

## Play fighting to cope with children aggression: a study in primary school

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### Abstract:

Aggressive behaviours among young people represent a universal concern and many children and adolescents report having been victimized or having bullied others. Cost-effective strategies are required to cope with this problem. The present study investigated the effect of play fighting on self-perceived aggression in primary school pupils. Using a crossover longitudinal design, 42 fourth and fifth-grade pupils (21 boys, mean age =  $9.8 \pm 0.5$  years) took part in a controlled play fighting school-based intervention 2 days/week for 4 consecutive weeks, replicating the program adopted in a previous study with 13-year old junior high school students. Participants filled in the 12-item short version of the Aggression Questionnaire three times: baseline period (T0 and T1), and after the play fighting intervention (T2). A RM-ANOVA showed significant within-subject differences among the three evaluation times ( $F = 2.95, p = .004$ ). At T1 Verbal Aggression, Anger, and Hostility significantly decreased, while at the post-intervention, only Physical Aggression was significantly lower in comparison with T1 ( $T1 = 5.5 \pm 2.7; T2 = 5.0 \pm 2.4; F = 5.22, p = .007$ ). Results provide some preliminary insight on the role that play fighting can have as a part of a physical education curriculum to cope with children antisocial and aggressive behaviours, confirming the encouraging conclusions of previous research in young adolescents.

**Key words:** aggressive behaviours, Children, Peer-aggression, Physical education, Play fighting, Self-perceived aggression.

### Introduction

Aggressive behaviours among young people represent a global concern and a considerable number of children and adolescent report having been victimized or having bullied others (Craig & Harel, 2004; Rivara, 2002). In Italy, the country where this study was conducted, it has been estimated that 55% of girls and 49.9% of boys aged 11-17 reported having been a victim in some offensive, disrespectful and/or violent episodes in the previous 12 months (ISTAT, 2015). Peer aggression is associated with a wide range of problems for both victims and perpetrators (Schlack, Ravens-Sieberer, & Petermann, 2013; Ybrandt & Armelius, 2010) and is a predictor of school maladjustment, substance abuse, and delinquent behaviours during adulthood (Espelage et al., 2003; Moore et al., 2014). Moreover, peer-victimization during the practice of sport has been seen to be associated with low enjoyment of physical activity (Carraro, Scarpa, Paggiaro, & Ventura, 2011; Scarpa, Carraro, Gobbi, & Nart, 2012).

There is an urgent need for action to cope with aggressive behaviours and prevent their repetition among youths, and cost-effective strategies are required. Emerging evidence suggests that health-related interventions (e.g. physical education and organized sports) may have consistent effects on a range of social and psychological outcomes linked with peer aggression (Wilson, 2015). The school context, especially physical education lessons, can provide an ideal setting to recognize and address children and adolescents' socio-emotional and behavioural problems (Gobbi & Carraro, 2017). Physical education and organized sport have been proved to have positive effects on antisocial and prosocial behaviours (Crabbe, 2000; Holt, 2008; Morris, Sallybanks, & Willis, 2003; Rutten et al., 2007). In particular, programmes based on physical activities involving significant amounts of physical contact, such as play fighting, have been reported to provide meaningful experiences in the emotional and social domains.

Play fighting is a physical activity, often vigorous, intense and rough, which requires very physical ways of interacting and learning by means of patterns such as running and chasing, fleeing, grappling, kicking, wrestling, open-palm tagging, swinging around and falling to the ground often on the top of each other (Carlson, 2011; Carraro, Gobbi, & Moè, 2014). Play fighting may look like but does not generally involve, real fighting (Humphreys & Smith, 1987; Schâfer & Smith, 1996). This play also requires children to alternate and change roles and these successful social conversations and interactions can provide children with social knowledge, cognitive performance and emotional development (Pellegrini & Smith, 1998). Play fighting can be considered a structured form of the rough-and-tumble play that is spontaneous during childhood (Lillard et al., 2013) and that,

according to Jarvis (Jarvis, 2006), is an integral part of “lesson in life”. The fight is a primary instinct and Lapierre and Aucouturier (Lapierre & Aucouturier, 1982, 2001) defined it as the motivation and the primary instinct of all human activity. Aggressive instinctual drives cannot be eliminated, but they should be controlled and expressed in socially acceptable behaviours (Gobbi & Carraro, 2017). To play fight, players have to assume inherently fair behaviour: they can play rough without injury only when able to control excessive physical aggression, to respect the opponent and the rules of the game (Olivier, 1995). Educating the expression of these feelings gives pupils the chance to behave consciously in a regulated and safe environment, and this teaches them to control their aggressive impulses and to have respect for others.

Although few studies have discussed the effects of teaching play fighting, particularly within the school setting, there is evidence suggesting that this form of exercise may reduce the aggressive behaviours of participants (Carraro et al., 2014; Flanders et al., 2010). The proposed mechanism explaining this reduction is that participating in non-threatening contact experiences, which are a core-part of play fighting, can help players to reduce the probability of interpreting ambiguous actions as threatening (Hernandez & Anderson, 2015). Using a cross-over longitudinal design, the present study examined self-reported aggression in a group of 4<sup>th</sup> and 5<sup>th</sup>-grade primary school pupils at the baseline and after eight classes play fighting school-based programme. We hypothesized the intervention would result in significant reductions in aggression, as well as it was in a previous study with junior high school students (Carraro et al., 2014).

## Materials & methods

### *Participants*

A fourth and a fifth-grade classroom (28 boys, 26 girls, mean age =  $9.8 \pm 0.5$  years) took part in the study. After data cleaning, 42 pupils (21 boys and 21 girls) were included in the analysis, 12 were excluded due to incomplete evaluation (children were absent in one of the days when data were collected).

### *Measures*

The 12-item short version of the Aggression Questionnaire (AQ; Bryant & Smith, 2001) was used. It consists of four 3-item subscales (Physical Aggression, Verbal Aggression, Anger, and Hostility) derived from the 29-item AQ (Buss & Perry, 1992; Buss & Warren, 2000), that is one of the most popular self-report measures of aggression. The Italian version of the 12-item AQ derives from the Italian 29-item AQ version validated by Fossati and colleagues (2003) and was already used among young people (Carraro et al., 2014), demonstrating good internal consistency and confirming the four-factor structure of the instrument. Participants were asked to rate each item on a scale from 1 (Not at all like me) to 5 (Completely like me), with higher scores indicating higher self-reported aggression.

### *Procedure*

After receiving the Ethics Committee and the school principal approval, parents were informed about the research aim and signed a written informed consent prior to the enrollment in the study of their children. All the participants filled in the 12-item AQ three times in total: two times before the intervention (baseline condition, T0-T1), then at the end of the interventions (T2). The questionnaire was self-completed by students in the classroom with the supervision of the class teacher and a researcher that can assist children if needed. A trained researcher conducted the play fighting activities during the scheduled 2-hour/week physical education lessons, classroom teachers assisted in the intervention. In total 8 classes of play fighting were proposed during 4 consecutive weeks (T1-T2 period of intervention), replicating the program adopted in a previous study with 13-year old junior high school students (Carraro et al., 2014). The lessons took place in the school gym, using mats to prevent hurts falling down. The intervention consisted in a progression of games and exercises that gradually involved pupils in a progressively greater physical confrontation with big body play, exercises and movement situations based on running and chasing, fleeing, kicking, grappling and wrestling.

### *Statistical Analysis*

Means, standard deviations, and Cronbach alpha were calculated for each of the AQ four subscales. Independent sample t-test was performed to assess the differences between the two classrooms and between boys and girls. Since no significant differences between the two classrooms nor by gender were found at T0, a repeated measure ANOVA (RM-ANOVA) was used to test differences within subjects on all the subscales of the AQ in the three evaluation times (T0, T1, and T2). A multiple comparison analysis has been conducted as post-hoc. Level of significance was set at  $p < 0.05$ .

## Results

Cronbach’s alphas for the four subscales were respectively: Physical Aggression  $\alpha=.69$ , Verbal Aggression  $\alpha=.58$ , Anger  $\alpha=.61$ , and Hostility  $\alpha=.69$ . Cronbach’s alpha values for Verbal Aggression and Anger were the lowest, this is in line with previous results reported by Ang (2007) with Asian adolescents, and those reported by Carraro and colleagues (2014) with Italian young adolescents.

The RM-ANOVA showed significant within-subject differences among the three evaluation times ( $F = 2.95, p = .004$ ) (Table 1). Between T0 and T1, the multiple comparison tests showed decreased Verbal Aggression ( $p = .046$ ), Anger ( $p = .018$ ), and Hostility ( $p = .009$ ). In the T1-T2 comparison, while mean values of all the subscales were slightly lowered, only Physical Aggression significantly decreased ( $p = .026$ ).

Table 1. Descriptive statistics and RM-ANOVA results for the 12-item AQ subscales in the three evaluation times.

	T0 Mean (SD)	T1 Mean (SD)	T2 Mean (SD)	F	p
Physical Aggression	5.8 (3.0)	5.5 (2.7)	5.0 (2.4)	5.22	.007
Verbal Aggression	5.9 (2.0)	5.3 (1.9)	5.3 (2.0)	3.26	.043
Anger	7.7 (2.6)	7.0 (2.4)	6.8 (2.8)	4.17	.019
Hostility	8.5 (3.2)	7.1 (2.8)	7.3 (2.2)	5.02	.009

### Discussion & conclusion

This crossover longitudinal study involving 42 fourth and fifth-grade pupils analysed the effect of a short-term play fighting programme as part of the physical education curriculum on self-reported aggression. We replicated the intervention of a previous study conducted with junior high school students by Carraro and colleagues (2014). The findings showed that the usual school has an impact on some aspects of self-reported aggression: participants significantly reduced verbal aggression, hostility and anger, and this can be explained with the educative mission the school has beyond pupils' academic achievement. However, only after introducing play fighting in the school physical education curriculum, participants reported a significant decrease in physical aggression. As expected, results are in line with those reported by Carraro and colleagues (2014) and seem to confirm the hypothesis that play fighting, in a controlled, structured school setting, can facilitate the control over aggressive impulses (Kirsh, 2006). In particular, by play fighting, children can learn through direct experience how to control themselves and to manage physical strength through bodily contact, which may be potentially harmful or offensive.

The present study has several limitations that do not allow for generalization of the findings, in particular: the single group study design, the limited duration of the programme (4 consecutive weeks), the use of self-reported measures, the limited number of participants and the absence of follow-up measures. However, results may provide some suggestions for future studies with longer duration and larger samples or in schools where peer aggression represents a serious concern, and for studies combining self-report measures with structured observation. Teaching play fighting to primary school pupils requires appropriate methodology, adequate supervision, and clear rules to guide the play, so as to create a positive educational setting and to avoid problems related to excessive aggressive behaviours. Not only physical education teachers but also special education teachers may receive information on this topic and could be specifically trained to teach these activities to facilitate inclusion (Greguol, Gobbi, & Carraro, 2013). The positive effect of play fighting on peer aggression could also benefit interpersonal relationship outside the physical education context and in turn emphasise inclusion in school.

Research into the effects of play fighting on aggressive behaviours in youths is still scant. The current results provide some preliminary insight on the role that these activities can have among children as a part of a school physical education curriculum, to increase the social and emotional learning.

**Conflicts of interest** - The authors do not have any conflicts of interest to declare.

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