

College baseball players' perception of their team climate and mental health

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ABSTRACT

The purpose of this study, grounded in the Achievement Goal Perspective Theory (AGPT) and a Caring framework, was to examine the extent that collegiate baseball players' perceptions of their team climate (i.e., caring, task-, and ego-involving climate) predict their mental well-being. Baseball players (N = 127) completed measures assessing perceptions of team climate (Perceived Motivational Climate in Sport Questionnaire, Caring Climate Scale) and mental well-being (World Health Organization-Five Well-Being Index). Spearman correlation analysis revealed a positive relationship between the caring and task-involving climate scales, and mental well-being, respectively. In a full entry model linear regression, caring climate emerged as a positive predictor of mental well-being, explaining 25% of the variance of athletes' mental well-being scores. The findings suggest that encouraging coaches to foster a caring and task-involving climate might assist in enhancing collegiate athletes' mental well-being. Athletes perceiving a high caring and task-involving environment are more likely to experience improved mental well-being.

Keywords: Sport medicine, Achievement goal perspective theory, Caring climate, Task-involving climate, Mental well-being, Collegiate athletes.

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INTRODUCTION

College athletes face many challenges across their sports careers. They must not only perform on the field but also endure a rigorous training regimen, as well as heavy demands on their time and resources. Furthermore, they must excel academically. Collegiate athletes' days are packed with scheduled team practices, team meetings, strength and conditioning sessions, classes and study time, and service activities from dawn to night. In addition to busy schedules, student-athletes have reported that academic concerns (44%), future planning (37%), and financial concerns (26%) are some of the top factors that negatively impact their mental well-being (NCAA, 2022). Strong mental well-being is key to optimizing their sports performance, as well as their success on all of these fronts.

Although mental well-being has been defined in various ways, most definitions refer to positive psychological states rather than the absence of negative cognitions and feelings. The World Health Organization (WHO, 1998), for example, recognizes the importance of mental well-being, stating that health includes "*a state of complete physical, mental, and social well-being, not merely the absence of disease*" (p. 1.) One frequently employed measure of mental well-being is the World Health Organization-Five Well-Being Index (WHO, 1998). The questionnaire was developed as a unidimensional measure with five positively worded items, (e.g., "*Over the last two weeks...I have felt calm and relaxed*", "*I woke up feeling fresh and rested*"). The benefits of this measure are that it is brief, easy to understand, and though it is a general measure of well-being in life, it captures aspects that are key to performing at a consistently high athletic level (e.g., having energy for the tasks of the day, feeling motivated for activities; etc.).

The National Collegiate Athletic Association (NCAA) has recognized the importance of mental health for college athletes in recent years, perhaps because of the frequent cases of athletes reporting well-being concerns. The NCAA Sport Science Institute works to increase access to high-quality mental healthcare, with the goal of creating a culture in which seeking care for mental health issues is as accepted as seeking care for physical injuries. Thus, the organization has called for athletic departments to have mental health professionals on staff, to provide mental health screening to all athletes, and to provide resources to athletes who either are struggling or could benefit from strengthening their mental health. Also, they established care protocols that promote more equitable care across sports and within schools to support college athletes' mental health and well-being. Furthermore, college players, coaches, athletic administrators, and campus partners benefit from the Sport Science Institute's health and safety tools. A study of best practices, data and research, and summits and task groups are among the mental health educational materials that the NCAA is utilizing to help athletes have high levels of mental well-being.

To better understand how to optimize athletes' motivation, performance, and mental well-being over time, Achievement Goal Perspective Theory (Nicholls, 1989) and the Caring Framework (Newton et al., 2007) are two approaches that have been utilized. While Nicholls' work was conducted in the academic domain, Duda (2001) and Roberts (2012) are among the researchers who have extensively examined his theoretical tenets in the physical domain. Nicholls (1989) identified two distinct climates that individuals can perceive in an achievement setting, task-involving, and ego-involving climates, respectively.

In a task-involving climate, coaches are attempting to help athletes judge their success based on their effort and improvement; develop strong, cooperative relationships with their teammates; view mistakes as opportunities for learning and developing; and understand that every athlete plays an important role in the team (Newton et al., 2000; Seifriz et al., 1992; Walling et al., 1993). Newton et al. (2007) added a fifth feature, a caring dimension, to the task-involving qualities. They define a caring climate as one where athletes feel

welcome, safe, comfortable, and perceive that everyone is treated with mutual kindness and respect. In contrast to a caring and task-involving climate, in an ego-involving climate coaches are valuing and recognizing athletes' natural ability and normative performance levels; trying to create rivalry among teammates; more often publicly punishing mistakes; and treating a few star athletes as the favoured players who receive the majority of the coach's attention.

Sport psychology researchers have provided considerable evidence to support that when athletes perceive a caring and task-involving climate, they are more likely to experience more adaptive cognitive, affective, and behavioural outcomes. However, athletes' perceptions of an ego-involving climate have consistently been linked to more problematic outcomes. For example, researchers have outlined how individuals who perceive a caring, task-involving climate report greater effort, enjoyment, happiness, and self-confidence (Fry & Moore, 2019; Harwood et al., 2015), whereas perceptions of an ego-involving climate have been associated with higher stress, anxiety, and depression (Dickerson & Kemeny, 2004; Fry & Moore, 2019; Hogue et al., 2017).

Further, numerous researchers have examined athletes' perceptions of the climate in relation to parameters of mental well-being. For example, across two studies with British adolescent and college athletes, Reinboth and Duda (2004, 2006) found athletes' perceptions of a task-involving climate to be positively and significantly related to their subjective vitality. Similarly, hip-hop dancers reported greater positive affect and less negative affect when they perceived a task-involving climate in their dance program, whereas perceptions of an ego-involving climate were related to greater emotional/physical exhaustion and negative affect (Quested & Duda, 2009). In a large sample of high-school physical education students, those who perceived a caring and task-involving climate reported lower life stress, shame, and depression, and more adaptive coping skills. These findings were all reversed for students who perceived an ego-involving climate in their classes (Hogue et al., 2017). Fry et al. (2021) also found that NCAA Division I athletes reported greater coping skills (e.g., freedom from worry, peaking under pressure, coping with adversity) when they perceived a caring and task-involving team climate.

Clearly, results have been consistent in highlighting the benefits of a caring and task-involving climate to athletes' mental well-being. Even though researchers have used a range of psychological well-being measures, the results remain constant linking a caring and task-involving climate to mental well-being. The research, however, is limited and includes a relatively low number of athletes in the United States in these studies.

One sport that has received minimal attention in the sport psychology literature is baseball. In baseball, the outcome of a game is comprised of multiple individual performance parameters. In addition, to a greater degree than other American team sports, baseball is arguably heavily reliant on statistics and records. Baseball provides a numerical depth of player performance to the audience. It is also possible that with the increased use of statistics in baseball, a strong spotlight is now on the performance of individual players, as well as that of the overall team. For example, a single statistic can isolate a player's performance from that of his team and can be used to label them as more or less effective. As a result, baseball players may experience increased performance-related stress and concerns with mental well-being, which may be buffered if they are members of baseball teams they perceive to have a caring and task-involving team focus.

The purpose of the study was to examine the extent that collegiate baseball players' perceptions of their team climate predict their mental health scores. Players' perceptions of a caring and task-involving team climate are expected to account for a significant portion of the variance of their mental health scores, whereas

perceptions of an ego-involving climate are hypothesized to contribute negatively to athletes' mental well-being.

METHOD

Participants

The sample consists of 127 male college athletes involved in school sponsored varsity athletics. The mean age of the sample was 19.85 years ($SD = 1.25$). Ethnically, the majority of participants (76.4%) were Non-Hispanic White or Euro-American, while 17.3% were Latino or Hispanic American, with no other ethnic group reaching over 5% of the sample. Considering the academic classification, 42.5% of the sample was freshman, 29.1% were sophomore, 19.7% were junior, 7.1% were senior, and 1.6% were grad students. Baseball players were members of four different teams, including the National Junior College Athletic Association and the National Association of Intercollegiate Athletics.

Procedure

We contacted baseball coaches and requested their permission to invite players to complete the paper-pencil survey before practice. With IRB approval and consent from athletes, we met with the teams to administer the surveys. Completing the survey took approximately 10-15 minutes.

Measures

Motivational climate

The perceived motivational climate was measured using the 21-item Perceived Motivational Climate in Sport Questionnaire (PMCSQ). The items on the PMCS have a stem "*On this team...*" and measure the perceived features of a task and ego climate, respectively. Responses are indicated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items are "*...trying hard is rewarded*" (task-involving) and "*...athletes are encouraged to outplay each other*" (ego-involving). Cronbach alpha reliability coefficients were calculated for both scales (ego and task). Alphas of .82 and .80 were found for the task and ego scales, respectively (Walling et al., 1993).

Caring climate

The Caring Climate Scale (CCS) was employed to assess the extent to which the athletes perceive the social and interpersonal context to be caring. Specifically, the 13-item questionnaire examines the extent to which athletes consistently perceive their environment to be interpersonally inviting, safe, supportive, and providing the feeling of being valued and respected. Responses were indicated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The CCS starts with the stem "*On this team...*", example items are "*... the coaches want to get to know all the athletes*" and, "*...everyone likes the athletes for who they are*". The Cronbach's alpha coefficient was .92, indicating a high level of internal consistency (Newton et al., 2007).

Mental well-being

The World Health Organization-Five Well-Being Index (WHO-5;WHO, 1998) was utilized to measure athletes' current mental well-being. The questionnaire is conceptualized as a unidimensional measure that contains five positively worded items, e.g., "*I have felt cheerful and in good spirits*", and "*My daily life has been filled with things that interest me*". The extent to which the positive feelings were present in the last two weeks is scored on a 6-point Likert scale ranging from 0 (at no time) to 5 (all of the time). The raw scores are transformed into a score from 0 (worst imaginable well-being) to 100 (best imaginable well-being). A score ≤ 50 indicates poor emotional well-being, while a score ≤ 28 is indicative of depression. In adults, the WHO-

5 proved to be a highly sensitive screener for depressive affect (Löwe et al., 2004). The questionnaire has adequate validity both as a screening tool for depression and as an outcome measure in clinical trials and has been applied successfully as a generic scale for well-being across a wide range of study fields (Topp et al., 2015).

RESULTS

Means, standard deviations, and Cronbach's alpha values were computed and listed in Table 1. Athletes perceived a moderately high caring and task-involving climate, whereas perceptions of an ego-involving climate were moderate. The average well-being score of the sample was in the satisfactory range. Each of the scales demonstrated adequate reliability with the Cronbach Alpha's ranging from .67 to .89.

Neither the climate variables (i.e., ego-involving ($D(127) = .080, p = .045$); task-involving ($D(127) = .113, p < .001$); and caring climates ($D(127) = .104, p = .002$)), nor well-being ($D(127) = .096, p = .006$)) were normally distributed. Thus, Spearman correlation analyses were calculated to examine the relationship between each of the variables (see Table 1). Athletes' perceptions of a caring and task-involving climate were significantly and positively correlated with one another and mental well-being. In contrast, athletes' perceptions of an ego-involving climate were significantly and negatively correlated with the caring and task-involving climate scales, and no significant correlation emerged between the ego-involving scale and athletes' mental well-being.

Table 1. Means, standard deviations, and correlation matrix of the measured variables.

Measure	Mean	SD	α	EC	TC	CC	WB
Ego Climate	3.44	.48	.67	--	-.18*	-.18*	-.07
Task Climate	3.81	.53	.74	-.18*	--	.50**	.37**
Caring Climate	3.95	.52	.89	-.18*	.50**	--	.52**
Mental Well-being	68.13	17.35	.81	-.07	.37**	.52**	--

Note. * $p < .05$ (two-tailed). ** $p < .01$ (two-tailed).

A full entry model multiple regression analysis was performed to determine the extent that participants' perceptions of their team climate (task-involving, ego-involving, and caring) predict their mental well-being scores. A significant model was found with the perceived caring climate ($F(3, 123) = 14.602, p < .001$) accounting for a significant portion of the variance ($R^2 = .25$) in athletes' mental well-being scores. Perceptions of an ego-involving ($p = .53$) and task-involving climate ($p = .13$), respectively, did not further significantly predict mental well-being scores.

Based on the WHO-5 scoring instructions, participants can be classified into three categories: a) a score of ≤ 28 indicates depression; b) a score of ≤ 50 indicates poor mental well-being; c) a score above 50 suggests participants have satisfactory psychological well-being. In our sample, four participants showed signs of clinical depression (3.1%), 14 players had poor mental well-being (11%), and 109 individuals' mental well-being was satisfactory (85.8%). Overall, 14.2% of our sample falls into the unsatisfactory category (including poor mental well-being and depression).

DISCUSSION

The purpose of the study was to explore mental well-being among collegiate baseball players and examine the extent that participants' perceptions of their team climate predict their mental health scores. Players'

perceptions of a caring and task-involving team climate were expected to account for a significant portion of the variance of their mental health scores, whereas perceptions of an ego-involving climate were expected to contribute negatively to athletes' mental well-being. The findings provided support for the hypothesized relationship between a caring climate to athletes' mental well-being, and align with previous research (Fry & Moore, 2019, Hogue et al., 2017).

The focus on athletes' mental well-being has been growing in recent years. It is important to note that the peak age (18-25) for the risk of an athlete's onset of mental disorders overlaps with the peak competitive years because extreme physical and mental demands are required in collegiate sport (Rice et al., 2016). Clearly, mental well-being and psychological health can be fragile during these young adult years. Consequently, a considerable number of college athletes struggle with various mental health difficulties (NCAA, 2022). In the current study, the WHO-5 mental well-being index was employed to measure psychological well-being. We found that 3.1% of our sample was classified as depressed, while 11% of participants reported poor mental well-being. In total, 14.1% of participants were assessed for impaired psychological well-being. This number is alarming and shows an even higher percentage of athletes struggling with mental difficulties when compared to the findings of Belz et al. (2018), who found that 10.2% of German collegiate national and state team athletes in various sports reported impaired psychological well-being assessed via the WHO-5 well-being index. According to the latest data from the National Collegiate Athletic Association (2022), the current situation is even more concerning. They discovered that 28% of female and 21% of male collegiate athletes had experienced depression symptoms to the point of impaired functioning in the previous 12 months. Further, 31% of male athletes and 48% of female athletes reported excessive anxiety. The numbers are equally concerning at International levels, Hammond et al. (2013) found that 68% of the sample of Canadian collegiate International-level swimmers was classified as having major depressive episodes before competition, and 34% of the athletes met the same diagnostic criteria after the competition. The findings of the current study suggest that collegiate baseball may provide a stressful setting for some athletes.

The multiple regression analysis showed that perceptions of a caring climate play a salient role in the athletes' psychological well-being, explaining approximately 25% of the variance in mental well-being scores. These results highlight how athletes' mental well-being is greatly influenced by how much they feel safe, valued, comfortable, and respected on their team (i.e., perceive a caring climate on their team). Considering that collegiate athletes have numerous concerns (e.g., academic, future planning, financial) and obligations outside their athletic lives that affect their psychological well-being, this finding seems compelling. Both coaches and teammates should be aware of how important it is to have a caring environment on the team where all involved are treated with kindness and respect, and how much it can benefit athletes' mental health. For example, Scott (2022) demonstrated how crucial a caring climate was during particularly challenging times. Specifically, when collegiate athletes perceived a caring climate on their team, they reported feeling greater support from both their coaches and teammates and maintaining more optimistic thought patterns during the COVID-19 pandemic when teams had periods where they could not practice, compete, and/or spend time in person.

Contrary to our hypothesis, the perceived task-involving climate was not a significant predictor of athletes' well-being. In some studies, both the caring and task-involving features of the climate emerge as prime predictors of particular outcome variables. For example, Iwasaki et al. (2021) found that male high school athletes' perceptions of both a caring and task-involving climate predicted their mindful engagement, a parameter of well-being. In other studies, one or the other climate (i.e., caring or task-involving climate) emerges to predict a particular outcome variable. Fry et al. (2021) examined Division I athletes' perceptions

of their team climate and their coping skills and found that perceptions of task-involving climate were linked to the confidence/achievement motivation and goal setting/mental preparation scales of the Athletic Coping Skills Inventory-28 (Smith et al., 1995). Further, the athletes' perceptions of the caring climate were positively associated with the coachability scale. Interestingly, although the athletes' caring and task-involving climate scores were positively associated with each coping skill as measured by Pearson correlations, only the caring or task-involving scores, respectively, emerged as significant predictors in the more rigorous Structural Equation Modelling results for each of the coping skills. In other words, one climate scale suppressed the impact of the other climate scale (i.e., caring climate suppressed the task-involving climate or the task-involving climate suppressed the caring climate).

Perceptions of the ego-involving climate also did not contribute significantly to players' mental well-being. However, Quested and Duda (2009) found a positive moderate correlation between the perceived ego-involving climate and negative affect and emotional/physical exhaustion. Further, Hogue and her colleagues (2019) found a weak positive but significant relationship between the perceived ego-involving climate and depression. It might be the case that the negative influence of a highly perceived ego-involving climate can be detected by the presence of negative psychological states rather than by the absence of positive ones. In future research, researchers could consider pairing the WHO-5 with a measurement that detects negative symptoms of mental well-being (e.g., the Beck Depression Inventory) to better understand when perceptions of an ego-involving climate are significantly linked to maladaptive outcomes. It also may be the case here, as Nicholls (1989) describes that when athletes perceive an ego-involving climate, athletes' ability levels should be considered, as more able athletes may deal with the ego-involving features of the climate in a better way if they receive kudos from coaches and teammates for being one of the more talented athletes on the team. It is possible that these athletes' well-being may not be as negatively impacted as those athletes who are less talented. Future research is needed to tease out how athletes' well-being is affected by an ego-involving climate.

When considering the analyses examining the link between athletes' perceptions of the climate to their well-being, it is strategic to consider the actual perceived climate mean scores. The scores of the caring, task, and ego-involving climate scales were all relatively close together (i.e., less than .5 point different on a 5-point scale). These scores suggest that the team climates created on the teams were neither consistently ego-involving nor task-involving, but perhaps rather neutral. When scores are close together, coaches are to some degree likely reinforcing the features of all the climates, which results in athletes receiving mixed messages about the extent that effort versus performance outcomes are valued, how mistakes are handled, and how rivalry versus cooperation is encouraged. Ideally, the levels of a perceived caring and task-involving climate are 1.5-2 points higher than the level of a perceived ego-involving climate. For instance, in Hogue and her colleagues' (2019) study, high school students reported an average score of 4.04 for the perceived task-involving climate and 2.77 for the perceived ego-involving climate, and a moderate negative relationship was found between the two variables. Similarly, in Reinboth and Duda's (2006) study, collegiate athletes reported an average score of 3.79 for task-involving climate perceptions and 2.42 for ego-involving climate perceptions, and a moderate negative relationship was found between climates. Hip-hop dancers also reported significantly greater levels of perceived task-involving climate (4.25) than ego-involving climate (2.92), and similarly, the relationship between the two climate variables was moderately negative (18).

Research suggests that athletes who perceive a highly ego-involving climate tend to be more preoccupied with the adequacy of their ability (Nicholls, 1989), whereas individuals in a task-involving climate tend to use self-referenced evaluation criteria which are more controllable and achievable (Duda, 2001). In an ego-involving climate, athletes' perceptions of competence are possibly more fragile since competence is

evaluated based on normative criteria (e.g., winning or losing), which are not under one's control. It follows that potential mistakes and defeats will not influence athletes' mental well-being to a great extent as they feel more control over the situation by using self-referenced evaluation criteria (including effort and improvement rather than achievement). However, in our sample, coaches seemed to be equally emphasizing aspects of a task-involving/caring environment (e.g., the importance of improvement/effort) and they may also value ego-involving elements (e.g., winning/losing), which does not represent an ideal sports environment. It might be the case that they do not intentionally create a specific team climate (e.g., highly ego-involving vs. highly caring/task-involving). Nevertheless, our results align with previous research in that desirable outcomes are more likely to be found when athletes perceive a caring and task-involving climate. In order to create a consistent caring and task-involving team climate in sport, coaches should be educated and trained to do so (Claunch & Fry, 2016; Fry et al., 2021).

While this study provides additional support for the benefits of creating a caring and task-involving climate for college athletes, it was not without limitations. First, the sample size was small and included just four baseball teams. Further, the sample included teams in one region of the US, and the generalizability of other areas of the US is limited. Another potential limitation of this study is the way the WHO-5 well-being index assesses mental well-being. The WHO-5 has strengths (e.g., concise, easy to understand, depression screening tool) but also is limited in that it is a unidimensional scale used to assess general mental well-being. Other studies have focused on more specific parameters (e.g., subjective vitality, coping skills, positive/negative affect, mindful engagement) of well-being.

In terms of future directions, given the impact of a perceived caring climate on mental well-being, researchers might focus on the caring feature of the climate in future work with college athletes and consider additional aspects of well-being (e.g., both positive and negative parameters of well-being). Further, longitudinal studies are needed to examine multiple time points and see possible changes in well-being (i.e., potential improvement of mental well-being if athletes experience a caring and task-involving climate). In addition, implementing interventions and training for coaches to create a caring and task-involving environment would be beneficial in allowing researchers to examine how well-being could potentially be enhanced over time. Lastly, beyond exploring athletes' perceptions, assessing coaches' perceptions of the perceived team climate would be valuable. Coaches could share the specific ways that they are trying to create a caring and task-involving climate or an ego-involving climate, and their rationale for their actions. By doing so, it might be easier to determine what and how coaches/athletes could change in order to create the greatest possible caring climate on the team, and by doing so, potentially enhance athletes' mental well-being.

CONCLUSION

Our findings are consistent with previous research in that athletes are more likely to achieve desirable outcomes, in this case, better mental well-being, when they perceive a caring and task-involving environment. In our study, however, the perceived ego-involving climate had no effect on players' mental well-being.

Applications in sport

Coaches who are intentional about creating a highly caring and task-involving climate may help protect and promote athletes' mental wellbeing.

AUTHOR CONTRIBUTIONS

Anett Erdész and Mary Fry conceived of this study; collected and analysed the data and prepared the manuscript. Andrew Fry assisted with the analyses and manuscript preparation.

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No potential conflict of interest were reported by the authors.

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