

Intervention program to prevent bullying in adolescents in physical education classes (PREBULLPE): a quasi-experimental study.

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Intervention program to prevent bullying in adolescents in physical education classes (PREBULLPE): Implementation and analysis.

Abstract

Background: Bullying is a social problem where there is a phenomenon of intentional aggression that occurs in all schools. It has multiple negative consequences for the victim's psychological health. As school is a context for learning about life in society, strategies to prevent such attitudes and behaviours should be encouraged. **Although some studies seem to indicate the potential of the subject of physical education to promote attitudes and behaviours against bullying, there is still insufficient scientific evidence to deduce a positive impact on the reduction or prevention of this phenomenon.**

Purpose: **This study aimed to analyse the effectiveness of a specific intervention to prevent bullying in Physical Education classes in Secondary Education. 6 specific sessions inserted into the physical education curriculum to find out what bullying is, who its protagonists are and how to prevent it.**

Participants and setting: In the study, 764 students with an age range of 12–19 years (49.3% girls; age mean [M] = 14.80, standard deviation [SD] = 1.69) from two public educational centres participated. Among them, **439** were randomly assigned to the quasi-experimental group (48.1% girls; age M = 14.70, SD = 1.59) and **325** to the control group (51.1% girls; age M = 14.94, SD = 1.83). Data were collected at two timepoints, pre- and the post-intervention data.

Data collection: The Spanish version of the European Bullying Intervention Project Questionnaire (EBIPQ) was used to measure the incidence of bullying. To measure cyberbullying, the Spanish version of the European Cyberbullying Intervention Project Questionnaire (ECIPQ) scale was used.

Data analysis: The Student *t*-test was performed to compare possible differences between the experimental and control groups in the pre-test. To compare the means of the factors obtained based on the variables and the instruments used, as well as the scores obtained from the subjects of the experimental and control groups at the two timepoints, linear models of repeated measurements have been established comparing the pre- and post-intervention moments and the experimental and control groups, introducing sex and grade variables to compare the effectiveness of the programme based on them.

Results: There were no differences in the pre-test measurements in any of the variables. After the intervention programme in the quasi-experimental group, the bullying victimisation ($F = 16,951; p = .000$) and bullying aggression ($F = 5,215; p = .023$) rates decreased significantly more than they did the control group. Likewise, victimisation in cyberbullying ($F = 6,234; p = .013$) decreased significantly differently, but aggression in cyberbullying did not ($F = 0,099; p = .753$).

Conclusion: **The implementation of a specific intervention to prevent bullying inserted into the physical education curriculum seems to have decreased bullying and cyberbullying victimisation.**

Keywords: bullying; cyberbullying; physical education; intervention programme.

Introduction

Bullying is a phenomenon of intentional interpersonal aggression, occurring in a repeated and sustained manner over time and in which there is an imbalance of power between the aggressor and the victim (Ortega-Ruiz, Del Rey, and Casas 2016). This is a type of interpersonal violence between equals that emerges and is maintained within the group, where the aggressor performs a negative action with the intention of harming, exercising his physical, psychological or social power and finding the necessary support for it, while the victim is isolated and defenceless in the face of a situation that is repeated over time and is maintained under the silence of the spectators (Olweus 1999). This is an immoral phenomenon because it involves the use of aggressive behaviour that everyone recognizes as unfair and ethically unacceptable (Sánchez, Ortega, and Menesini 2012).

There has been ongoing research on bullying since the phenomenon was identified in the 1970s (Zych, Ortega-Ruiz, and Del Rey 2015). Most of the described behaviours take place in school, especially at times and places where supervision is lower (Zych, Farrington, and Ttofi 2019).

The proliferation of the use of new information and communication technologies has meant an extension of this phenomenon into the virtual world. Smith et al. (2008) define cyberbullying as an intentional aggression, by a group or an individual, using electronic forms of contact, repeatedly, to a victim who cannot easily defend herself. Cyberbullying shares the three defining characteristics of traditional bullying—intentionality, repetition and imbalance of power—and by its digital nature, includes novel characteristics like the possible anonymity of the aggressor, and advertising, as digital devices sometimes reproduce the offence or aggression out of the author's

control (Slonje, Smith, and Friséen 2013). Both are dynamic and complex phenomena and involve factors of the subject's personality and context. They both relate to the educational context and involve an aggressor, victim and bystanders who can stimulate or stop the aggression (Del-Rey et al. 2015).

Bullying is present in all schools, sometimes affecting 30 per cent of schoolchildren (Modecki et al. 2014). The percentage of boys and girls who are involved in a severe and frequent bullying with highly negative consequences is somewhat lower, although still significant, standing at around 10 per cent (Hymel and Swearer 2015). These percentages are increased to 50-60% in less severe cases and to 25-30% in more severe cases depending on the criteria in the definition, the assessment instruments or the types of analysis (Zych, Ortega-Ruiz, and Marín-López 2016). However, prevalence rates in studies remain constant over the years and there is a notable increase in studies addressing cyberbullying (Zych, Baldry, and Farrington 2018; Zych et al. 2020) . García-Fernández, Romera-Félix, and Ortega-Ruiz (2016) point to the existence of 28.9% of schoolchildren who engage in bullying behaviour in both ways. With regard to the school grade, the most recent meta-analyses indicate that violence seems to decrease with age and that the highest levels of incidence are between 11 and 14 years of age, with boys engaging in more aggressive behaviour than girls (Zych, Ortega-Ruiz, and Del Rey 2015; Zych, Ortega-Ruiz, and Marín-López 2016; Zych et al. 2020).

The occurrence of bullying is related to low academic performance, low self-esteem, depression, social anxiety, alcohol consumption, smoking, psychological maladjustment in general, and in the most severe cases, suicide (Turner et al. 2013). The impact of the consequences of a bullying situation is clearly related to the personality characteristics of the victim, given the subjectivity of the victimisation process;

however, it could also be subject to the characteristics of the interpersonal dynamics that develop around the bullying phenomenon (Romera-Félix et al. 2017).

School is a relevant context in which boys and girls learn to live with others and build a civic identity that includes the recognition and mastery of personal and shared rights and duties. The importance of relations between schoolchildren has been recognised in recent studies highlighting that positive links not only benefit coexistence and conflict resolution but also reduce the risk of phenomena like bullying and cyberbullying (Day et al. 2013; Zych, Farrington, and Ttofi 2019). To consider the network of equals as an independent social dimension, regulated by its own rules, means understanding that the problems generated within it, including school violence and bullying, respond to an established social structure and well-defined roles of participation among which the following stand out: aggressor, victim, collaborator of the aggressor, facilitator, defender of the victim and neutral (Zych et al, 2020).

Bullying intervention programs

Due to the increased interest of society and research efforts, many studies have focussed on conducting school-based interventions aimed at reducing bullying (Zych, Baldry, and Farrington 2018). These span from primary prevention strategies that try to promote attitudes and behaviours favouring coexistence from the moment interpersonal relationships are established to intervention programmes designed to control existing relational violence that target both aggressors and victims and seek to activate better adapted responses and behaviours (Cerezo-Ramírez and Sánchez-Lacasa 2013). In general, programmes implemented with groups of schoolchildren meet both objectives (Wolfe 2006) although the impact of these programs is small, leaving room for improvement (Zych, Ortega-Ruiz, and Del Rey 2015). This is mainly due to the

complexity and dynamism of the process influenced by the context and the individual, which makes it difficult to evaluate the effectiveness of the programs (Menesini 2019), considering that gender is usually an important moderator in the effect of the intervention programmed (Nocentini, Menesini, and Pluess 2018).

The current systematic review shows that intervention and prevention programmes can be effective in reducing bullying and victimisation; some programmes and components work better than others (Gaffney, Ttofi, and Farrington 2019). Yet, the influence of these programmes is small, and unfortunately, they often use poor methodologies and evaluations (Zych, Ortega-Ruiz, and Del Rey 2015). From a meta-analysis, Evans, Fraser, and Cotter (2014) found that about 55% of programmes analysed showed effects against the perpetration of bullying and about 70% decreased victimisation.

In Spain most communities use action protocols when there is already a suspicion of bullying but there is no consensus on prevention programmes (Vega-Osés and Peñalva-Vélez 2018). Some intervention programmes have been developed that approach the task from the work in the classroom and involve groups of peers. Programmes like those developed by Garaigordobil et al. (2009) for the prevention of violence and Cerezo-Ramírez and Sánchez-Lacasa (2013) for primary school provide the teachers with strategies to intervene in issues the students. There are different models of intervention; some focus on the treatment of students directly involved, such as bullies, victims and bystanders, and these have moderate beneficial effects, while others have a broader objective, trying to influence the social climate, for example, from different approaches in school, and they have reported superior effects (Cantone et al. 2015). In contrast, empirical results show that anti-bullying programmes are partially

effective against cyberbullying (Gaffney, Tofi, and Farrington 2019; Williford et al. 2013) .

Intervention and prevention programmes for addressing bullying have been based on different and varied skills. First, we could highlight the identification of what bullying is and what roles emerge in such situations. Within the social skills developed by the different programmes, we would emphasise empathy, where participants are encouraged to put themselves in the role of the victims, as in the KiVa programme (Williford et al. 2012; Salmivalli 2010) used for example together with the emotions (Şahin 2012) and strategies like drama based in theatre (Joronen et al. 2012), which can involve looking for the support of the classmates; this is also a technique that can be incorporated into physical education via corporeal expression. The knowledge and regulation of emotions are undoubtedly some of the most used skills (Brown et al. 2011; Cerezo et al. 2015; Şahin 2012); they establish later reflections, such as ‘after talking about these emotions they pose situations that can produce them’ (Cerezo-Ramírez and Sánchez-Lacasa 2013). Another aspect that has been incorporated into interventions is assertiveness (Brown et al. 2011), which can be employed in problematic situations like those that occur in bullying.

The various intervention programmes address personal factors that have been shown to protect against bullying (García-Fernández et al. 2018) , such as self-esteem (Berry and Hunt 2009), self-knowledge (Lewis et al. 2013) and self-efficacy—for example, in spectators who are people that witness bullying, (Williford et al. 2012)—to improve defensive behaviour (Williford et al. 2012) and individuals’ wellbeing in the school (Kärnä et al. 2011). As a widely used methodological strategy, we find cooperative learning (Williford et al. 2012; Polo et al. 2017) improves the classroom

climate and awareness of belonging to the class group (Cross et al. 2012); it has also been used to address cyberbullying (Hortigüela-Alcalá et al. 2019).

Physical education and bullying

In relation to the area of physical education, research has mainly focussed on identifying situations of bullying that occur in physical education classes, especially those related to situations of gender discrimination (Hurley and Mandingo 2010). We also found other factors that seem to be associated with bullying in physical education has been dissatisfaction with one's body, with overweight being one of the most relevant elements (Peterson, Puhl, and Luedicke 2012) perception of low physical competence (Bejerot et al. 2013) and activities that promote high values of competitiveness (Haegele and Kirk 2018). Among the research analysing the incidence of bullying in physical education, Correa et al. (2018) found that physical and verbal aggression was frequent in the classroom. In contrast, Gano-Overway (2013) found that 28% of students between the ages of 10 and 15 years admitted to having been bullied at least once during physical education class, with 39% acknowledging such circumstances at school and Roman and Taylor (2013) found that bully victimisation was related to less participation in physical education classes. The importance of students' participation in physical education activities for the development of their self-esteem, as well as the promotion of a class climate that favours empathy and reduces bullying behaviours, has been emphasized. Empathy and self-esteem thus become a crucial axis to prevent bullying and reduce victimisation (Mitsopoulou and Giovazolias 2015; Van Noorden et al. 2015; Tsaousis 2016).

Although some studies seem to indicate the potential of the subject of physical education to promote attitudes and behaviors contrary to school violence and bullying, there is still insufficient scientific evidence to deduce a positive impact on the reduction

or prevention of this phenomenon (Jiménez-Barbero et al. 2019). What seems to be evidence is that the subject of physical education is one of the most appreciated by students (Fernandez-Villarino et al. 2017). But sometimes teachers' attitudes can encourage the occurrence of bullying situations (O'Connor and Graber 2014) this is why it is so important the status or role that the physical education teacher adopts when programming and developing the classes is presented as a key element to prevent and/or encourage bullying, either because of their active or passive actions in the face of bullying, the curricular content they propose, or the social discourses promoted during physical education classes (Jiménez-Barbero et al. 2019).

In relation to the use of physical education in bullying intervention, specific intervention programmes are scarce (Jiménez-Barbero et al. 2019; Ko 2017; Calmaestra et al. 2019; Tejero-González, Balsalobre-Fernández, and Ibáñez-Cano 2011; Oliveira et al. 2017; Zivin et al. 2001) and they are usually part of a programme with other subjects (Garaigordobil and Aliri 2013). Jiménez-Barbero et al. (2019) carried out a systematic review on school bullying and physical education, in which their potential to promote attitudes and behaviours against violence and school bullying was highlighted, opening up an important field of innovation and research that seeks to increase scientific evidence in the proposals and programmes that are put forward. Students consider teachers to be models to follow in the promotion of solidary relationships among classmates (Gano-Overway 2013; Mierzwinski, Cock, and Velija 2019; Gråstén and Yli-Piipari 2019). Jiménez-Barbero et al. (2019) point out that the teacher's attitude towards bullying and the planning of actions can be decisive in making it a key element of prevention or, on the contrary, an element of propagation of violence among equals. Internationally recognized organizations with great influence in the world of sport like Futbol Club Barcelona are already starting to establish specific programs to prevent

bullying in the classroom through Physical Education, achieving a reduction in cases (Calmaestra et al. 2019).

After the analysis of the scientific literature review on the subject, this will represent one of the first intervention programmes carried out exclusively in relation to the physical education subject to prevent school bullying. Calmaestra et al. (2019) carried out an intervention programme in primary education in which physical education was one of the subjects chosen, in addition to artistic education and tutorials, with the aim of combating bullying. Jiménez-Barbero et al. (2019) reported that two works had been previously conducted in which an intervention methodology was carried out in physical education classes in secondary school for the intervention of violence through martial arts and self-defence (Tejero-González, Balsalobre-Fernández, and Ibáñez-Cano 2011; Zivin et al. 2001). Here, they did not focus on a bullying intervention specifically, but instead, attitudes and behaviours to reduce aggression. In contrast, Oliveira et al. (2017) carried out an intervention process exclusively through cooperative games in physical education classes for 3 months to address bullying; however, they only analysed verbal and physical aggression and the study lacked a control group.

Given the description above, the subject of physical education is defined as a powerful value in the fight against bullying (Holt/Hale and Persse 2015). Personal and social development (Fuller, Gulbrandson, and Herman-Ukasick 2013) is an area one can target for improving the peaceful coexistence among students (Méndez, Ruiz-Esteban, and Ortega 2019). Therefore, it would be interesting to design and implement an intervention programme, followed by evaluating its effect on physical education classes to determine if working exclusively from that area can achieve improvements in the

intervention of bullying and cyberbullying in students. For all the above reasons, we find in Physical Education an area where situations of bullying are observed, so it is necessary to implement and validate intervention programs for the prevention of this type of violence. In addition, it is necessary to verify their potential to promote attitudes and behaviours against violence and school bullying.

Hence the relevance of the research presented, whose general objective is to develop a specific intervention to prevent bullying in Physical Education classes in Secondary Education. The specific objectives are, in the first place, the design and implementation of an intervention program to prevent bullying consisting of six sessions inserted in the curriculum of Physical Education in the secondary education stage. Secondly, to evaluate the effect of the intervention in order to support the hypothesis that the intervention from the area of Physical Education can achieve improvements in the prevention of bullying and cyber-bullying in students.

Material and method

The study was carried out by means of a longitudinal, *ex post facto*, quasi-experimental, pre–post design with two groups (Montero and León 2007). The sampling was incidental to accessibility.

Participants

In the study, 764 students with an age range of 12–19 years participated (49.3% girls; age mean [M] =14.80, standard deviation [SD] = 1.69); they were attending two public educational centres in Córdoba, Andalucía (Spain). The participants were in the first to fourth years of secondary education (12–16 years old) and first and second years of high school (17–18 years old) in ordinary schooling centre in a medium socioeconomic

context. Among them, 439 were randomly assigned to the quasi-experimental group (48.1% girls; age $M = 14.70$, $SD = 1.59$) and 325 to the control group (51.1% girls; age $M = 14.94$, $SD = 1.83$). Natural class groups were maintained in the quasi-experimental or control group assignment **which were distributed incidental to accessibility.** All the students in one class were assigned to the same group **quasi-experimental or control.** **A study variable was established according to the school grade, dividing the sample into three categories, with the first and second years of secondary school as the lowest category, the third and fourth years of secondary school as the middle category and the first and second years of high school as the highest category.**

Instruments

To measure the incidence of bullying, the Spanish version of the European Bullying Intervention Project Questionnaire (EBIPQ) was used (Ortega-Ruiz, Del Rey, and Casas 2016). This is an instrument composed of 14 items (7 for victimisation and 7 for aggression) with Likert-type response options with a scale of 0 to 4, where 0 = never, 1 = once or twice, 2 = once or twice a month, 3 = about once a week and 4 = more than once a week. The internal consistency values of the test were as follows: α T1 bullying victim = .84, α T2 bullying victim = .80, α T1 bullying aggressor = .80 and α T2 bullying aggressor = .73.

To measure cyberbullying, the Spanish version (Ortega-Ruiz, Del Rey, and Casas 2016) of the European Cyberbullying Intervention Project Questionnaire (ECIPQ) scale was used (Del-Rey et al. 2015). This instrument comprises 22 items (11 on cybervictimisation and 11 on cyberaggression) evaluated using a Likert-type with five response options from 0 to 4, with 0 = never, 1 = once or twice, 2 = once or twice a month, 3 = about once a week and 4 = more than once a week. The internal consistency

values of the test were as follows: α T1 cyberbullying victim = .86, α T2 cyberbullying victim = .82, α T1 cyberbullying aggressor = .81 and α T2 cyberbullying aggressor = .86.

Procedure

The present study was developed within a project financed and authorised by the Directorate General for Innovation and Teacher Training of the Andalusian Ministry of Education (PIV-034/18) as an educational research project to be implemented in the 2018 academic year. Due to ethical considerations, the respective permissions were obtained from the school boards of the educational centres, and the duly signed informed consent were provided by the families. The objective of the study was explained to the schoolchildren, and the anonymous, confidential and voluntary nature of their participation was stressed. Two groups were created—one that received the intervention (experimental group) and one that did not (control group). There were two data collection timepoints, providing pre-intervention and post-intervention data. The research was supported by the Ethics Committee of the University of Cordoba.

Intervention program to prevent bullying in adolescents in physical education classes (PREBULLPE) was developed during six sessions of physical education class lasting 1 hour each. The structure of the sessions followed the model proposed by Calmaestra et al. (2019) in the Against Bullying programme of the Barça Foundation, and it was as follows:

- 1) Theoretical explanation to situate the participants (between 2 and 5 minutes).
- 2) Activities progressing from lower to higher intensity: three to five activities per session (40–45 minutes); and

3) Final reflection: Students form a circle and return to calm by stretching or relaxing; the work of the session is reviewed to analyse the situations experienced (around 5 minutes).

The psychosocial contents developed were as follows: knowledge of bullying, the roles of victim and aggressor, knowledge and expression of basic emotions, importance of the social group, collaborative work, self-esteem, empathy, self-control, resilience and discrimination. They were determined based on the review of the literature on similar interventions, considering the aspects that are most evident (Tejero-González, Balsalobre-Fernández, and Ibáñez-Cano 2011; Oliveira et al. 2017; Jiménez-Barbero et al. 2019; Zivin et al. 2001). These contents were adapted to the methodological strategies of physical education and its curriculum, including the following: cooperative games or challenges; body expression, mainly dramatization; “locomotor story” that is tale where a story is told and the students represent the actions with movement ; awareness and body limitation activities; motor games with symbolic roles; relay games emphasising respect for rules; and competitive games adapted by changing roles.

Here Table 1.

Data analysis

The Student *t*-test was performed to compare possible differences between the experimental and control groups on the pre-test. To compare the means of the factors obtained based on the variables and instruments used, the scores obtained by the subjects in the experimental and control groups at the two timepoints of the application of the instruments were assessed. Linear models of repeated measurements were carried out comparing the pre- and post-intervention results and the experimental and control

groups, introducing the **covariables** of sex and school grade to compare the effectiveness of the programme based on these variables. **The Bonferroni test was used for the post-hoc analysis.** The coding and analysis of the data was done with the SPSS program, version 25.

Results

First, the possible differences between the quasi-experimental and control groups were analysed using the Student *t*-test for independent samples, without significant differences in the different variables (Table 2).

Here Table 2.

The differences between the control and quasi-experimental groups and between pre-test and post-test were analysed using a repeat measurement analysis for related samples. Specifically, the variables of bullying aggression, bullying victimisation, cyberbullying aggression and cyberbullying victimisation were analysed.

The differences related to the pre-test and post-test measures indicated that, in the quasi-experimental group, the bullying victimisation ($F = 16,951; p = .000$) and bullying aggression ($F = 5,215; p = .023$) variables decreased significantly more than those in the control group **after** the application of the intervention **although we must interpret these data with caution as the internal consistency of the second test is acceptable** (Figure 1).

Here Figure 1.

The differences in the pre-test and post-test measures indicate that, in the quasi-experimental group, the cyberbullying victimisation variable decreased ($F = 6,34; p = .013$) to a greater extent than it did in the control group **after** the intervention. However,

the same difference was not found in the cyberbullying aggression variable ($F = 0,099$; $p = .753$; Figure 2).

Here Figure 2.

The effectiveness of the programme was analysed by considering the differences between gender and grade. In the case of the analysis based on gender, only statistically significant differences were found in the interaction of the programme based on sex, with greater aggressiveness in boys compared with girls ($F = 8,763$; $p = .003$).

Likewise, a comparison was carried out by calculating the interaction with the **student's school grade variable**. No significant differences were found in the effectiveness of the programme between the three groups in school grade variable. **Significant differences were found in the post hoc analysis between the following groups**: the lowest and middle category in victimisation in bullying ($p = .045$), aggression in bullying ($p = .007$) and victimisation in cyberbullying ($p = .045$), with superior values in the middle group in all cases regarding the lowest.

Discussion

In this study, the effectiveness of a physical education intervention programme in reducing the dimensions of victimisation and aggression in bullying and cyberbullying education was analysed. In this research we obtained results in which victimisation and aggression in bullying and cybervictimisation decreased significantly more in the quasi-experimental group than in the control group, although in aggression in bullying we must interpret these data with more caution. This is in line with the conclusions of Evans, Fraser, and Cotter (2014), who state that the results are more evident in

victimisation. Likewise, different authors state that the results of intervention programs are usually positive but without great effects (Zych, Ortega-Ruiz, and Del Rey 2015; Menesini 2019).

These results are similar to those found in the few studies that use physical education in the intervention of bullying at school (Ko 2017; Calmaestra et al. 2019; Tejero-González, Balsalobre-Fernández, and Ibáñez-Cano 2011; Oliveira et al. 2017; Zivin et al. 2001) although the results should be taken with great caution.

The comparison shows that the decrease in victimisation and aggression is higher in the quasi-experimental group compared to the control group after application. Although it is very difficult to measure the concrete effectiveness of the programs due to their complexity and dynamism (Menesini 2019), in our study we tried to control other training in bullying and cyberbullying within the school context so as not to interact with the intervention program. A possible explanation for the decrease in the variables of bullying and cyberbullying may have to do with the development of the bullying phenomenon, since several studies indicate a decrease in it as age increases (Del-Rey et al. 2018; Sastre et al. 2016), although the age between the pre-test and post-test is not very different, because nothing more than a few days have passed. Therefore, the relevance of the intervention is in the acceleration of the decrease through a subject—physical education—which again shows its powerful value against bullying (Holt/Hale and Persse 2015) and support of personal and social development (Fuller, Gulbrandson, and Herman-Ukasick 2013) in facilitating general coexistence (Méndez, Ruiz-Esteban, and Ortega 2019). This intervention can help modulate emotions and maintain a positive relationship with others, reducing the risk of school violence (Ko 2017; Jiménez-Barbero et al. 2019). In this intervention program in which the teacher establishes an instructional system contrary to bullying, promoting for example empathy

(O'Connor and Graber 2014), collaborative play (Oliveira et al. 2017), expression of emotions (Joronen et al. 2012), could facilitate a class culture in which the construction of a prosocial community is a shared responsibility between teachers and students (O'Connor and Graber 2014).

The study also showed how there is a relationship between bullying and cyberbullying behaviours. Although no specific intervention was conducted in relation to cyberbullying, there was a decrease in victimisation according to similar empirical results showing that anti-bullying programmes are partially effective against cyberbullying (Zych, Baldry, and Farrington 2018; Williford et al. 2012; Gaffney, Ttofi, and Farrington 2019).

The objective of the programme was achieved in the case of bullying and partly achieved for cyberbullying, although it was only carried out from an intervention point of view in one school subject, via six sessions of a physical education class. This is in contrast to the claims of some authors, who have suggested that group social skills interventions that do not address the systemic problems and social environment related to bullying undermine success (Vreeman and Carroll 2007; Jiménez Barbero et al. 2012). The likelihood of success seems greater if the intervention incorporates a school-wide approach involving the entire school community (Joronen et al. 2012; Vreeman and Carroll 2007). Perhaps the combination of different methodological strategies can be one of the advantages of this intervention programme.

Most studies that have conducted bullying intervention programmes have been effective in reducing victimisation (Lee, Kim, and Kim 2015; Ttofi and Farrington 2011; Zych, Baldry, and Farrington 2018), but they have had little effect on reducing aggressive behaviour (Del-Rey et al. 2018). Equally Evans, Fraser, and Cotter (2014) concluded from their systematic review that bullying intervention programmes are

effective for reducing victimisation by 70%. The previously described work on physical education achieved a decrease in aspects related to aggression but not specifically for bullying (Tejero-González, Balsalobre-Fernández, and Ibáñez-Cano 2011; Zivin et al. 2001). Garaigordobil et al. (2009) carried out a programme to improve the culture of peace in tutorials and ethics classes in students aged 15–16 years, finding a decrease in the prosocial behaviour variable but not in other variables related to aggression and violence. However, it should be noted that the latter variables were not directly related to the phenomenon of bullying.

In the study no differences were found in the effectiveness of the intervention program presented according to gender in bullying and cyberbullying victimisation, in other studies (Jiménez Barbero et al. 2012; Nocentini, Menesini, and Pluess 2018) a greater effectiveness was detected in males in the variable of aggressiveness in bullying.

This aspect is of special relevance since boys are predominantly more aggressive in relation to bullying than girls are in physical education classes (Vianna, De Souza, and Dos Reis 2015). Proposals like that of Garaigordobil and Aliri (2013), who suggest that boys should have specific modules in intervention programmes to prevent violence and aggressive behaviour, have been made, and boys are generally more perceptive of positive changes in the school and classroom context (Nocentini, Menesini, and Pluess 2018).

The present study found greater effectiveness of the program in the third and fourth grades over the first and second grades, but not in the higher grades compared with the others. This partially contrasts with the conclusions of Ttofi and Farrington (2011), who stated in their review that better results were obtained in intervention programmes for older children, although few programmes had analysed students from age 16 as we did in our study. At the same time, Yeager et al. (2015) claimed that the

effectiveness of bullying intervention programmes decreases from the age of 13–14 years.

Implications for practice

In their systematic review, Jiménez-Barbero et al. (2019) suggested the importance of integrating activities aimed at promoting social competence and social skills in students via physical education programmes as a way of avoiding rejection and victimisation among peers. Likewise, other authors like O'Connor and Graber (2014) have reported a need for such specific intervention programmes expressed by teachers. In this sense, Jiménez-Barbero et al. (2019) considered that physical education teachers play a decisive role in achieving these objectives. This is why the present research has focussed on proposing a programme that works on a wide range of skills for the intervention of bullying, such as self-esteem, empathy, cooperative work and self-control, through the contents and methodology of physical education.

One of the fundamental working skills of the intervention programme described here was cooperative work, which takes the form of cooperative games in physical education. Different studies have found evidence of the effectiveness of cooperative work for the intervention of bullying, both in the classroom in general and for those in the observer (Polo et al. 2017) and aggressor roles (León et al. 2016), in the context of aggressions related to social exclusion (León, Gozalo, and Polo 2012), and in physical education classes in the intervention of bullying (Oliveira et al. 2017), as well as intervention in cyberbullying (Hortigüela-Alcalá et al. 2019). Cooperative games seem to be an effective tool to prevent aggressive behaviour—mainly because they do not stimulate competitiveness, which is usually associated with situations of superiority and inferiority (Oliveira et al. 2017)—as well as improving tolerance and respect (Hortigüela-Alcalá, Pérez-Pueyo, and Fernández-Del Rio 2017).

Joronen et al. (2012) emphasised the value of dramatisation in an intervention program focussed on drama, theatre and roleplaying amongst primary school students; they reported that it was effective in decreasing victimisation in a significant way compared with the control group, but the difference was not significant in relation to the aggressors. In the present study, contents similar to those involving body expression were introduced, for example, via the representation of motor stories with the theme of bullying and its roles and dramatisation; in physical education, this is a technique that seeks communication via body language, without using words. With these methodological strategies, students are helped to understand the nature, causes and dynamics of bullying, giving them the tools to take control of their conflicts.

It is therefore highly recommended that teachers use these methodological strategies in their physical education classes to intervene against bullying victimisation and aggression.

Limitations

Although the results showed significance, it is necessary to highlight that the evaluation was carried out in only two schools and the intervention with the students was conducted by the research team. Another may be the lack of follow-up after the study. Evaluation of the results by means of self-administered questionnaires in which there is the possibility of a lack of sincerity in the answers or possible bias due to the Hawthorne effect in which the subject knows that it is part of a study. In future research, more schools should be incorporated, and the leading role of the action should be transferred to the teaching teams so that they are—as they should be—autonomous in the action.

Conclusions

The bullying prevention intervention program in physical education classes in the present study appeared to be effective in reducing victimisation in bullying and cyberbullying as well as aggression in bullying although with a more cautious interpretation. Teachers could apply this program adapted to the contents of Physical Education, to reduce the levels of bullying while working on aspects related to social-emotional skills.

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Table 1. Outline of working sessions, main goal, and content of psychosocial work and physical education strategies used.

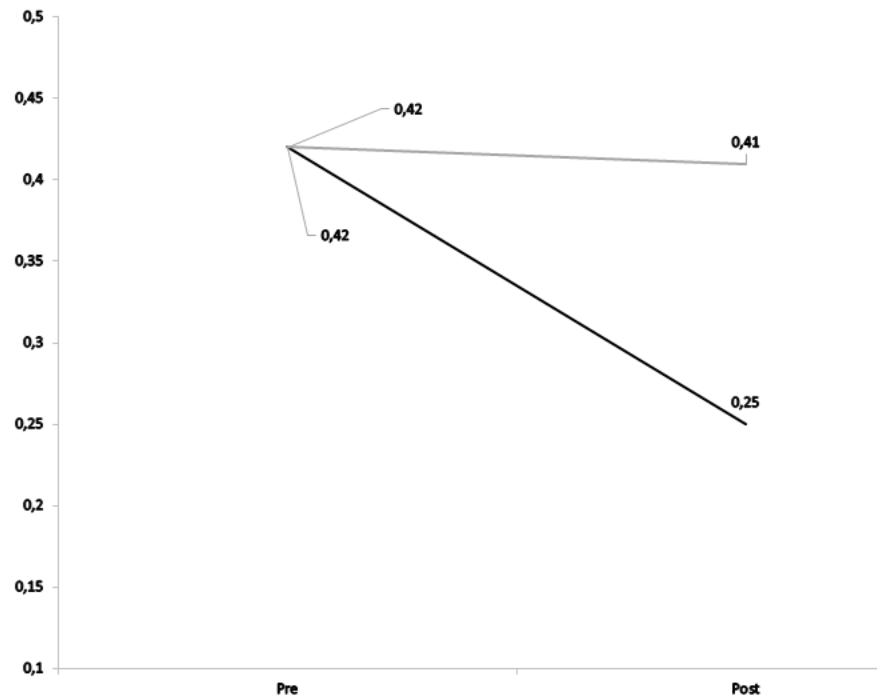
Session	Main goal	Psychosocial contents	Physical education strategies and contents
1	Concept of bullying.	The main characteristics of bullying are experienced through the development of a motor story, in which through role playing the students reproduce the roles of the different protagonists: bully, victim and spectators. The session is complemented by games to express how they have felt emotionally.	Body expression is used throughout the session. In the motor story, the actions described by the teacher are reproduced with the body only. We play in pairs to imitate the emotions of the partner according to the teacher's description and through music they express themselves freely.
2	Collaboration against bullying.	Group relations through collaborative work. Set of cooperative activities to demonstrate the importance of collaboration to strengthen interpersonal relationships, feel good and avoid exclusion.	Cooperative physical challenges in groups with mats and balls. Without using the competition and where all members are important to achieve the challenge.
3	Self-esteem, empathy, and tolerance of diversity	Collaborative activities to get to know oneself and others. Cooperative games to learn about the positive aspects of themselves and others; and to be able to put yourself in the other's place and tolerate the difference.	Groupings and imitations of students are produced according to specific characteristics. Collaborative motor challenges such as overcoming obstacles in a circuit where some people have motor difficulties and the companions are assistants.
4	Self-control and resilience against bullying.	Development of self-control and resilience in dealing with the problems that arise in the activities; respecting rules and applications to activities of daily life.	Team games are proposed where team inequalities and refereeing errors must be controlled and overcome. It ends with activity to help relax the partner.
5	Empower the viewer against bullying.	Awareness of situations of discrimination and the role of the defender; motor games with symbolic roles.	We propose games of cooperation-opposition where some students have more importance in the team than others, insisting on the importance of assuming each role.

6	Put yourself in the victim's place.	Experience the role of victim and aggressor through motor play with symbolic roles.	Situations such as chasing a protagonist and overcoming a line of companions without being caught are symbolized.
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Table 2. Analysis of differences between quasi-experimental and control groups.

		Quasi-experimental		<i>t</i>	<i>p</i>
		<i>n</i> = 439			
		M	SD		
		Control <i>n</i> = 325			
Pre-intervention, bullying victimisation	Quasi-experimental	.42	.652	.101	.920
	Control	.42	.526		
Pre-intervention, bullying aggression	Quasi-experimental	.23	.426	.129	.897
	Control	.24	.369		
Pre -intervention, Cyberbullying victimisation	Quasi-experimental	.14	.328	.022	.983
	Control	.14	.264		
Pre -intervention, Cyberbullying aggression	Quasi-experimental	.07	.215	.324	.746
	Control	.08	.203		

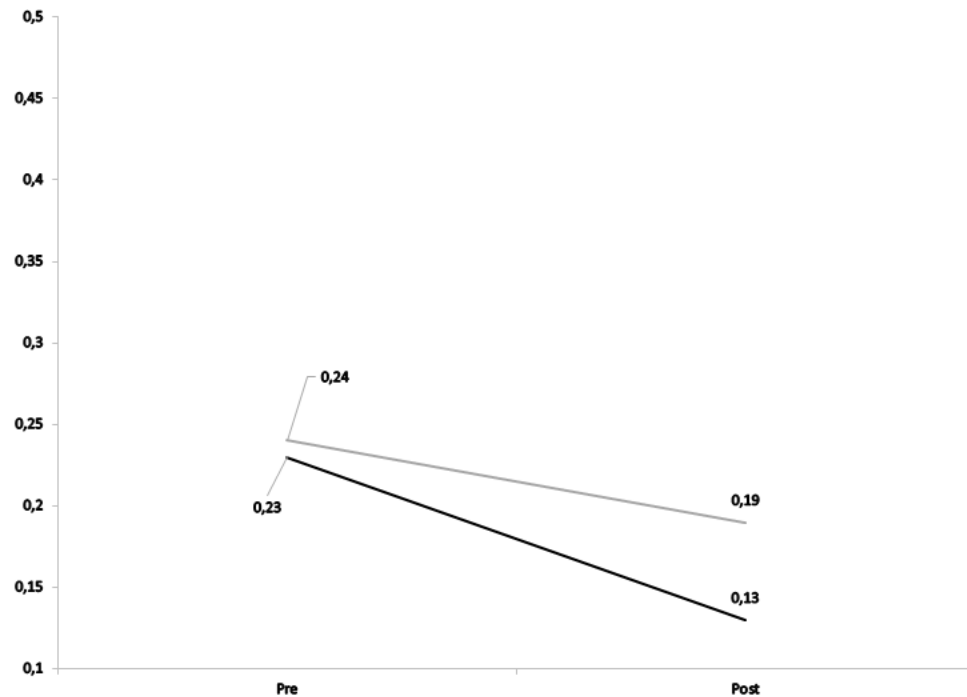
Bullying Victimization



— Quasi-Experimental

— Control

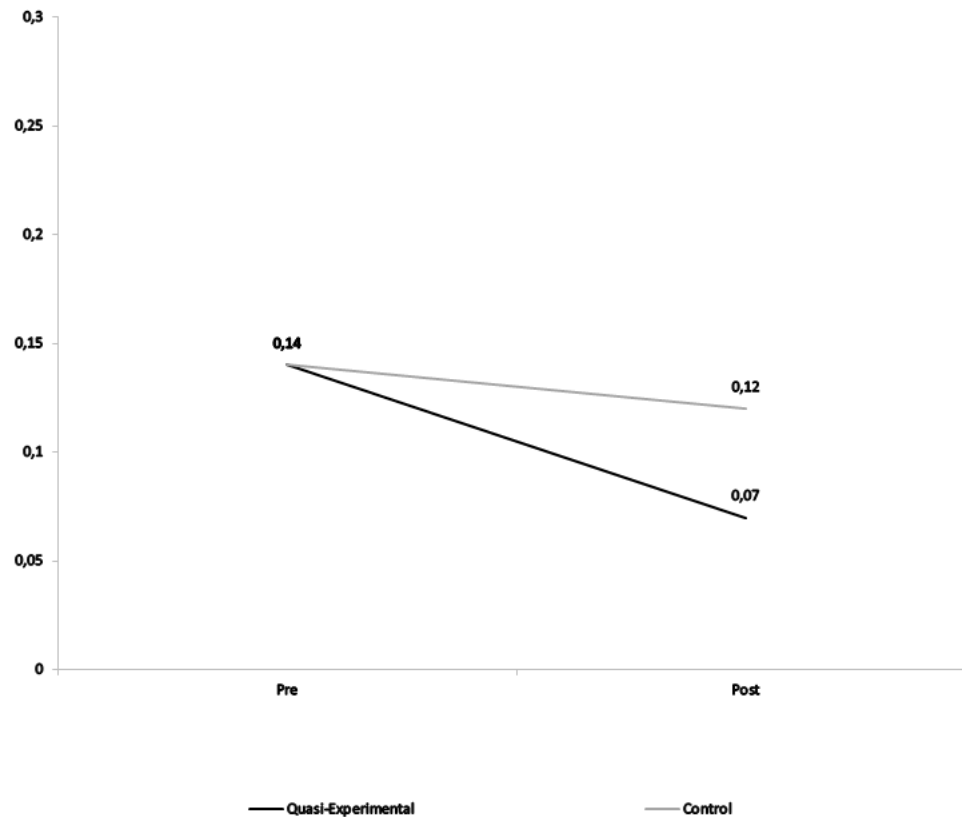
Bullying Aggression



— Quasi-Experimental

— Control

Ciberbullying Victimization



Ciberbullying Agresion

