

**Bullying and cyberbullying according to moderate vigorous physical activity
(MVPA) in Secondary School's Students**

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Introduction

Bullying and cyberbullying are two forms of peer harassment that generate interest and concern the educational community and society as a whole, both as a result of the increase in abused people and the effect it generates on these people (Romera et al., 2017). That is why it is important to know the factors that can explain its existence so that this knowledge guides the way to prevent it.

In the same way, different researches show the relationship between Physical Activity (PA) and bullying and cyberbullying (Bjereld et al., 2014; Driessens, 2015; Henriksen, Rayce, Melkevik, Due and Holstein, 2015; Merrill and Hanson 2016; Roman and Taylor, 2013;).

Thus, taking into account the benefits endorsed to the practice of PA at psychological and social level, this work focuses on exploring the possible relationship of bullying and cyberbullying within the MVPA in secondary school students, since The most vulnerable groups are girls and youngsters, the variables which influence the most on them are temperament, communication skills, self-esteem, previous experiences, resistance to frustration, affective bonds or social stereotypes. Which makes us wonder if PA can be a prominent option in the response to bullying in schools and cyber world.

Participants

The sample used was 54 students from two secondary schools in two Spanish provinces: Cádiz and Córdoba, of which 24 were boys and 30 girls, aged between 12 and 18 years ($M = 14.26$; $SD = 1.34$).

Instrument

We have registered the practice of physical activity for seven days through ActiGraph GT3X accelerometers, placed at the waist (above the iliac crest).

To evaluate cyberbullying, the European Cyberbullying Intervention Project Questionnaire (ECIP-Q; Ortega-Ruiz, Del Rey & Casas, 2016) was used, composed of two scales, cyber-aggression and cyber-victimization, of 11 items each, measures with a Likert scale from 0 to 4 concerning the frequency in the last two months. The internal reliability in this study was $\alpha = .69$ for the full scale.

To evaluate bullying, we used the *European Bullying Intervention Project Questionnaire* (EBIP-Q, Ortega-Ruiz, et al, 2016) composed of 2 scales of victimization

and aggression, of 7 items each, referring to physical abuse behaviors, verbal, psychological abuse and social exclusion, having the same structure as the ECIP-Q. The internal reliability in this study was $\alpha = .71$ for the full scale.

Procedure

The accelerometers were programmed and initialized in a synchronized way through the Actilife 6.0 program to be worn at the waist for seven days (60-second epoch). The cut points used were those established by Ekelund et al., (2004).

Regarding ECIP-Q and EBIP-Q, following the cut-off points established by the authors (Del Rey et al, 2015), those with scores equal or less than 2 were considered non-involved. Victims/cyber-victims to those with scores equal to or greater than 3 in any of the victimization/cybervictimization items. Scores equal to or less than 2 in all the items of aggression/cyber-aggression. Bullyies/cyber-bullyies who scored 3 or more on any of the aggression items and equal to or less than one on all of the victimization/cybervictimization. Bully-victim/cyberbully-cybervictim scores equal to or greater than 3 in any of the items of both scales, aggression/cyber-aggression and victimization/cybervictimization.

Results

The implication in bullying turned out to be 22.2% (victim: 16.7%, aggressor: 3.7% and victimized aggressor: 1.9%), no significant differences being found according to sex, nor in relation to the implication for bullying ($p = 0.574$).

Regarding the implication in cyberbullying, it turned out to be 5.6% (victimized aggressor), neither finding significant differences according to sex, nor regarding the implication for cyberbullying ($p = 0.690$).

After evaluating the level of PA, the average time invested in performing MVPA was 810.76 minutes per week ($SD = 247.32$), it is possible to say that the sample analyzed is physically active since it meets and even exceeds the PA practice recommendations established by the World Health Organization (2010).

In this way, after analyzing the possible relationship between MVPA within bullying and cyberbullying, we did not find significant correlations in any of them: victimization ($r = .134; p > .05$), aggression ($r = -.053; p > .05$), cybervictimization ($r = -.050; p > 0.05$) and cybergression ($r = -.155; p > .05$).

Discussion

The prevalence rate of bullying and cyberbullying turns out to be inferior to studies such as Romera et al. (2017), being considerably lower in the case of cyberbullying, while the results coincide with those found in another study by Corral-Pernía, Del Rey, Domínguez-Gálvez, and Chacón-Borrego (2017).

In this way, we have not found differences regarding to gender, while studies such as Kowalski, Limber and Agatston (2010) and Save the Children (2016) do refer to them. This fact may be due to the fact that these differences are getting smaller, as it is verified in the study by Corral-Pernía et al. (2017) and that the differences can be more linked to the type of aggression (physical, verbal or social).

Finally, indicate that after following the results obtained we cannot confirm that addressing PA practice recommendations can protect against the direct involvement of bullying and cyberbullying, as stated by other studies (Henriksen, Rayce, Melkevik, Due and Holstein, 2015; Merrill and Hanson, 2016) in which the victims of both situations of harassment are less physically active. This may be due to the limitations in the sample analyzed, since all the people investigated were physically active, which implies the need to carry out more studies in this regard.

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