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Learned Helplessness in Sports: The role of repetitive failure experience, performance anxiety and perfectionism

Abstract: *Learned helplessness is often studied as a consequence of repetitive failure in a performance domain and is usually associated with the experience of uncontrollability over future outcomes. The premise of this review article is first to establish initial support towards the notion of learned helplessness seen in the context of sports performance. Furthermore, the role of performance anxiety and maladaptive perfectionism will be introduced to strengthen the idea that thinking traits impact motor performance especially when these traits moderate the effects of consecutive failure experience. Finally the paper will focus on a typical profile of an athlete who would be susceptible to choking under pressure as an outcome of perceived uncontrollability and performance anxiety. Burnout and potential interventions will be discussed later.*

Keywords: *Choking, learned helplessness, perceived control, perfectionism, performance anxiety, sports performance*

We often encounter the following situations in competitive sports; an athlete who is experiencing performance anxiety prior to his competition, an athlete who is unable to deal with his poor performance, audience expectation of the athlete's performance and so on. These circumstances are prone to elicit concern, worries and extensive thinking in some athletes more than in others, and as such they certainly validate the need for a scientific approach to sports performance. A handful of classic social psychology research areas have explored certain domains of sports performance. One of earliest studies conducted was on social facilitation and coaction effects (Triplett, 1897). Sports performance however is still surprisingly neglected as an area of study within the field of social cognition even though several concepts in social psychology are directly related to sports performance as mentioned above. One particular situation that perhaps constitutes as a very demanding problem amongst athletes and coaches is when regardless the amount of effort one might invest during training, the athlete is unable to perform at an expected level in competition. This can be best explained as an example of 'choking under pressure' (Baumeister, 1984) which is worse performance than expected given what a performer is capable of doing and what this performer has achieved in the past. Most importantly, choking is said to occur especially during stressful situations when there is a decline in performance compared to expected standards (Gucciardi, Gordon, & Dimmock, 2008; Jackson, Beilock, & Kinrade, 2013; Hill, Hanton, Fleming, & Matthews, 2009). Beilock and Gray (2007) in fact argue that choking is not a random fluctuation in skill level rather a negative response to perceived pressure. Thus, the same competition situation could be perceived as pressure inducing to some athletes while others might find it motivating. It is thus essential to distinguish different moderators and mechanisms that help explain this rather elusive phenomenon that invariably leads to performance decrements. One of the key factors that help explain the concept of choking was efficiently described by Clark, Tofler and Lardon (2005) wherein they emphasise on the notion that whilst choking the athlete is able to make rational decisions and select the appropriate behaviour to implement under pressure but is unable to do so due to certain psychological factors. This response to pressure is in fact different from that of a panic reaction or the 'yips' wherein an athlete would not be able to think rationally leading to performance decrements. This again paves way to the importance given to the psychological

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factors hampering rational decision making and goal pursuit amongst athletes.

Hill, Hanton, Matthews & Fleming (2010) offer a comprehensive review of the phenomenon of choking in sport and discuss potential moderators of choking in sports. For instance, they discuss the role of self-consciousness (Baumeister, 1984), self-confidence (Baumeister, Hamilton, & Tice, 1985), skill level (Beilock & Carr, 2001), task properties (Beilock & Carr, 2001), the presence of an audience (Wallace, Baumeister, & Vohs, 2005), stereotype threat (Chalabaev, Sarrazin, Stone, & Cury, 2008), coping style (Wang, Marchant, & Morris, 2004), and public status (Jordet, 2009) contributing towards a choke reaction. Choking may occur across many diverse task domains where incentives for optimal performance are at a maximum (Beilock & Carr, 2001; Lewis & Linder, 1997; Masters, 1992). Thus, the general notion is that when an athlete for instance faces a competition situation, the pressure to perform well increases. This pressure builds and they choke. A recent study conducted by Murayama and Sekiya (2015) identified different factors of choking via an exploratory factor analysis. Some of them listed were perceptual and cognitive confusion, self-consciousness, feelings of physical heaviness and weakness, conscious processing (attention to movements), safety-oriented strategies, and so on.

While there has been a plethora of research examining the mechanisms of choking, the two basic ones are distraction and self-focus theories. Distraction theories suggest that increases in performance pressure provoke a shift in focus of attention to task-irrelevant cues, and draw support from working memory intensive cognitive tasks (Beilock, Kulp, Holt, & Carr, 2004). In contrast, self-focus theories suggest that performance pressure increases self--awareness about performing correctly causing individuals to try to consciously control normally automatic processes and behaviours (Masters, 1992). Previous work has convincingly shown through behavioural manipulations that both distraction and explicit monitoring can potentially ac-count for choking depending on the specific task construction and source of motivation (DeCaro et al., 2011). However, the latest work by Lee & Grafton (2015) show in their neural account of choking that distraction theories of choking could be more suggestive due to the frontal influences on motor activity are necessary to protect performance from vulnerability under pressure. While most of the theories explain the mechanism of choking *during* the choke response, that is, when the athlete experiences choking resulting in faulty motor movement, there hardly been any research that tries to explain the antecedent mechanisms of choking. In other words, why do people become susceptible to choking? Why they are unable cope with a pressure filled situation? Why do they constantly decline in performance?

It is reasonable to assume that every athlete at some point in their athletic career might have experienced performance anxiety in a pressure filled situation thereby resulting in a choking response. In fact, it is commonly assumed that this increase in pressure is reflected in an increase in anxiety (e.g., Hardy, Mullen, & Jones, 1996; Jackson, Ashford, & Norsworthy, 2006; Masters, 1992; Mullen & Hardy, 2000; Baumeister & Showers, 1986). Performance outcome as a consequence of this condition can consequently either be interpreted as success or failure. However, the perspective changes a bit when athletes *consistently* show a decline in performance over an extended period of time. One of the aims of the present review paper is to introduce the notion of the influence of social cognitive factors that could contribute towards the vicious cycle of an athlete succeeding or failing in pressure filled situations while experiencing performance anxiety. In other words, it is proposed that this vicious cycle could act as a potential antecedent towards experiencing choking. Specifically, the present paper aims to explain consecutive success or failure experiences based on the learned helplessness model which emphasises the role of repetitive failure. Traits of performance anxiety and perfectionism will also be discussed as playing a crucial role in pressure filled competition situations. The article will thus try to establish links between all these factors in a chronological order and then propose a model that combines the components mentioned above.

Stuck in a rut

As already explained earlier, one of the essential components of competitive performance is the experience of success and failure under conditions of pressure and performance anxiety. However when athletes consistently succeed or fail they might develop a certain pattern of approaching a competition and could be labelled as a ‘successful’ or an ‘unsuccessful’ athlete. A potential explanation for this pattern could be that of learned helplessness; a classic theory that emphasises the role of repetitive failure and success experience (Abramson, Seligman, & Teasdale, 1978; Maier & Seligman, 1976; Seligman, 1975). According to the original theory of learned helplessness when organisms are exposed to uncontrollable events, subsequent behaviour is disrupted. The organism then learns that the outcomes are independent of its responses, in other words, the outcomes are uncontrollable. Hence, the organism forms an expectation that future outcomes will also be the same. It has also been documented that failure itself can lead to performance deficits on subsequent tasks (e.g., Hiroto & Selgiman, 1975). Thus there seems to be some evidence linking the basic idea that repetitive failure can induce learned helplessness effects (e.g., Boyd, 1982; Frankel & Snyder, 1978; Kuhl, 1984) However, can this effect be specifically seen in sports?

Original learned helplessness model

The original theory of learned helplessness comprises a set of cognitive, motivational and emotional deficits that is tied to the experience or perception of non-contingency between behaviour and outcomes (Abramson et al., 1978; Alloy, 1982; Maier & Seligman, 1993). Non-contingency essentially is understood as when the occurrence of an

action and an outcome are not dependent on each other Abramson and colleagues (1978) outlined a general flow of events that an individual would engage in before experiencing learned helplessness symptoms. At first an individual would perceive an objective non-contingency which is then followed by the attribution of the non--contingency and finally the expectation of future non--contingency. The organism then forms an expectation that future outcomes will also be the same. Now, imagine a situation wherein regardless the amount of effort an athlete invests during training, s/he is unable to perform at an expected level in competitions. Thus, an objective non-contingency is created between effort and outcome. The athlete would then make an attribution of this non--contingency between one's action and outcome, or in other words the athlete perhaps comes to believe that s/he is unable to win in a competition because s/he is inherently a 'choker'. Furthermore, s/he would probably expect the same performance outcome in a competition in the future, that is, their training has no influence on their final performance. In other words, this athlete would start expecting that future responses would be futile regardless of how hard s/he trains and thereby ends up declining in performance at a competition. This situation is a dauntingly frequent problem many athletes experience during their lifetime which possibly strengthens the general argument that learned helplessness deficits could indeed be observed in sports performance. It is however important to note that mere exposure to uncontrollability or non-contingency does not result in helplessness; rather, the expectancy that the outcomes are uncontrollable. Thus an athlete observing that one's efforts are in vain is not the experience that would trigger performance deficits; rather, if s/he expects that their efforts would not be transferred to actual performance in all future competitions is what would drive their performance deterioration.

Learned helplessness and failure experience

While the classic theory generally focusses on the expectation of non-contingency and uncontrollability (Abramson et al., 1978), another line of thought explained the effects of learned helplessness as an outcome of repeated failure rather than non-contingency (e.g., Boyd, 1982; Frankel & Snyder, 1978; Kuhl, 1984). It was argued that although the manipulations of controllability are specified as "uncontrollable events" (Abramson et al., 1978), they can be accurately described as experimenter-induced failure (Buchwald et al., 1978; Lavelle, Metalsky, & Coyne, 1979; as cited in Coyne et al., 1980). For instance, Benson and Kennelly (1976) attempted to observe the effects of positive or negative feedback provided to students who were engaged in unsolvable discrimination problems. They found that those who received negative feedback demonstrated learned helplessness deficits. However the speculations still exist as to what really causes the learned helplessness effect.

Kofta and Sedek (1989) however argue that regardless of repeated failure information learned helplessness deficits can only be seen when encountered with uncontrollability. Still, many other studies succeeded in demonstrating the absence of controllability is sufficient to provoke a learned helplessness response (e.g., Eisenberger, Leonard, Carlson, & Park, 1979; Oakes & Curtis, 1982). Some preliminary evidence involving the amalgamation of both factors of uncontrollability and failure experience in explaining learned helplessness effects in a motor task was demonstrated by Gernigon, Thill and Fleurance (1999) where in adolescents engaged in an uncontrollable gun--shooting task and received constant failure feedback. Furthermore, Gernigon, Fleurance, & Reine (2000) confirmed that both uncontrollability and failure can be responsible for several forms of learned helplessness. They found that success and failure feedback influences participants' self-efficacy; non-contingent failure especially resulted in lowered self-efficacy. They argued that these lowered self-efficacy expectations could be synonymous to the expectations of future non-contingency; an essential characteristic of learned helplessness.

Thus one can notice with these lines of research that perhaps expectancy of future uncontrollability is not the only pivotal factor but also the experience of success or failure that helps develop learned helplessness effects. On referring back to the example cited earlier about when an athlete perceives a non-contingency between one's effort at training and the failure response in the competition, one can see the involvement of non-contingency expectancy along with failure experience. Thus, perhaps, in the context of sports it is possible that poor performance can be explained both by incorporating the theories of non-contingencies and repetitive failure together. However, it is also necessary to explain successful performances since this is an integral part of sports performance. How do individuals experience, perceive and attribute noncontingencies to escape the effects of learned helplessness? Scarce evidence in this area was initially shown by Benson and Kennely (1976) wherein success feedback with paired with contingency resulted in better performance, or in other words, learned competence. Similarly, Eisenberger, Park, and Frank (1976) induced learned competence in children when challenged with controllable tasks. Additionally, it is also known that an uncontrollable task with positive feedback can also generate an illusion of control (Matute, 1994, 1996) wherein successes obtained in uncontrollable situations resulted in an erroneous perception of control which in turn impeded the helplessness effects. It was argued that the positive feedback gave an illusion of mastery over the situation and thereby escaping the classic learned helplessness deficits. Gernigon et al. (2000) concluded based on their work that when people experience success in a controllable situation, they escape learned helplessness deficits and experience learned competence, while an uncontrollable situation paired with failure feedback results in learned helplessness. Thus, in the context of sports, it is plausible that a successful athlete experiences success and perceives the environment to be controllable whereas an unsuccessful athlete perceives uncontrollability and the experience of failure further intensifies the learned helplessness deficits.

Learned Helplessness Deficits

It is known that learned helplessness effects in general comprise a set of cognitive, motivational and emotional deficits that is tied to the experience or perception of non-contingency between behaviour and outcomes (Abramson et al., 1978; Alloy, 1982; Maier & Seligman, 1993). On teasing apart these deficits studies have shown that causal attributions, expectations and self-esteem seem to be the main cognitive and motivational mediators to explain these effects (Abramson et al., 1978; Miller & Norman, 1979). When examining self-esteem in detail, Abramson et al. (1978) argued that when the desired outcomes are not contingent on an individual's acts but are contingent on the outcome of a relevant other, then that individual will show lower self-esteem than individuals who believe that their desired outcomes are neither contingent on their own acts nor on acts of relevant others. In other words, comparing performance outcome with the self compared to the other seems to be a crucial determinant of experiencing self-esteem. Thus, for instance, an unsuccessful athlete who chokes under pressure and performs poorly compared to the competitor will have lower self-esteem than an athlete who performs poorly in a competition where everyone else performs poorly as well. Witkowski and Stiensmeier-Pelster (1998) in fact argue that performance deficits following failure are interpreted in the line of self-esteem protection. Furthermore, it is known that undesirable events have more pervasive effects on mood, self-esteem, anxiety, causal uncertainty and perceived control over the environment than desirable events (Nezlek & Gable, 2001). In this case, an undesirable event could potentially be that of a non-contingency and failure that would result in lowered self-esteem. Thus, it comes as no surprise to connect the effects of self-efficacy and performance. However, one of the most important associations established in this area is between self-esteem and attributions; both constituting learned helplessness deficits.

Studies have indicated that individuals with low self-esteem would engage in a self-defeating attributional pattern, while those with high self-esteem would engage in a self-enhancement attributional pattern (Baumeister & Showers, 1986; Tice, 1991). A common symptom of a self-defeating pattern is assuming that the cause for a negative event is an internal factor and the cause for a positive event is an external factor (e.g., Pyszczynski & Greenberg, 1987; Weiner, 1985). In the model proposed by Abramson et al. (1978), attribution theory was in fact a crucial component to explain learned helplessness effects wherein they argued that helplessness can be seen in two forms – personal and universal. Personal helplessness is usually associated with internal attributions of failure while the latter is associated with external attributions for failure. Based on the more recent attributions theory (e.g., Weiner, 1985) success and failure generally refer to outcomes. Success then refers to obtaining a desired outcome and failure to not obtaining a desired outcome. Thus, internal attributions of failure or not achieving the desired outcome could therefore lead to personal helplessness. An athlete who fails to win a medal in the competition would interpret this outcome as a failure and when this failure gets attributed due to one's lack of effort or inherent choking tendencies, one can perhaps characterise this athlete as experiencing personal helplessness. While examining other attributional dimensions of stability and generality it has been suggested that helplessness deficits can particularly occur when internal attributions of failure are stable and global, that is, the individual will expect to be helpless in the distant future (both across areas of his life and across time) as well as in the immediate future (Abramson et al., 1978). They also stress that internal failure attributions can in fact heighten the severity of learned helplessness deficits. Thus, in the case of an athlete leaning towards helplessness deficits, s/he would internally attribute their failure to the lack of effort and at the same time would expect to perform poorly in the forthcoming competitions (global) and that s/he would never be able to perform better (stability).

Sports performance and attribution

In a sports context, when athletes think about past performance for instance, they often make judgements of it by stating whether it was good or bad and then make attributions about the performance. Thus, it seems highly likely that attributional styles of explaining failures and successes can be seen in the sports context. Learned helplessness theory suggests that when failures are internally attributed and future expectancy of the same outcome is global and stable, then the helplessness deficits are most prominently seen (Abramson et al., 1978). In the sports context, many studies have in fact shown that explanatory styles reflect the way people usually explain bad or good events (e.g. Peterson, 2000; Peterson & Park, 1998; Peterson & Steen, 2002; Peterson & Vaidya, 2001). People who usually explain bad events by causes that are stable in time ("it's going to last forever"), global in effect ("it's going to challenge everything that I do"), and internal ("it's me") and who explain good events with unstable, specific, and external causes are said to have a pessimistic explanatory style. People with the opposite attributional pattern, that is make stable, global and internal attributions for good events and make unstable, specific and external attributions for bad events are said to have an optimistic explanatory style. It has been shown that those athletes with a negative explanatory style gave more internal and recurring causes for explaining failure (Prapaevessis & Carron, 1988); an effect in line with learned helplessness deficits. Similarly Seligman, Nolen-Hoeksema, Thornton, and Thornton (1990) found that after a failure feedback performance was lowered for pessimistic athletes but not for optimistic athletes. Thus one could presume that an athlete with a pessimistic explanatory style would experience greater learned helplessness deficits compared to athletes with an optimistic explanatory style.

Some scarce early evidence has in fact shown a direct link between learned helplessness and sports performance. Dweck (1980) for instance demonstrated that learned helplessness does exist in sport by using examples from

various famous athletes' careers. In fact, many athletes who are not so helpless as to drop out continue to practise their discipline even though they do not believe they will succeed at the highest level (Dweck, 1980 as cited in Gernigon et al., 1999). Unfortunately, there have been very few studies that have directly examined the presence of learned helplessness in sports with regard to attributional differences. Seligman et al. (1990) found that swimmers with an optimistic explanatory style improved or maintained their performances, whereas pessimistic swimmers became helpless and their performances deteriorated. Prapavessis and Carron (1988) also argue that attributional style differences exist between athletes who demonstrate maladaptive achievement patterns associated with learned helplessness versus those who do not.

Self-serving bias tendencies is also often seen in the sports setting wherein McAuley and Gross (1983) found that winners of table tennis matches explained their successful outcomes with more internal, stable and controllable outcomes than losers did. Similarly, Grove, Hanrahan, and McInman (1991) observed that basketball winning situations entailed more stable and controllable attributions than losing situations did. In the area of competitive sport, McAuley (1985) found that female intercollegiate gymnasts who performed well and perceived their performance in competition as highly successful made more internal, stable, and controllable attributions than those who scored lower and perceived their performance as less successful. In all these studies it is clearly established that controllability certainly plays an important role in the attribution of outcomes and thereby predicting the successes and failures. Biddle, Hanrahao and Sellars (2001) and Hardy, Jones, and Gould (1996) also argue that controllability may be an important predictor of expectations which is directly linked to performance. Hence, one can gather that studying aspects of controllability is essential in investigating learned helplessness effects in sports.

Controllable attributions made to successes are in fact essential to engage in an optimistic explanatory style; a style similar to the concept of learned competence (Benson & Kennely, 1976; Eisenberger et al., 1976; Gernigon et al., 1999) wherein people escape helplessness when success is seemingly controllable. Perhaps, athletes who then demonstrate an optimistic attribution style engage in learned competence resulting in future expectancy of successes and performance improvement and athletes with a pessimistic style engage in learned helplessness due to uncontrollable attributions towards successes. Research has shown that for a successful performance athletes gave more 'controllable' causal attributions than an unsuccessful performance (Santamaria & Furst, 1994). It has also been indicated that the feeling of a lack of control over outcomes in general is characteristic of a pessimistic profile, and can lead to an increase in perceived threat and in turn the individual's state anxiety. When failure is attributed to uncontrollable causes, performance is shown to be less effective (Dweck, 1975). Alloy and Abramson (1979) in fact argue that perceived uncontrollability is an important determinant of learned helplessness, further reiterating the general idea that this phenomenon could exist in the sports context.

So far it has been established that causal attributions play a vital role in explaining learned helplessness effects; particularly internal, stable and global attributions to failures enhanced learned helplessness. Additionally, attributing successes as to uncontrollable outcomes also enhanced these deficits. On the other hand, learned competence probably be can be seen when successes are attributed to internal, stable, controllable and global causes. We also see that success is related to high self-efficacy and failure is connected to low self-efficacy. There have been preliminary suggestions towards the notion of learned helplessness in sports by examining attributional styles on their own, however there is still a gap that needs to filled with regard to examining controllability, repetitive failure experience and perhaps the role of other mediating factors like performance anxiety that particularly contribute to sports performance. In effect, several studies found that a pessimistic explanatory style correlated positively with anxiety (e.g. Helton, Dember, Warm, & Matthews, 2000; Mineka, Pury, & Luten, 1995). Furthermore Martin-Krumm, Sarrazin, Peterson, and Famose (2003) add that those with an optimistic explanatory style were less anxious, more confident, and performed better than pessimistic participants. A recent study by Rascale et al., (2015) also found that a dysfunctional attributional feedback (uncontrollable and stable) led to more personally uncontrollable and stable attributions amongst participants after a failure feedback across two performance tasks of golf-putting and dart-throwing. Also, Gardner, Vella, and Magee (2015) argued that uncontrollable and global attributions mediated the relationship between beliefs about one's performance and anxiety. It has already been established earlier that heightened performance anxiety results in performance deterioration in sports (e.g., Hardy, Mullen, & Jones, 1996; Jackson, Ashford, & Norsworthy, 2006; Masters, 1992; Mullen & Hardy, 2000) however, another crucial component that has been associated with attributions of successes and failures is that of perfectionism (Flett, Hewitt, Blankstein, & Pickering, 1998). The authors argue that socially prescribed perfectionism were in fact associated with perceptions of learned helplessness.

Perfectionism, sports and learned helplessness

Sports performance in general requires some amount of discipline and motivation. One such trait is perfectionism which is characterized by striving for flawlessness and setting excessively high standards for performance, accompanied by tendencies toward overly critical evaluation of one's behaviour (Flett & Hewitt, 2005). Indeed many researchers regard perfectionism as a psychological characteristic that makes Olympic champions (Gould, Dieffenbach, & Moffett, 2002), whereas others regard perfectionism as a maladaptive characteristic that undermines, rather than helps, athletic performance

(Flett & Hewitt, 2005). The multidimensionality of perfectionism was first introduced by Hewitt & Flett (1991) wherein the negative dimension of perfectionism subsumes those facets that relate to concern over mistakes, doubts about actions and negative reactions to mistakes. The positive dimension subsumes those facets of perfectionism that relate to perfectionistic strivings such as having high personal standards and a self-oriented striving for excellence. The distinction between the positive and negative facets of perfectionism may also prove crucial when investigating perfectionism and performance anxiety in competitive athletes. Initial studies in the dimension of sports and perfectionism was conducted by Frost and Henderson (1991) wherein they found that concern over mistakes, was associated with several negative outcomes, including anxiety, low confidence, a failure orientation, and negative reactions to mistakes during competition.

When examining the connection between perfectionism and self-esteem Gotwals, Dunn, and Wayment (2003) showed that athletes who had low self-esteem, were generally disappointed with their performance, and judged their competence as much lower than athletes with higher self-esteem. They also tended to be concerned about their mistakes and doubted their actions; characterizing maladaptive perfectionistic tendencies. Flett and Hewitt (2005) also argue that in general perfectionists will be particularly at risk when they experience failure or perceive that they are failing. However, the impact would be stronger and negative if the failure is repetitive. Research with a sample of golfers indicated that perfectionism was not maladaptive for relatively successful golfers but it is associated with negative thoughts and reactions to mistakes among less successful golfers (Wieczorek, Flett, & Hewitt, 2003, as cited in Flett & Hewitt, 2005). This again throws light in the general direction on the importance of failure and success experiences in the context sports and motivation. Moreover, it is shown that perfectionists who experience repeated failure are more likely to experience distress and anxiety (Stoeber, Schneider, Hussain, & Matthews, 2014) and perfectionistic athletes will be protected, to some degree, from the "perils of perfectionism" if they experience success (Flett & Hewitt, 2005).

Another interesting consequence of perfectionism is that socially prescribed perfectionism is associated with a perceived lack of control (Flett, Hewitt, Blankstein, & O'Brien, 1991; Hewitt & Flett, 1991). Individuals with high levels of socially prescribed perfectionism believe that others have unrealistically high expectations for them. Thus, the failures perceived by socially prescribed perfectionists often are in the form of criticism from significant others. This could also be a relevant trait to consider amongst competitive athletes as they are constantly under scrutiny from their coaches, peers, competitors and their fans. So it is highly possible that those athletes who have high levels of socially prescribed perfectionism also experience a perceived lack of control over future outcomes; a typical learned helplessness deficit. Flett and colleagues (1998) also hinted towards the general idea that socially prescribed perfectionism can be examined in line with personal helplessness. In their study, helplessness was indicated by the fact that a high level of socially prescribed perfectionism was associated with a pervasive tendency to attribute positive outcomes to external factors. We can thus infer from these studies that there seems to be an association between performance anxiety, self-esteem, perfectionism, causal attribution, experience of success and failure and learned helplessness deficits in the sports context. However, there is no research that directly examines these factors. In the studies described below, there is some preliminary evidence towards such direct understanding towards learned helplessness in the sports context.

Learned Helplessness in sports: Some preliminary direct evidence

Recent research has shown that athletes who experience repetitive failure in competitions (in comparison to training) versus athletes who experience repetitive success in competitions tend to differ in some cognitive and motivational traits of performance anxiety, rumination, and perfectionism (Sankaran, von Hecker, & Sanchez, under review). Athletes who repeatedly fail tend to be more anxious, ruminate more and show greater tendencies towards maladaptive perfectionism. The model that is being proposed is that these aforementioned traits influence failure and success outcomes through the route of either learned helplessness or learned competence. Both groups of athletes would also show attributional patterns indicative of helplessness or competence effects. It was already established that exposure to failure repeatedly could induce learned helplessness amongst individuals (e.g., Boyd, 1982; Frankel & Snyder, 1978; Kuhl, 1984). Alloy and Abramson (1979) also argue that perceived uncontrollability is an important determinant of learned helplessness. We thus wanted to incorporate the component of perceived control in examining learned helplessness and learned competence effects amongst a group of athletes who have had experience of either repetitive failure or success in competitions. There however exist overlapping definitions of learned helplessness either due to prior exposure to uncontrollable or non-contingent events or prior exposure to failure experiences. The following studies tried to address the fact that the experience of learned helplessness is not an 'either/or' situation, but could be a combination of both as explained earlier.[1]

It was argued that athletes who consistently experience failure in competitions and also have greater levels of performance anxiety and maladaptive perfectionism showed lower levels of perceived controllability in tasks that involved a stimulus-response-outcome contingency paradigm (Sankaran, Greville, & von Hecker, in prepara-

[1] For the clarity of this review paper, the construct of *rumination* is not described and explained in detail but only mentioned due to its relevance in the study previously mentioned by Sankaran, von Hecker and Xavier (under review).

tion). It is important to note that these paradigms involved experiencing different levels of controllability, while at the same time measuring one's perceived controllability of the particular event occurring. These studies did not look at the impact of uncontrollability on a subsequent task performance. It is only assumed that effects seen on these tasks could be translated as an explanatory mechanism in the real performance domain as it has already been established that certain athletes had prior repetitive exposure to 'failure' and 'success'. Thus, in two studies, athletes who were previously classified as those who experienced repetitive success in competitions and those who experienced repetitive failure in competition participated in a stimulus-response-outcome contingency paradigm that measured perceived controllability. The athletes were recruited from various sports training centres in the UK. Their performance was measured during training in various track and field events which was then compared to their equivalent performance in a competition. This comparison then determined the repetitively successful versus unsuccessful athletes.

The first paradigm was a sports-related paradigm which included a race track with two athletes on a computer screen. One of the virtual athletes was controlled by the participant; the other athlete's speed on the race was predetermined by the computer program. The aim was to make the controlled athlete increase its speed and finish the race. The speed increase was determined by the press of a space bar. Participants were instructed to press the space bar only when they heard the sound of a horn. At the end of the experiment participants made ratings of how much control they had over the athlete's speed. Three controllability schedules (High, Average, Low), were included wherein high indicates that 80% of the time the key press had the desired outcome, average indicates that it worked 50% of the time, and low indicates that the key press resulted in the desired outcome only 20% of the time. 0 indicated that the key press had no effect on the desired outcome and 10 indicated that the key press had a maximal effect on the desired outcome. Perceived controllability was calculated by taking the difference between perceived contingency and the actual contingency, such that a positive deviation from zero indicated an overestimation, whereas a negative deviation from zero indicated an underestimation of control. The second paradigm was a non-sports related paradigm which included a triangle on the screen and button press below it. The aim was to press the button at any frequency during an interval of one minute to find out whether or not the button pressing resulted in the triangle lighting up. Similar to the first paradigm, three controllability schedules of high – 80%, average – 50% and low – 20% were included. Perceived controllability was again measured by means of a judgement-of-control scale. 0 indicated that the key press had no effect on the desired outcome and 100 indicated that the key press had a maximal effect on the desired outcome. Perceived controllability was calculated by taking the difference between perceived contingency and the actual contingency. Across both studies results confirmed the prediction that in general, athletes who repeatedly experience success showed a heightened judgement of control while those who repeatedly failed showed a lower judgment of control. However, a tenable argument can be made by saying that, athletes who in fact experienced repetitive success in competitions had inherently lower levels of performance anxiety and maladaptive perfectionism compared to those who experienced repetitive success based on previously established studies. Perhaps then this repetitive experience reinforces a cognitive style that incorporates either high levels of trait anxiety and maladaptive perfectionism (versus low levels of the same) resulting in either hindering or enhancing to one's performance on a particular task.

As previously established by several researchers (e.g., Boyd, 1982; Frankel & Snyder, 1978; Hiroto & Selgiman, 1975; Kuhl, 1984; Williams & Teasdale, 1982) failure can be a powerful source to elicit learned helplessness effects. The present findings provide hints about the genesis of the phenomenon, even if the measured outcome is that of perceived controllability. Alloy and Abramson (1979) have argued that controllability is a good indicator of one's inclination towards a learned helplessness tendency. Also, Biddle et al. (2001) and Hardy et al., (1996) argue that controllability may be an important predictor of expectations which is directly linked to sports performance. This further supports the expectation that measuring controllability would be a good indicator of impending learned helplessness effects. The effects of learned helplessness are known to be those of performance decrements (Abramson et al., 1978; Maier & Seligman, 1976; Seligman, 1975). The effects of 'choking under pressure' are also those of performance decrements (Baumeister, 1984). This makes way for the argument that there are several antecedents leading to 'choking under pressure', and one of them could be experiencing learned helplessness. He in fact argues that learned helplessness could have implications for individuals when they fail at tasks they might have otherwise succeeded at with effort. He further adds that it arises from underestimating the self's abilities and misjudging environmental contingencies.

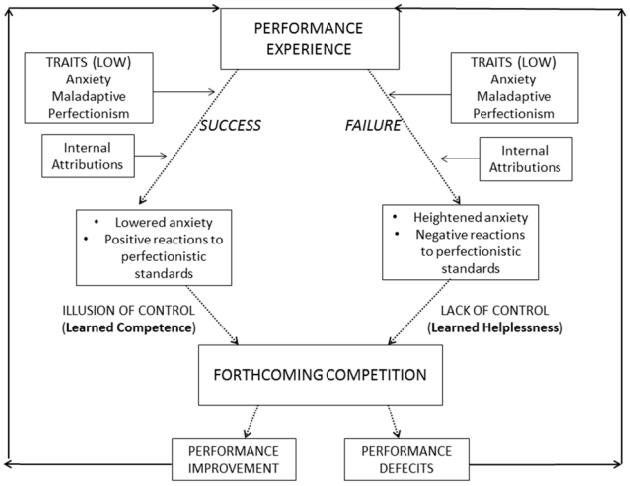
However results also show that those athletes exposed to repetitive success in competitions exhibit higher levels of perceived control. Langer (1975) coined the term 'illusion of control' wherein people act as if objectively uncontrollable events were, in fact, controllable. For instance, in a broad range of studies, Langer (1975) demonstrated that when elements typically associated with skill situations (e.g., practice, competition, choice, and so on) are introduced into situations in which events are objectively uncontrollable, people's expectancies of personal success are inappropriately higher than the objective probabilities would warrant. Langer (1975) also suggested that the illusion of control is the inverse of learned helplessness. Furthermore, illusion of control effects are mostly seen in situations that focus on success rather than failure (Alloy & Abramson, 1979). Thus when consistently successful athletes examine the outcomes with an illusion of control, their reinforced success becomes most salient and would thereby heighten their expectations

and they would be motivated to invest more effort. These studies thus show some initial evidence towards a more direct measure of learned helplessness effect amongst athletes.

Another set of studies (Sankaran, 2012) also confirmed the general attributional pattern seen in learned helplessness and learned competence situations. In general, athletes who were repeatedly exposed to failure, or in other words, a product of learned helplessness tended to show a more pessimistic attribution style and made internal attributions to failure while those athletes repeatedly exposed to success showed an optimistic attribution style and made external attributions to success. These results further reiterate the idea of repetitive failure and success experience in understanding learned helplessness and learned competence. Finally, to tie all the predicted variables together, Sankaran (2012) conducted a study wherein repetitive success and failure feedback was manipulated amongst a group of students in a bogus Stroop task. Participants filled out questionnaires initially that measured anxiety and perfectionism. Anxiety was measured using the State-Trait Anxiety Inventory (STAI), Form Y (Spielberger, 1985). This was then followed by a bogus Stroop task wherein participants were randomly assigned to either a repetitive failure condition or a repetitive success condition. Expectations on forthcoming trials and causal attribution were then measured to explain the cause of their immediate performance. Finally, perceived controllability was measured using the same stimulus-response-outcome contingency paradigm (Sankaran, Greville, & von Hecker, in preparation) as mentioned earlier. Results revealed that mere success or failure experience was not sufficient to elicit differences in perceived controllability but the presence of the aforementioned traits moderated the effect. In other words those individuals high on anxiety and maladaptive perfectionism and if they were exposed to repetitive failure made judgements of perceived uncontrollability. They also expected to fail at the forthcoming trial. These individuals also made internal attributions of failure. Similarly individuals low on anxiety and maladaptive perfectionism when exposed to repetitive success showed an illusion of control and internal attributions of success. They expected succeed in the forthcoming trial. Thus it can be concluded that athletes who repeatedly experience failure perhaps usually perceive a lack of control over future outcomes, and those who experience success usually perceive an illusion of control over future outcomes and this expectancy pattern is determined by certain traits of anxiety and perfectionism.

On referring back to the original model of learned helplessness Abramson and colleagues (1978) outlined a general flow of events. The present model as depicted in Figure 1 proposes that the perceptive of non-contingency between action and outcome can be inferred as failure. When an athlete attributes this failure to internal causes and approaches future outcomes with a lack of control, then one can say that this athlete is a victim of learned helplessness. This learned helplessness loop is possibly reinforced due to pessimistic attributions, experiencing heightened performance anxiety and having maladaptive perfectionistic standards. Thus, an athlete who has a tendency to experience performance anxiety in competitions, when s/he fails again, this anxiety increases and s/he makes internal attributions to explain this failure. Perhaps the athlete's perfectionism also interacts when s/he in unable to attain the goal and experiences negative reactions coupled again with performance anxiety. This further influences the way s/he would approach a forthcoming competition, perhaps with a lack of control. Uncontrollability initiates the learned helplessness response which finally results in performance deficits and again gets fed back into the loop as a failure. Thereby, initiating a vicious cycle of learned helplessness. On the other hand, an athlete who has lower trait anxiety and maladaptive perfectionism tendencies succeeds in a competition possibly makes internal attributions to this success. S/he is motivated to perform better in the forthcoming competition and approaches it with an illusion of control. Heightened sense of control then possibly initiates the learned competence response which results in performance improvement and again enters the loop of learned competence as success. When it comes to the 'choking' response in the sports situation as discussed earlier, it is most likely that athletes' continuous experience with performance anxiety resulting in a 'choking' response begins to activate the learned helplessness cycle. Feedback about a failure is an important source of information. Thus the present model suggested is possibly the precursor to experiencing choking under pressure in sports.

Figure 1. Learned Helplessness and Learned Competence loops predicting sports performance



Implications and Interventions

The current review paper that aimed to establish a model to understand sports performance from the perspective of learned helplessness theory understandably has several theoretical and practical implications. One of the most important implications that can be seen in the context is burnout. In the recent review article by Hill and Curron (2015) they conducted a meta-analysis of research

examining the relationships between perfectionism and burnout. Burnout is mostly described as having three core symptoms namely, depletion of emotional resources, cynicisms and lower levels of self-efficacy (Maslach & Jackson, 1981a, 1981b, as cited in Hill & Curron, 2015). These symptoms are rather analogous to those of learned helplessness. Perhaps then athletes who consistently experience learned helplessness could be more prone developing burnout symptoms. At some points, many elite athlete quit their sport perhaps during their peak period; an effect that could potentially be explained by burnout. In fact, burnout symptoms include physical exhaustion and loss of interest and value in participation (Raedeke & Smith, 2001). Burnout is also understood to arise primarily as a result of stress-related processes (Maslach, Schaufeli, & Leiter, 2001) a component that shares characteristics with learned helplessness deficits again. The review paper by Hill and Curron (2015) revealed that maladaptive perfectionism was positively related to overall burnout and symptoms of burnout; the same trait that seemed to predict a majority of learned helplessness effects. Thus, it is necessary to conduct future research in the area that specifically examines the relation between burnout and other learned helplessness components. Furthermore, work by Moore, Vine, Wilson, and Freeman (2012) show that when golfers evaluated the competition environment as a challenge (that is, having sufficient resources to cope with demands) they engaged in superior performance. The challenge re-appraisal group also reported less anxiety, more facilitative interpretations of anxiety and less conscious processing, all pointing to the general notion that altering one's motivational state before the competition could help in anxiety re-appraisal. Perhaps athletes with a tendency to engage in learned helplessness loop could be introduced to the intervention of challenge re-appraisal wherein one's anxiety levels are altered and thus one would be able to break the learned helplessness loop.

Another possible and practical intervention could include early identification of athletes with certain adaptive/maladaptive traits and tendencies. The premise of this model is based on the notion that certain pre-existing traits exist in athletes in higher or lower levels. These traits, when interacting with relevant experiences of success or failure in competitions, result in a pattern which could be predictive for an athlete to experience helplessness or learned competence. Individual differences assessments could be considered amongst athletic clubs to streamline the training of athletes. If an athlete with high levels of performance anxiety and perfectionism encounters initial failure in competitions, at this stage, certain preventive measures can be taken, for example, avoiding too much negative feedback or priming athletes with successful performances, limiting the amount of information provided to them, train them in the way they need to set goals, and so on. For successful athletes, the job is perhaps easier for sport psychologists, coaches and parents because all they need to do is reinforce positive feedback and train them consistently with strategies involving focus and concentration.

When it comes to a 'take home message' from the model described it would be useful for a coach to know about specific athlete profiles based on their inherent traits, and deliver feedback about performance based on these profiles. Some coaches in fact have a tendency to give a lot of negative feedback in the hope to motivate the athletes to perform better but it might not always work. An interesting option would also be to video record athletes during training and competitions and play these recordings back to them, based on the idea that successes as positive stimuli might have enhancing effects. The problem with athletes who are exposed to repetitive failure is that they are stuck in a learned helplessness rut based on maladaptive associations they have formed. Thus, new associations need to be formed again and this can be done through repetitive reminding of successes. Another important finding was regarding perceived controllability. Some athletes can perhaps be trained to approach the competition situation with an illusion of control over future outcomes which could perhaps help them engage in a learned competence loop.

In fact, studies have shown that helplessness can be reversed and prevented by the experience of success. Klein and Seligman (1976) gave nondepressed participants inescapable noise and then conducted 'therapy' by incorporating solvable problems. Both depressed and nondepressed participants escaped noise and showed normal expectancy changes after success and failure, thereby proving that 'therapy' worked. This could also possibly work in the sports context if athletes are able to attain easier goals during training for instance and then their attribution can slowly by changed to a more global aspect, that is, for instance "If I can perform this well in training, I will be able to transfer my performance to a competition as well". Teasdale (1978) also found that real success experiences and recalling similar past successes were equally effective in shifting attribution for initial failure from internal to external factors; an intervention that can also be adapted to the sports context.

Conclusions

In conclusion, the present review paper suggests that the experience of only non-contingency or uncontrollability or failure is probably not sufficient to predict long term effects of learned helplessness. Perhaps certain traits like anxiety and maladaptive perfectionism can influence the development and maintenance of such deficits. The present paper also throws light into the phenomenon of learned competence; an area that also needs more attention. Overall, it is important to understand that sports performance is an easily overlooked yet prominent domain in our day to day lives and it's imperative to bridge the gap between social cognitive theories and application.

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