships with affect. *The Sport Psychologist*, 9(3), 325–338.
- Daumiller, M., Rinas, R., & Breithecker, J. (2021). Elite athletes' achievement goals, burnout levels, psychosomatic stress symptoms, and coping strategies. *International Journal of Sport and Exercise Psychology*. <https://doi-org.proxy-ub.rug.nl/10.1080/1612197X.2021.1877326>
- Devonport, T. (2016). Understanding stress coping among competitive athletes in sport: Applying psychological theory and research. In A. M. Lane (Ed.), *Sport and exercise psychology*, 2nd ed. (pp. 127–153). Routledge/Taylor & Francis Group.
- Dubuc, N. G., Schinke, R. J., Eys, M. A., Battochio, R., & Zaichkowsky, L. (2010). Experiences of burnout among adolescent female gymnasts: Three case studies. *Journal of Clinical Sport Psychology*, 4(1), 1–18.

- Elliot, A. J., Thrash, T. M., & Murayama, K. (2011). A Longitudinal Analysis of Self-Regulation and Well-Being: Avoidance Personal Goals, Avoidance Coping, Stress Generation, and Subjective Well-Being. *Journal of Personality*, 79(3), 643–674. <https://doi-org.proxy-ub.rug.nl/10.1111/j.1467-6494.2011.00694.x>
- Emory college of Arts and Sciences. (n.d.) *Effect size*. <http://www.psychology.emory.edu/clinical/bliwise/Tutorials/SCATTER/scatterplots/efect.htm>
- Folkman S, Lazarus RS, Dunkel-Schetter C, DeLongis A, Gruen RJ. Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *J Pers Soc Psychol*. 1986 May;50(5):992-1003. doi: 10.1037//0022-3514.50.5.992. PMID: 3712234.
- Folkman, S., Lazarus, R. S., Gruen, R. L., & DeLongis, A. (1986). Appraisal, Coping, Health Status, and Psychological Symptoms. *Journal of Personality & Social Psychology*, 50(3), 571–579. <https://doi-org.proxy-ub.rug.nl/10.1037/0022-3514.50.3.571>
- Forbes, M. K., Wright, A. G. C., Markon, K. E., & Krueger, R. F. (2017). Evidence that psychopathology symptom networks have limited replicability. *Journal of Abnormal Psychology*, 126(7), 969–988. <https://doi-org.proxy-ub.rug.nl/10.1037/abn0000276.supp> (Supplemental)
- Gaudreau, P., & Blondin, J.-P. (2002). Development of a questionnaire for the assessment of coping strategies employed by athletes in competitive sport settings. *Psychology of Sport and Exercise*, 3(1), 1–34. [https://doi-org.proxy-ub.rug.nl/10.1016/S1469-0292\(01\)00017-6](https://doi-org.proxy-ub.rug.nl/10.1016/S1469-0292(01)00017-6)
- GGZ standaarden. (2021) *Aanpassingstoornis (incl. overspanning en burn-out)*. Consulted at 5 March 2022, van <https://www.ggzstandaarden.nl/zorgstandaarden/aanpassingsstoornis-incl-overspanning-en-burn-out/over-de-aanpassingsstoornis/inleiding/risicogroepen-en-factoren>

- González-García, H., & Martinent, G. (2020). Perceived anger profiles in table tennis players: Relationship with burnout and coping. *Psychology of Sport and Exercise*, 50. <https://doi-org.proxy-ub.rug.nl/10.1016/j.psychsport.2020.101743>
- Gould, D., Udry, E., Tuffey, S., & Loehr, J. (1996). Burnout in competitive junior tennis players: I A quantitative psychological assessment. *The Sport Psychologist*, 10(4), 322–340.
- Hill, A. P., Hall, H. K., & Appleton, P. R. (2010). Perfectionism and athlete burnout in junior elite athletes: The mediating role of coping tendencies. *Anxiety, Stress & Coping: An International Journal*, 23(4), 415–430. <https://doi-org.proxy-ub.rug.nl/10.1080/10615800903330966>
- Kowalski, K. C., & Crocker, P. R. E. (2001). Development and validation of the Coping Function Questionnaire for adolescents in sport. *Journal of Sport & Exercise Psychology*, 23(2), 136–155.
- Madigan, D. J., Rumbold, J. L., Gerber, M., & Nicholls, A. R. (2020). Coping tendencies and changes in athlete burnout over time. *Psychology of Sport and Exercise*, 48. <https://doi-org.proxy-ub.rug.nl/10.1016/j.psychsport.2020.101666>
- Martinent, G., & Decret, J.-C. (2015). Coping profiles of young athletes in their everyday life: A three-wave two-month study. *European Journal of Sport Science*, 15(8), 736–747. <https://doi-org.proxy-ub.rug.nl/10.1080/17461391.2015.1051131>
- Nicholls, A. R., & Polman, R. C. J. (2007). Coping in sport: A systematic review. *Journal of Sports Sciences*, 25(1), 11–31. <https://doi-org.proxy-ub.rug.nl/10.1080/02640410600630654>
- Nixdorf, I., Beckmann, J., & Nixdorf, R. (2020). Psychological Predictors for Depression and Burnout Among German Junior Elite Athletes. *Frontiers in Psychology*, 11, 601. <https://doi-org.proxy-ub.rug.nl/10.3389/fpsyg.2020.00601>
- Old Dominion University (2021). *Systematic review or meta-analysis?* Consulted at 5 March 2022, van <https://guides.lib.odu.edu/c.php?g=966167&p=7021863>

- Pacewicz, C. E., Gotwals, J. K., & Blanton, J. E. (2018). Perfectionism, coping, and burnout among intercollegiate varsity athletes: A person-oriented investigation of group differences and mediation. *Psychology of Sport and Exercise*, 35, 207–217. <https://doi-org.proxy-ub.rug.nl/10.1016/j.psychsport.2017.12.008>
- Pires, D. A., & Ugrinowitsch, H. (2021). Burnout and Coping Perceptions of Volleyball Players Throughout an Annual Sport Season. *Journal of Human Kinetics*, 79, 249–257. <https://doi-org.proxy-ub.rug.nl/10.2478/hukin-2021-0078>
- PO-CHI KAO, & CRAIGIE, P. (2013). Evaluating Student Interpreters' Stress and Coping Strategies. *Social Behavior & Personality: An International Journal*, 41(6), 1035–1043. <https://doi-org.proxy-ub.rug.nl/10.2224/sbp.2013.41.6.1035>
- PRISMA (2020). *PRISMA flow diagram*. Consulted on 28 April 2022, from <http://prisma-statement.org/prismastatement/flowdiagram.aspx>
- PRISMA (2020). *PRISMA checklist*. Consulted on 8 June 2022, from http://www.prisma-statement.org/documents/PRISMA_2020_checklist.pdf
- Raedeke, T. D., & Smith, A. L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of Sport & Exercise Psychology*, 23(4), 281–306. <https://doi-org.proxy-ub.rug.nl/10.1123/jsep.23.4.281>
- Raedeke, T. D., & Smith, A. L. (2004). Coping Resources and Athlete Burnout: An Examination of Stress Mediated and Moderation Hypotheses. *Journal of Sport & Exercise Psychology*, 26(4), 525–541.
- Schellenberg, B. J. I., Gaudreau, P., & Crocker, P. R. E. (2013). Passion and coping: Relationships with changes in burnout and goal attainment in collegiate volleyball players. *Journal of Sport & Exercise Psychology*, 35(3), 270–280. <https://doi-org.proxy-ub.rug.nl/10.1123/jsep.35.3.270>
- Silva, J. M. (1990). An analysis of the training stress syndrome in competitive athletics. *Journal of Applied Sport Psychology*, 2(1), 5–20. <https://doi-org.proxy-ub.rug.nl/10.1080/10413209008406417>

- Smith, R. E. (1986). Toward a cognitive-affective model of athletic burnout. *Journal of Sport Psychology*, 8(1), 36–50.
- Szabo, A., English, A. S., Zhijia, Z., Jose, P., Ward, C., & Jianhong, M. (2017). Is the utility of secondary coping a function of ethnicity or the context of reception? A longitudinal study across Western and Eastern cultures. *Journal of Cross-Cultural Psychology*, 48(8), 1230–1246. <https://doi-org.proxy-ub.rug.nl/10.1177/0022022117719158>
- Verweire, E. (2021). Waarom atleten anno 2021 ook hun geest moeten trainen. Consulted on 17 March 2022, from eoswetenschap.
<https://www.eoswetenschap.eu/gezondheid/waarom-atleten-anno-2021-ook-hun-geest-moeten-trainen>
- Wilding, A. J., Hunter-Thomas, L., & Thomas, R. (2012). Sacrifice: The lonely Olympic road. *Reflective Practice*, 13(3), 439–453. <https://doi-org.proxy-ub.rug.nl/10.1080/14623943.2012.670>