



## Psychophysiological responses to sport-specific affective pictures: A study of morality and emotion in athletes

Nicholas Stanger\*, Maria Kavussanu, Adrian Willoughby, Christopher Ring

School of Sport & Exercise Sciences, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom

### ARTICLE INFO

#### Article history:

Received 11 January 2012

Received in revised form

9 June 2012

Accepted 11 June 2012

Available online 10 July 2012

#### Keywords:

Antisocial behaviour

Empathy

Moral disengagement

Psychopathy

### ABSTRACT

**Objectives:** The link between morality and emotion has received little attention in the sport context. To address this issue, we examined whether moral disengagement, empathy, antisocial behaviour and psychopathy were associated with emotional reactions to unpleasant pictures depicting players being hurt or deliberately fouled in a sport context.

**Design:** A cross-sectional design was employed.

**Method:** Team sport athletes ( $N = 66$ ) completed measures of moral disengagement, empathy, antisocial behaviour and psychopathy and then viewed unpleasant, neutral, and pleasant sport pictures while emotional reactions to the pictures were assessed using valence and arousal ratings of the pictures as well as electrocutaneous startle blink, heart rate, skin conductance, and evoked potentials.

**Results:** Moral disengagement, empathy and psychopathy, but not antisocial behaviour, were associated with emotional reactions to the unpleasant pictures. Specifically, moral disengagement was related to attenuated startle blink responses and higher valence (less unpleasant) ratings, whereas empathy was associated with lower valence (more unpleasant) ratings. Psychopathy was associated with smaller startle blink responses and less heart rate deceleration.

**Conclusion:** Our findings provide support for the link between morality and emotion in athletes. Moral variables may be more closely linked with specific measures of emotion, highlighting the utility of taking a multi-measure approach in the assessment of emotion.

© 2012 Elsevier Ltd. All rights reserved.

Sport is a social context where antisocial behaviour, defined as behaviour intended to harm or disadvantage another individual, is commonly observed (Kavussanu, 2007, 2008). In non-sport contexts, a notable finding is that psychopaths, who frequently commit antisocial behaviours experience blunted emotions when they view unpleasant pictures (e.g., Blair, Mitchell, & Blair, 2005; Frick & White, 2008). Philosophers and theorists have long posited a role for emotion in morality (e.g., Bandura, 1991; Hume, 1777/1960; Smith, 1759). Although a number of variables have been identified as predictors of morality in sport (see Kavussanu, 2008), the relationship between emotion and morality has received limited attention. The present study was designed to address this issue.

### Emotion in the picture viewing paradigm

One way researchers have assessed emotion is by examining psychophysiological responses to unpleasant, neutral and pleasant

pictures (Lang & Bradley, 2010). This methodology is based on the biphasic theory (Lang, 1985), which defines emotion as action dispositions organized around the two dimensions of valence and arousal. In this view, there are two motivational systems in the brain – appetitive and aversive – which reflect the valence dimension. Arousal is the degree to which the dominant motivational system is activated during a response. Processing unpleasant pictures primes the defensive system motivating a negative emotional state, whereas processing pleasant pictures is assumed to prime the appetitive system motivating a positive emotional state (Lang & Davis, 2006). Emotional reactions to these pictures are measured via self-reports that assess the valence and arousal dimensions of emotion (Bernat, Patrick, Benning, & Tellegen, 2006). Researchers using this paradigm also typically obtain measures of physiological responses. When these responses vary as a function of picture category, they are assumed to represent indices of emotion. In this study, we examined five such indices: startle blink, heart rate deceleration, skin conductance, and two event-related brain potentials.

Startle blinks and heart rate deceleration reflect the valence dimension of emotion. Startle blinks are typically larger when

\* Corresponding author.

E-mail address: [n.d.stanger@googlemail.com](mailto:n.d.stanger@googlemail.com) (N. Stanger).

elicited while participants view unpleasant pictures compared to while viewing neutral and pleasant pictures (Lang & Bradley, 2010; Lang, Bradley, & Cuthbert, 1998; Vrana, Spence, & Lang, 1988). They reflect the degree to which pictures prime or inhibit the protective action of the startle reflex following an aversive probe. When viewing an unpleasant picture there is a “match” between the picture stimulus and the aversive startle response resulting in a larger startle blink, whereas when viewing a pleasant picture a “mismatch” occurs resulting in an inhibited response of the startle reflex (Lang et al., 1998). Heart rate deceleration is also larger when viewing unpleasant compared to neutral and pleasant pictures (e.g., Lang & Davis, 2006; Palomba, Angrilli, & Mini, 1997). Heart rate is mainly under parasympathetic control; it decreases progressively when processing information (Lacey & Lacey, 1970), and decelerates more when viewing unpleasant pictures because attention is drawn to more salient and motivationally significant information (e.g., someone being hurt) in comparison to pleasant and neutral pictures (Lang & Bradley, 2010; Palomba et al., 1997). Thus, startle blink and heart rate can be used as objective measures of affective valence (Lang et al., 1998; Vrana et al., 1988).

Three other physiological responses to unpleasant pictures examined in this study are skin conductance and the P300 and late slow wave brain potentials. Skin conductance reflects the moisture level of the skin (i.e., sweat gland activity) and is controlled by the sympathetic nervous system, so it is used as an index of psychological (or physiological) arousal (Lang & Bradley, 2010); increases in skin conductance indicate that the participant is in a state of higher emotional arousal. The P300 is a positive peak in the evoked brain potential that occurs approximately 300 ms after stimulus presentation (e.g., picture onset). It reflects the extent of the processing of the stimulus, and its amplitude is greatest for arousing pictures reflecting greater processing of these stimuli (Olofsson, Nordin, Sequeira, & Polich, 2008). The late slow wave positive potential is the brain potential that occurs 400 ms after stimulus presentation, is implicated in memory formation, and its amplitude is also greatest (i.e., more positive) in response to arousing stimuli (Olofsson et al., 2008). Unpleasant and pleasant pictures (which are also high in arousal) typically evoke greater skin conductance, P300, and slow wave potential than neutral pictures (e.g., Olofsson et al., 2008; Palomba et al., 1997); thus, these physiological responses reflect the arousal dimension of emotion.

### Morality and emotion

In his social cognitive theory of moral thought and action, Bandura (1991) proposed that emotion plays a self-regulatory role in moral behaviour: Individuals typically refrain from behaving in ways that violate their moral standards to avoid experiencing negative emotion, such as guilt. However, antisocial behaviour still occurs. This happens because individuals are able to minimize or avoid the negative emotions associated with antisocial behaviour. They do this via moral disengagement, which is a set of psychosocial mechanisms that enable people to justify engaging in antisocial acts without experiencing the usual negative feelings. Example mechanisms include cognitively restructuring behaviour as benign, distorting the consequences of one's behaviour, displacing or diffusing responsibility, and blaming the victim (see Bandura, 1991; Boardley & Kavussanu, 2007).

Moral disengagement has been positively associated with antisocial behaviour (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Boardley & Kavussanu, 2007, 2009) and weaker anticipatory affective self-sanctions in relation to transgressive conduct (Bandura et al., 1996). It can also influence how we view distress in and harmful behaviour by others and attenuate the negative emotional reactions to such behaviour (Bandura et al., 1996). In

a sample of American students, Aquino, Reed, Thau, and Freeman (2007) found that moral disengagement was positively associated with punitive judgements about killing perpetrators of the 9/11 terrorist attacks, and reduced self-reported negative emotional reactions when reading about American soldiers abusing Iraqi detainees. Thus, moral disengagement has been associated not only with antisocial behaviour, but also with emotional reactions to such behaviour.

Another variable that has implications for morality and emotion in sport is empathy, which has been defined as an affective response that stems from understanding someone else's emotional state, and is similar to what the other person is feeling or would be expected to feel in a certain situation (Eisenberg & Strayer, 1987). Empathy is multidimensional. Two dimensions of empathy examined in this study are perspective taking, which is the tendency to adopt the view of others, and empathic concern which is the tendency to feel compassion for unfortunate others (Davis, 1983). Individuals who are high in empathy should experience stronger negative emotions when seeing someone who is hurt, because they should take the victim's perspective and experience sympathy for the victim. Indeed, Stanger, Kavussanu, and Ring (2012) showed that empathy led individuals to report stronger negative emotional reactions to pictures of players being deliberately fouled and hurt. Finally, empathy is assumed to deter antisocial behaviour, as those who vicariously experience another person's emotions are less likely to commit acts that may cause them distress (Bandura, 1986; Feshbach, 1978) and has been negatively associated with antisocial behaviour in both sport (Kavussanu & Boardley, 2009; Kavussanu, Stamp, Slade, & Ring, 2009) and non-sport (e.g., Miller & Eisenberg, 1988) contexts.

Researchers have used physiological measures to assess empathic responses while seeing others in pain. For instance, empathy had been shown to increase skin conductance when observing another person receiving a painful heat stimulation (Stotland, 1969), and viewing pictures of someone in pain resulted in more positive amplitudes of event-related potentials (Fan & Han, 2008). Research using functional imaging has shown that when viewing others in pain, individuals high in dispositional empathy were characterized by the greatest activation in pain-related emotional and motivational areas of the brain, thereby revealing that empathy is associated with stronger emotional reactions to seeing others in pain (Singer et al., 2004). Although empathy has been associated with increased physiological responses when seeing others in pain assessed via brain imaging (Singer et al., 2004), little is known about the link between dispositional empathy and emotional reactions to unpleasant pictures of hurt players.

Two other variables examined in this study are antisocial behaviour and psychopathy. Individuals who commit antisocial acts have been characterized by blunted emotional reactivity to viewing unpleasant pictures (e.g., Frick & White, 2008; Sharp, van Goozen, & Goodyer, 2006). For instance, antisocial youths with callous traits (lacking emotion) show deficits in processing of unpleasant content, such as signs of distress, but do not exhibit any deficits when the content is pleasant (e.g., Kimonis, Frick, Fazekas, & Loney, 2006). In addition, higher levels of antisocial conduct in youths have been associated with lower arousal ratings of unpleasant pictures (Sharp et al., 2006). Given that antisocial behaviour is linked with higher moral disengagement (Boardley & Kavussanu, 2009) and lower empathy (Miller & Eisenberg, 1988), it may be expected that it will be associated with reduced negative affective reactions to pictures of players hurt or being deliberately fouled. To date, no study has addressed this possibility.

Psychopathy, which is characterized by emotional detachment (e.g., low empathy) and antisocial behaviour, has also been associated with reduced responsiveness to unpleasant pictures, as reflected by inhibited startle blink responses (Blair et al., 2005;

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات