Do Psychological Factors that Cause "Choking" by an Athlete in a Competitive Sport Differ for Amateurs and Professionals?

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Abstract

This Extended Essay explores whether there is a difference in psychological factors of choking affecting amateur and professional athletes in a competitive sport. The research on choking is examined to explore different factors that cause choking in athletes. The scope of psychological research on choking by amateur and professional athletes in a competitive sport covers performance anxiety, self-regulation and coping strategies, self-consciousness, loss aversion and incentives, explicit monitoring theory and distraction theory. Key psychological factors that emerged from the research on choking include the aversion to loss coupled with status, ability to overcome distraction, choice of appropriate coping strategies, and focus on the process rather than the outcome. For each factor, studies pertaining to professional athletes versus amateur athletes are discussed and evaluated.

In much of the research, there seems to be little systematic comparison between the two classes of athletes, which suggest that this link has not been studied in depth. After considering the relevant research of the different psychological factors that examine the prevailing theories about choking, there appears to be a difference between professional and amateurs athletes only with regard to explicit monitoring theory. As explained by Morris (2013) and supported by DeCaro et. al (2011), the difference between amateur and professional athletes is how many different external stimuli a professional can keep track of versus the amount an amateur can.

The remaining psychological factors that affect choking in athletes in a competitive sport reviewed in this essay do not contribute to finding differences between amateur and professional athletes. Either the research studies do not examine both amateur and professional athletes in their samples, or there is no discussion about the relevancy of the psychological conclusions of the research to amateurs vs. professional athletes. Clearly, more research is needed to make further conclusions.

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Introduction

As spectators, we have all witnessed, or experienced for ourselves a time when someone has "choked" under the pressure of competition in sports. Choking is a psychological term defined as "performance decrements under pressure circumstances" (Baumeister, 1984, p. 610) and pressure is defined as "any factor or combination of factors that increase the importance of performing well on a particular occasion" (Baumeister, 1984, p. 610). Amateurs and professional athletes alike experience choking during pressured competition and struggle to improve their performance in these clutch situations. Psychologists and other researchers have studied this phenomenon for more than 40 years and have identified a number of psychological factors in understanding what athletes experience, how they behave, and what can be done about choking in a competitive sport event.

When children and young adults watch soccer, hockey, football, baseball, or other competitive sports, they often imagine themselves in the boots, skates, or cleats of their favorite player, professional or amateur. They grow up determined to emulate their sport hero and dream about one day playing alongside or against him or her. As they practice long and hard, developing their own skills in sports, young athletes commonly experience choking while shooting a penalty shot, passing or catching a ball, or batting with runners in a scoring position. The experience of choking and subsequently failing to score and perform is emotionally and psychologically devastating to the player, who feels he/she

has let down the team as well as him/herself. Avoiding choking in clutch situations is paramount to success for both the amateur and professional athlete. Learning how to identify and work through these different aspects of choking is why sports psychology for both amateurs and professionals is so important. Potential sports superstars should not have to tackle a problem such as choking when they are at the top of their game, they should learn about choking as they develop. Therefore, investigating whether there is a difference in psychological factors of choking between amateur and professional athletes will impact issues of success and the development of training protocols.

US Public Law No. 92-318, 86 Stat. 235, more commonly known as Title IX or the Patsy Mink Equal Opportunity in Education Act (Valentin, 1997) opened opportunities for equally funding female athletics in colleges and universities that receive federal financial assistance. This resulted in a broader pool of female as well as male athletes playing sports, encouraging more competition at the amateur level. As the number of amateur athletes grew, a growing interest in methods to achieve higher level of skills in competitive sports also increased. Thus, any impediment to success, such as choking, has gained more attention by researchers as well as by athletes trying to develop whatever edge they can over the competition. Additionally, investigating any difference in psychological factors affecting choking in amateur and professional athletes may also expose differences between male and female athletes.

Amateur athletes are still in the earlier developmental stages of their sport, usually not yet capable of performing at the highest level because they are still learning the skills and

strategy of the game. However, professional athletes are expected to perform at the highest levels every time they step out onto their sport venue. Researchers have found that the mental game is just as much of an influence on performance as is skill set or fatigue (Jordet, et al., 2007). While both amateurs and professionals perform in high-pressure scenarios that trigger experiences where the athlete is prone to choking, amateur and professional athletes may respond to different psychological factors, whether it is an internal or external influence that is unique to their level. Therefore, whether amateur and professional athletes cope differently, if in fact they do, would be important to clarify.

Although the body of research about athletes' experience of choking is very broad, this essay will focus specifically on whether psychological factors that cause choking by an athlete in a competitive sport differ for amateurs and professionals. Evidence in the research literature will be examined and analyzed to see if there are differences between amateurs and professionals. The aversion to loss coupled with status, ability to overcome distraction, choice of appropriate coping strategies, and focus on the process rather than the outcome will be explained throughout this essay to explore this research question.

Summary of research on choking

Dr. Roy Baumeister of Case Western Reserve University is one of the early contributors to the development of understanding choking under pressure. In 1984, he published seminal work that describes how self-consciousness and paradoxical effects of incentives affect performance of athletes (Baumeister, 1984). This work began to capture

interest in the phenomena of why athletes, both amateur and professional, "choked" under different levels of stress.

Over the years, research has focused on a multitude of factors and supporting theories to examine the choking phenomena. Factors such as, performance anxiety (Belilock & Gray, 2007, Jordet et al, 2007, Oudejans & Pijpers, 2008), self regulation and coping strategies (Baumeister, 1997, Horton, 2014, Khazan, 2014, Sun, et al, 2011, Wang, et al, 2004), self-consciousness of performance (Bakhshayesh, et al., 2010, Baumeister, 1984), player status (Jordet, 2009), loss aversion and incentives (Chib et al., 2012, Horton, 2014, Woo, 2012) and finally explicit monitoring and distraction theories (DeCaro, et al., 2011, Morris, 2013) now form a body of empirically supported research to explain reasons for choking.

Performance Anxiety

As Beilock & Gray (2007) explain, "Choking is not just poor performance. Rather, it is performing more poorly than expected, given one's skill level, in situations where performance is at a maximum" (p. 425). Dr. Beilock's studies (2007, 2010) demonstrate that when athletes are put into high-pressure conditions, they tend to overthink an automatic muscle memory activity that then interferes with the execution of the skill. For example, she studied professional golfers and their ability to sink 3-5 foot puts. When given financial incentive and an audience in attendance, the golfers were 20% less accurate. This is due to performance anxiety. Performance anxiety is defined as a physiologic "fight-or-flight" reaction that occurs in an anxious person carrying out

an activity in the public eye (Beilock & Gray, 2007). When someone is put into a situation that fosters more stress and includes more external stimuli (an audience) they tend to become more self-aware. The self-awareness causes them to scrutinize their performance. Instead of using their cerebellum, which is the center for muscle memory (Morley, 2014) to perform the task, they switch their neural pathways to the frontal lobe, which deals with deeper thinking and analysis. As a result, the switch between the areas of the brain causes the athlete to consciously think about a task that should be an automatic motor function.

A key study by Oudejans and Pijpers (2008) explored whether or not training under elevated levels of anxiety would affect performance in professional basketball players. For their study, Oudejans and Pijpers asked two Dutch professional basketball teams, who shared similar practicing routines, to practice either with elevated anxiety or no added anxiety. To test performance, the researchers had each of the teams shoot free throws. One team was the experimental group, and the other team was the control group. The experimental group was subjected to added anxiety levels after a performance pre-test. Team members were divided into groups where financial incentives were given for the best performance for each group and video cameras were taping players while audiences were invited to watch the practice. Meanwhile the control group had no financial incentives or video cameras present at their practices. The results of the study seemed to support Oudejans and Pijpers research hypothesis; after training under elevated levels of anxiety, performance would no longer be adversely affected by anxiety. This study "provides a first indication that practicing under elevated levels of anxiety may

prevent choking in experts" (Oudejans & Pijpers, 2008). In addition, the results seem to point in the direction of the athlete's adapting to performing under higher levels of anxiety rather than not experiencing the heightened anxiety at all. However, while both of Beilock & Gray's and Oudejans & Pijpers's studies examine how professional athletes deal with heightened anxiety, there is no mention in either study of whether their results are universally transferrable for other athletes such as amateurs.

Self-Regulation and Coping Strategies

Self-regulation strategies are the ways an athlete regulates factors like emotion, decision-making, and pressure in order to perform a certain task (Jordet, G., 2009). In 2009, Dr. Geir Jordet published an article in the Journal of Applied Sport Psychology reporting how status of a player affected their level of pressure during a soccer penalty shootout. His results showed that players with high current status performed worse than players with a lower current status and that in addition to poor performance, they "seemed to engage more in certain escapist self-regulatory behaviors than players with future status" (Jordet, G., 2009, p. 125). He defined a player with high current status as having "prestigious international awards", like "FFIA World Player of the Year". Jordet concluded that high public status negatively affected performance by adding performance pressure.

In another article published in 2007, Jordet examined how different components like psychology, skill, physiology, and chance contribute to an athlete's performance during a penalty shootout. For this study he looked at statistics on the 41 penalty shootouts and 409 kicks taken during the World Cup, European Championships, and

Copa America futbol tournaments from 1976-2004 (Jordet, G., 2007). Dr. Jordet concluded that in fact "psychological components are most influential for the outcome of penalty kicks and less related to skill or fatigue" (Jordet, G., 2007, p. 121). Further, he recommended that trainers work with the athletes to "reduce the perceived importance of each kick" (Jordet, G., 2007, p. 121).

Both studies concluded that psychological factors, specifically how we control and regulate stress, affect the performance of professional soccer players. His research found that the players whose stress was higher had a breakdown of their self-regulation strategies. It is important to note that the participants in this study were professional soccer players, and gender was not mentioned in the description of the sample. This leads to questions about whether this information can be generalized for both male and female athletes and therefore may be a limitation of the study.

Wang, Marchant, and Morris (2004) performed a similar study examining different coping strategies for amateur undergraduate basketball players. They hypothesized that approach coping strategies would be positively associated with A-state (i.e., somatic A-state and cognitive A-state) and avoidance coping strategies would not be positively associated with A-state. A-state refers to the relationship between coping style and state anxiety (Wang, Marchant, & Morris, 2004). To test their hypothesis, the researchers asked 88 undergraduate competitive basketball players to shoot free throws in two experimental conditions, low pressure (LP) and high pressure (HP). For the low-pressure scenario, each participant was asked to shoot 20 free throws. The researchers recorded the percentage and then asked 22 participants to discontinue their

participation because they failed to shoot greater than 50% accuracy; this was done to reduce floor effects (Wang, Marchant, & Morris, 2004). The remaining 66 participants were then asked to come back to the testing facility exactly one week after the initial LP scenario, to continue with the HP scenario. In the HP scenario, the participants were asked to shoot the same 20 free throws as they did in the LP scenario but researchers added more stress to the shooting environment. Not only did they give a financial incentive, they also had an audience and video equipment present when participants were performing their task. The results of their study found that "approach coping strategies may increase the perceived threat in pressure situations, and avoidance coping strategies may reduce that perception of threat. Thus, approach coping style, where people actively seek to reduce anxiety, for example by seeking explanations for their performance, often results in an increase in anxiety rather than a reduction in anxiety" (Wang, Marchant, & Morris, 2004). They also found that the athletes' coping style had more influence of the cognitive A-state than the somatic A- state. This finding makes sense because, as the researchers stated, "coping is a cognitive process rather than somatic" (Wang, Marchant, & Morris, 2004).

People cope with stress in different ways. Sometimes people hold in their stress and release it in overwhelming situations, others verbalize and complain about how much stress they have. Another way people cope with stress is by avoiding the stress altogether. This coping strategy is referred to as avoidance motivation and the theory states that when experiencing stress and/or pressure from a particular activity, we attempt to rid ourselves of it as quickly as possible (Wang et al, 2004). Avoidance is defined as

"the practice or an instance of keeping away from particular situations, activities, environments, individuals, things, or subjects of thought because of either (a) the anticipated negative consequences of such, or (b) the anticipated anxious or painful feelings associated with those things or events" (Psychology Dictionary, 2014) . In sports, the action of avoiding a certain, unfavorable condition, can be explained as "a form of behavior where a player would feel distressed in a situation and therefore do whatever they can to get it over with as quickly as possible" (Morris, 2013 p. 3).

Self-Consciousness

Self-consciousness refers to how people perceive themselves in front of an audience (Baumeister, R.F., 1984). In a study done by Bakhshayesh, Nia & Neisi (2010), amateurs with high self-consciousness are less susceptible to choke in pressure situations, while people with low self-consciousness are more susceptible to choking. It would seem logical that the results would be the opposite; people with high self-consciousness would be more susceptible to choke because they may be more scrutinizing of their actions. But this is not the case. This study concludes that amateur male and female basketball players from a sports club were more susceptible to choking when they have less self-consciousness because their behavior is subject to external scrutiny. They feel that they have to perform for the crowd or audience so they put more pressure and stress on their performance. Alternately, this study found that amateur athletes with high self-consciousness only focus on themselves, so they do not feel as much pressure.

In another study, Baumeister argues that when an individual "attends consciously to his or her internal process of performance, this consciousness disrupts that process and

harms the performance" (Baumeister, R. F., 1984). It is important to note that two different experiments conclude opposite findings.

Loss Aversion & Incentives

Researchers have found that financial incentive also plays a role in the performance of professional athlete and can contribute to choking (Chib et al., 2012, Woo, 2012). As the expectations of professional athletes rose with the increased pressure of endorsements, sponsorships, paychecks, and consistent performance, psychologists have taken an interest in what happens to people when they are put under this type of pressure. Although amateur athletes may be the rising stars of their game, their amateur status means they do not get paid (US Legal, 2010). On the other hand, professional athletes receive compensation for their participation and view their performance as their careers and livelihood (US Legal, 2010).

In any professional athletic match, the stakes are always high, whether it is the amount of money they are being paid under lucrative multi-year contracts or the sheer scale of playing at elite levels such as the National Football Super Bowl or Soccer World Cup. A study by Caltech researchers suggests that when there are high financial incentives to succeed, people can become so fearful of losing potentially lucrative winnings that their performance falls (Chib, DeMartino, Shimojo, and O'Doherty., 2012). The researchers found that when given a high-stake scenario, judgment falters when the stakes rise to a certain level. It depends on the person's perception though, and if the person realizes that they have something of value to lose, the person performs worse. Incentives are controlled by a part of the brain called the ventral striatum. This study

found that as the wages increased in monetary value, the less active the striatum became, and the worse the performance became (Chib, DeMartino, Shimojo, and O'Doherty., 2012).

Explicit Monitoring Theory/ Distraction Theory

There are two classes of theories that researchers have found to explain the different factors that lead to multiple routes to skill failure and choking under pressure. The first is called the explicit monitoring theory. Explicit monitoring theory or skill-focus theory explains phenomena that cause athletes to choke in high-pressure conditions (Baumeister, 1984 & DeCaro et al, 2011, Morris, 2013). It argues that the anxiety athletes feel while performing causes them to become overly cautions of their actions.

The second is called Distraction theory. This theory proposes that attention needed to perform a particular task is neglected because the mind is focusing on other irrelevant thoughts or worries (DeCaro, Thomas, Albert, & Beilock, 2011). Basically, athletes begin to think about the outcomes of a situation thus taking their mind away from the game.

In experiments performed by DeCaro, Thomas, Albert, & Beilock, (2011) the authors assert that aspects of the pressure situation itself can lead to distraction and/or explicit monitoring. These aspects can then hurt the performance of the athlete because they lose working memory and attentionl control (DeCaro, Thomas, Albert, & Beilock, 2011). Morris argues that explicit monitoring is different between amateur and professional athletes. He claims that "compared to novices the procedural knowledge to

perform at expert level is less accessible to verbal recall" (Morris, 2013, para. 3). He then states that experts in their field spend less time and cognitive attention to performing the same task and because of this, they will have less memory of the actual movements they make. Essentially, the movements are more procedural for professionals than amateurs. Morris concludes, "because expert performers do not need to consciously attend to skills they have more attentional resources to process other information from external stimuli" (Morris, 2013, para. 3).

Discussion

Beilock & Gray (2007) examined how professional golfers dealt with pressure when given financial incentives and an audience to watch them put. She concluded that the reason why the professional golfers performed poorer in front of an audience than alone was because of performance anxiety. Though this is a valid conclusion, it cannot be universally applied to every athlete, professional or amateur. The results of her study are not applicable to amateur golfers because they are not exposed to the same financial incentives that she provided to the ones who participated in her study. While a university level player may have a scholarship, it does not hold the same mental incentive comparable to the income that most professional golfers make. Oudejans and Pijpers (2008) also studied how performance anxiety affects an athlete's performance under pressure but only studied professional basketball players. They concluded that the athletes subjected to the heightened levels of anxiety at their practice did not miss experiencing the pressure; rather they adapted and coped with it. Like Beilock and Gray's study, Oudejan and Pijpers's conclusion cannot be considered universal for both

professional and amateur athletes because their results are not applicable to amateurs. They only studied professionals and there was no discussion of amateurs.

Jordet's study (2009) on how player status affected the coping strategies of professional soccer players carries the same detriments as Beilock and Gray and Oudejans and Pijpers research studies. Though it is valid for one party, it essentially is too focused to make a universal conclusion that would support or deny the overlaying question: Do psychological factors that cause "choking" by an athlete in a competitive sport differ for amateurs and professionals? Further, the research done by Wang, Marchant, and Morris (2004) explored coping strategies in undergraduate basketball players and how that affected shooting performance. Their research is one of the few studies done on undergraduate athletes, and as a result, helped to make empirical connections between professional and amateur athletes. They concluded in their study that athletes with approach coping styles actually increased the perceived stress, which resulted in poorer performance than athletes with avoidance coping styles. This is similar to what Jordet concluded in that the professional athletes with the most to lose usually have the most escapist coping strategies.

Baumeister's study (1984) on self-consciousness was the basis for further research exploring self-consciousness and later explicit monitoring theory. He has recognized that "under pressure, a person realizes consciously that it is important to execute the behavior correctly"(Baumeister, R.F, 1984, p. 610). He has stated "[high self]-consciousness disrupts that process and harms the performance" (Baumeister, R.F, 1984, p. 618). However, another study done by Bakhshayesh, Nia, & Neisi (2010)

concludes differently. Bakhshayesh et. al concluded that spectators influence amateurs with low self-consciousness more than they do with an athlete with high self-consciousness. These two studies appear to contradict each other because they examine the same process of self-consciousness but come to two very different conclusions. This suggests that more research needs to be done in order for a clear understanding of how self-consciousness affects performance in both amateurs and professional athletes.

Further, important research by Chib, DeMartino, Shimojo, O'Doherty (2012) concerning how professional athletes respond to loss aversion and incentives does not address amateur athletes. He found that when people get too much money they tend to become afraid of losing that money so their performance drops. One thing that prohibits this study from being universally applied to all athletes is the psychological factor of incentive which cannot be applied because the definition of amateur is a person who does not get paid for their participation in a sport.

Explicit monitoring theory is backed by many years of research and likely has the most empirical evidence examining psychological factors affecting choking for both amateur and professional athletes. As Morris (2013) explains, the most clearly stated comparison between professional and amateur athletes is that amateurs are too inexperienced in their field to focus on processes other than the mechanics of their sport and cannot see the bigger picture like plays forming in the back field as professionals are able to do other.

The multitude of studies exploring the different psychological factors of why athletes choke under pressure leads readers looking for a link between amateurs and professionals in completely different directions. In much of the research, there seems to be little systematic comparison between the two classes of athletes, which suggest that this link has not been studied in depth.

Conclusion

After considering the relevant research of the different psychological factors that examine the prevailing theories about choking, there appears to be a difference between professional and amateurs athletes only with regard to explicit monitoring theory. As explained by Morris (2013) and supported by DeCaro et. al (2011), the difference between amateur and professional athletes is how many different external stimuli a professional can keep track of versus the amount an amateur can. Morris explained that because professional athletes "do not consciously attend to skills they have more attentionl resources to process other information from external stimuli" (Morris, 2013, para. 3). DeCaro's et. al (2011) research found that amateur athletes can keep up with professional athletes because of reflexes and skill to some extent, but when in a highly competitive situation, the professional athlete can use their plethora of experience to do and see things on the field that amateurs cannot. The remaining psychological factors that affect choking in athletes in a competitive sport reviewed in this essay do not contribute to finding differences between amateur and professional athletes. Either the research studies do not examine both amateur and professional athletes in their samples, or there is no discussion about the relevancy of the psychological conclusions of the research to

amateurs vs. professional athletes. Clearly, more research is needed to make further conclusions and to further differentiate the aspects of "choking" that both overlap and differ in amateurs and professional athletes.

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