

# Mapping handball players' reactions to aggression during a sporting event \*

## Mapeando las reacciones de agresión de los jugadores de balonmano durante un evento deportivo

Received: 10 March 2016 | Accepted: 20 June 2016

**Eric Fruchart**

University of Perpignan, France

**Patricia Rulence-Pâques**

University of Lille III, France

### ABSTRACT

During sporting events, players' reactions to opponents' aggression vary in widely different ways. Some players are able to exert strong self-control. Other players immediately react to the first aggressive act. Still other players adopt middle-ground behaviors. We examined whether it was possible to find empirical support for these qualitatively different ways to react to aggression. Handball playing was chosen because it involves a lot of physical/social interactions. Fifty amateur players were presented with a set of scenarios containing information about: the number and kind of previous aggressive acts that have affected the player; the current team's score; the coach's attitude to aggressive behavior among players; and the risk of being sanctioned in case of retaliation. They were asked to rate, separately, the level of anger they would experience in each case and the probability that they retaliate. Through cluster analysis, three qualitatively different ways to react to aggressive behavior during sport events were found; they were called Self-Control (44%), Depending on Circumstances (30%), and High Reactivity (14%). Implications for coaches and referees are discussed.

### Keywords

aggression, anger, retaliation, handball, individual differences.

### RESUMEN

Durante los eventos deportivos, las reacciones de los jugadores a la agresión de los oponentes varían ampliamente y en diferentes maneras. Algunos jugadores son capaces de ejercer un fuerte auto-control. Otros jugadores reaccionan inmediatamente al primer acto agresivo. Otros jugadores adoptan comportamientos moderados. Este estudio examinó si era posible encontrar apoyo empírico para estas maneras cualitativamente diferentes de reaccionar a la agresión. El balonmano fue el deporte elegido porque implica una gran cantidad de interacciones físicas y sociales. A cincuenta jugadores aficionados se les presentó un conjunto de escenarios que contenían información sobre: el número y los tipos de agresiones previas que habían afectado al jugador, los marcadores actuales del equipo, la actitud del entrenador frente al comportamiento agresivo entre los jugadores, y el riesgo de ser sancionado en caso de tomar represalias. Se les pidió que respondieran, por separado, el nivel de ira que experimentarían en cada caso y la probabilidad de que tomaran venganza. Se realizó un análisis de conglomerados, y se observaron tres formas cualitativamente diferentes de reaccionar ante el comportamiento agresivo durante los eventos deportivos; estas

formas fueron denominadas Auto-control (44%), dependiendo de las circunstancias (30%) y alta reactividad (14%). La discusión muestra las implicaciones para los entrenadores y los árbitros.

**Palabras clave**

Agresión, ira, retaliación, balón mano, diferencias individuales.

## Para citar este artículo

Fruchart, E., & Rulence- Pâques, P. (2016). Mapping handball players' reactions to aggression during a sporting event. *Universitas Psychologica*, 15 (3). doi: <http://dx.doi.org/10.11144/Javeriana.upsy15-3.mhpr>

Simple observation of players' behaviors during sporting events shows that players' reactions to opponents' aggression widely differ from one player to the other. Some players seem to be able to exert strong self-control; they never retaliate during the event, even in severe cases. As Robbie Fowler did demonstrate in 1997, they truly embody sportsmanship (Shields & Bredemeier, 1995). They, however, may clearly express their anger at the vicious opponent. In contrast, other players immediately react to the first aggressive act. They tend to be self-centered, and as a result, their reactions seem to be largely driven by their direct opponent's provocations. Like Joey Barton, they sometimes tend to behave as if aggression was part of the play (Goldstein & Iso-Ahola, 2006). Still other players adopt middle-ground behaviors. They do not immediately react to the first assault but they do not hesitate to retaliate in case of renewed breaches. They adopt what has been called a 'tit for two tats' strategy (Axelrod, 1984). These observations are consistent with the idea that, qualitatively, different kinds of emotion regulation strategies exist among people, ranging from under-regulation to over-regulation and including adaptive regulation (Robertson, Daffern, & Bucks, 2012).

The present study examined whether it was possible to find, in the context of sport events, additional empirical support for these qualitatively different ways to react

to aggression. Handball playing was chosen because it involves a lot of physical/social interactions in which players can be subjected to different kinds of aggression (Storne & Rolland, 2004). A scenario technique that has already been implemented in studies specifically aimed at mapping people's attitudes in diverse domains (e.g., Kpanake, Sorum & Mullet, 2016) was used. Four factors, borrowed from the literature on aggression in sport, were considered in the scenarios: (a) the number and kind of previous aggressive acts that have affected the player (Anestis, Anestis, Selby, & Joiner, 2009); (b) the current team's score (Maxwell, Visek, & Moores, 2009); (c) the coach's attitude to aggression (Tracllet, Moret, Romand, & Kavussanu, 2011); and (d) the risk of being sanctioned (Shapcott, Bloom, & Loughead, 2007).

## Method

### *Participants*

Fifty male handball players voluntarily participated in the study. They were amateur players who played handball at a national level. They were aged from 18 to 31 ( $M = 20.9$ ;  $SD = 3.50$ ).

### *Material*

The material consisted of two sets of cards containing a scenario, a question, and a rating scale. In the first set, the scenarios were composed according to a three within-subject factor design: Number and kind of previous aggressive acts (one verbal aggression or one verbal aggression followed by one instrumental physical aggression, or one verbal aggression followed, first by one instrumental physical aggression, and then by one hostile physical aggression)  $\times$  Current team's score (the team is bound to lose vs. the team can still win)  $\times$  Coach's attitude (always requests strict

application of rules of fair play vs. tolerates self-defense),  $3 \times 2 \times 2$ .

An example of scenario is the following: "You are playing a European cup match at home. The majority of the public is composed of your own supporters. The match is going to finish in a few minutes and the score is tied. One of your opponents has just assaulted you verbally. You know that your coach always recommends fair play, no violence, and keeping to the rules." The question under each scenario was: "To what extent would you become angry in such a situation"? The rating scale was an 11-point scale with a left-hand anchor of "Not at all angry" (0) and a right-hand anchor of "Very angry" (10).

In the second set, the scenarios were composed according to a four within-subject factor design, the three factors already mentioned plus a risk of being sanctioned factor with two levels: the referee is not looking at you versus the referee is looking at you. The design was a  $2 \times 2 \times 3 \times 2$  design. An example of scenario is the following: "You are playing a European cup match at home. A majority of the public is composed of your own supporters. The match is going to finish in a few minutes and the current score is such that you know for sure that your team will lose. One of your opponents has just assaulted you in order to hurt you physically. This same opponent has already assaulted you verbally early on in the match. You know that your coach does not appreciate your letting yourself be messed about during the match. You have just now an opportunity to physically assault him. The referee is at a good distance from you; he is not watching you. There is, as a result, little chance that you will be sanctioned." The question was, "To what extent would you retaliate?" The rating scale was an 11-point scale with a left-hand anchor of "Certainly not" (0) and a right-hand anchor of "Very probably yes" (10).

### Procedure

After having obtained the approval of all the teams' coaches, we met participants in a vacant

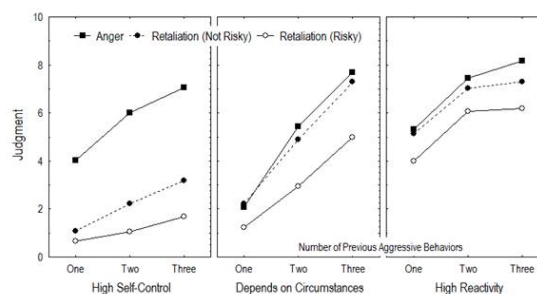
room at a sports hall. Each person was tested individually. We used the standard procedures recommended by Anderson (1996; see also Fruchart, Rulence-Pâques, Dru, & Mullet, 2010). Half of the participants were presented with the anger scenarios first and then with the retaliation scenarios. The other half was presented with the same sets of scenarios but in the reverse order.

In each case, the experimenter indicated the way to use the response scale but took care not to influence participants' opinions. He frequently reminded participants that they were allowed to use any part of the response scale, not just the extremes. Participants took 30-50 minutes to complete both phases. At the end of the session, they completed a separate questionnaire assessing their experience with anger and retaliation during sport meetings (see Table 2).

### Results

A K-means analysis was performed on the raw data according to the procedure advocated by Hofmans and Mullet (2013). A three-cluster solution was retained. The patterns of data that correspond to each cluster are shown in Figure 1. The main results of ANOVA for each cluster are shown in Table 1.

**Figure 1**  
Effect of number and type of previous aggressive behaviors and anger-retaliation on anger or retaliation ratings for each cluster.



Source: own work

**Table 1**

Main Results of the ANOVAs conducted on the three clusters

Factor	df	MS	F	p	$\eta^2_p$
<b>Cluster Self-Control</b>					
Team's Score	1	5.01	0.55	0.467	0.03
Coach's attitude	1	27.28	15.18	0.001	0.42
Previous Aggressive Acts (N)	2	282.16	75.86	0.001	0.78
Anger-Retaliation (R)	2	1513.37	108.38	0.001	0.84
N x R	4	25.26	8.08	0.001	0.28
<b>Cluster Depending on Circumstances</b>					
Team's Score	1	2.02	0.79	0.391	0.05
Coach's attitude	1	16.71	8.35	0.012	0.37
Previous Aggressive Acts (N)	2	1043.39	69.89	0.001	0.83
Anger-Retaliation (R)	2	216.51	20.52	0.001	0.59
N x R	4	16.17	5.16	0.001	0.27
<b>Cluster High Reactivity</b>					
Team's Score	1	0.62	0.11	0.741	0.01
Coach's attitude	1	8.48	7.00	0.021	0.37
Previous Aggressive Acts (N)	2	261.57	62.80	0.001	0.84
Anger-Retaliation (R)	2	100.62	5.69	0.009	0.32
N x R	4	2.20	0.62	0.652	0.05

Source: own work

For 22 participants (44%), mean anger ratings ( $M = 5.69$ ,  $SD = 1.28$ ) and mean retaliation ratings ( $M = 1.65$ ,  $SD = 0.69$ ) were very different. In each case, ratings increased as a function of number of previous aggressive acts but at very different rates whether anger or retaliation were considered. As participants expressed anger but, at the same time, a low level of intent to retaliate, this cluster was called Self-Control.

For 15 participants (30%), mean anger ratings ( $M = 5.07$ ,  $SD = 0.62$ ) and mean retaliation ratings ( $M = 4.81$ ,  $SD = 0.82$ ) were similar, in particular in the risky situation. In each case, ratings strongly increased as a function of the number of previous aggressive acts. This cluster was called Depending on Circumstances.

For the remaining 13 participants (26%), all mean ratings were comparatively higher than in the two previous clusters, respectively 6.98 ( $SD = 1.01$ , anger), 6.49 ( $SD = 1.48$ , retaliation without risk), and 5.41 ( $SD = 1.25$ , risky retaliation). These participants strongly reacted to aggression even after a single act. As a result, this cluster was called High Reactivity.

Separate ANOVAs were conducted on the data of each cluster. The design was Team's score  $\times$  Coach's attitude  $\times$  Previous Acts of Aggression  $\times$  Anger-Retaliation (anger, retaliation with risk, and retaliation without risk),  $2 \times 2 \times 3 \times 3$ . In light of the multiplicity of

comparisons, the level of significance was set at 0.001. When Huynh-Feldt's adjustments were applied, no important changes were observed in  $p$  values.

Table 2 shows the mean responses to the items about personal experience of aggression in sport. Significant differences were observed between clusters regarding the global anger item and the three retaliation items.

**Table 2**

Mean ratings regarding personal experience of aggression, overall, and in each cluster

Items	Clusters			Total	F	p
	Self-Control	Depending	High Reactivity			
Age	22.28	22.07	21.00	21.79	0.59	0.556
I have often been angry because of aggression	4.73	5.67	6.69	5.52	3.41	0.041
I have often been angry specifically because of verbal aggression	3.32	3.87	5.38	4.02	2.62	0.083
I have often been angry specifically because of instrumental aggression	4.00	4.27	6.08	4.62	2.41	0.100
I have often been angry specifically because of physical aggression	5.36	6.07	7.23	6.06	1.93	0.156
I have often been the victim of verbal aggression	4.09	4.8	5.69	4.72	1.87	0.165
I have often been the victim of instrumental aggression	3.95	4.6	4.85	4.38	0.48	0.620
I have often been the victim of physical aggression	2.18	2.27	3.23	2.48	0.91	0.411
I have often verbally reacted	2.45	3.93	4.85	3.52	3.25	0.047
I have often aggressed my opponent for instrumental reasons	2.09	3.87	4.69	3.30	4.10	0.023
I have often aggressed my opponent physically	1.59	3.47	4.69	2.96	4.45	0.017

Source: own work

## Discussion

As expected, three types of relationship between anger and resulting aggression were found, and these three types illustrate different ways of coping with victimization during a match, as it has been stressed by the media (e.g., Robbie Fowler vs. Joey Barton), and that any supporter can observe during sport meetings. Our findings are consistent with the idea that qualitatively different kinds of emotion regulation exist among people (Robertson, Daffern, & Bucks, 2012).

For some players, their level of anger naturally increased as a function of the severity of aggression but never translated into avenging acts: As Robbie Fowler, they are able to express high self-control. They were probably used to employ adaptive ways to regulate their emotions, which certainly assist them to focus on their play and achieve the team's objectives.

For other players, at the opposite, a high level of anger and a high level of resulting desire to avenge were immediately triggered by a single verbal assault: As Joey Barton, they were always ready to use any opportunity to retaliate, above all in case of physical aggression. These participants seemed not to be used to employ any emotion regulation strategy to inhibit their tendency to reactive behavior. They were probably used to develop maladaptive emotion under-regulation strategies.

There was, however, as expected, a third way to cope with victimization. Some players were not much affected by verbal aggression, but their level of anger and their desire to retaliate quickly escalated as a function of number of assaults. It was however, only after the second physical assault that this desire attained its highest level. As the participants in the first cluster, they were able to demonstrate self-control but only up to a certain point.

Importantly, these three ways of coping with aggression during competition were associated with participants' self-reports in the expected way; that is, participants who have been classified in the high reactivity cluster were also the ones who recognize that they often physically aggress opponents.

Among participants from the last two clusters (56%), the risk of being sanctioned significantly reduced the desire to retaliate. This finding was consistent with the view that referees have a primordial role in the fight against aggressive behavior in sport. It has been established since a long time (Bandura, 1991) that the fear of social sanction helps to regulate behavior. As referees are already very busy following the play, additional officials with sanctioning power should be present and video monitoring should be systematically implemented during important sport meetings.

Although significant, the other factors considered in the study – coach's attitude and team's score – played a minor role. In each case, they explained less than one percent of the explained variance, and they never interacted with the other factors. This result was consistent with Proios' (2012) suggestion that coaches may

have an influence on athletes' anger regulation although, in the present study, this effect seems to be small. This was possibly due to the fact that amateur players have not already met many different coaches with possibly diverse play philosophies. Replication of this study with experienced professional players would be needed.

## References

- Anderson, N. H. (1996). *A functional theory of cognition*. Hillsdale: Lawrence Erlbaum.
- Anestis, M. D., Anestis, J. C., Selby, E. A., & Joiner, T. E. (2009). Anger rumination across forms of aggression. *Personality and Individual Differences*, 46, 192-196. <http://dx.doi.org/10.1016/j.paid.2008.09.026>
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Bandura, A. (1991). Social cognitive theory of moral thought and action. In W.M. Kurtines, and J.L. Gewirtz, *Handbook of moral behavior and development: Theory, research, and applications* (pp. 71-129). Hillsdale, NJ: Lawrence Erlbaum
- Fruchart, E., Rulence-Pâques, P., Dru, V., & Mullet, E. (2010). Decision-making in basketball and handball games: a developmental perspective. *European Review of Applied Psychology*, 60, 27-34. <http://dx.doi.org/10.1016/j.erap.2009.10.003>
- Goldstein, J., & Iso-Ahola, S. E. (2006). Promoting sportsmanship in youth sports: Perspectives from sport psychology. *Journal of Physical Education, Recreation & Dance*, 77, 18-25.
- Hofmans, J., & Mullet, E. (2013). Towards unveiling individual differences in different stages of information processing: A clustering-based approach. *Quality and Quantity*, 47, 455-464. <http://dx.doi.org/10.1007/s11135-011-9529-7>
- Kpanake, L., Sorum, P.C., & Mullet, E. (2016). The potential acceptability of infant

- vaccination against malaria: A mapping of parental positions in Togo. *Vaccine*, 34 , 408-412. <http://dx.doi.org/10.1016/j.vaccine.2015.12.008>
- Maxwell, J. P., Visek, A. J., & Moores, E. (2009). Anger and perceived legitimacy of aggression in male Hong Kong Chinese athletes: Effects of type of sport and level of competition. *Psychology of Sport and Exercise*, 10 , 289-296. <http://dx.doi.org/10.1016/j.psychsport.2008.07.010>
- Proios, M. (2012). The relation between the emotion of “anger” and the cognitive processes in gymnastics athletes. *International Quarterly of Sport Science*, 1 , 10-18.
- Roberton, T., Daffern, M., & Bucks, R.S. (2012). Emotion regulation and aggression. *Aggression and Violent Behavior*, 17 , 72-82. <http://dx.doi.org/10.1016/j.avb.2011.09.006>
- Shapcott, K. M., Bloom, G. A., & Loughhead, T. M. (2007). An initial exploration of the factors influencing aggressive and assertive intentions of women ice hockey players. *International Journal of Sport Psychology*, 38 , 145-162.
- Shields, D., & Bredemeier, B. (1995). *Character development and physical activity* . Champaign, IL: Human Kinetics.
- Storne, T., & Rolland, E. (2004). Handball and aggression: An investigation of adolescent handball players’ perceptions of aggressive behaviour. *European Journal of Sport Sciences*, 4 , 1-12.
- Traclet, A., Moret, O., Romand, P., & Kavussanu, M. (2011). Antisocial behavior in soccer: A qualitative study of moral disengagement. *International Journal of Sport & Exercise Psychology*, 9 , 143-155. <http://dx.doi.org/10.1080/1612197X.2011.567105>

## Notes

- \* Research article.